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SUNDAY 26 MAY 2024
VIDEO I SESSION I
13:00 - 14:00

V-001

ROBOTIC END-TO-SIDE BRONCHOPLASTY, LEFT MAIN TO INTERMEDIUS, WITH EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO) ASSISTANCE IN A PATIENT WITH TUBERCULOSIS SEQUELAE

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OBJECTIVES
Demonstrate through video a robotic end-to-side bronchoplasty of the left main to the bronchus intermedius in a tuberculosis sequelae patient with ECMO assistance.

VIDEO DESCRIPTION
A 34-year-old woman with a history of pulmonary tuberculosis treated until July 2023, with progressive dyspnea. In August 2023, she underwent an unsuccessful attempt to dilate the left main bronchus. The first consultation was on 09/2023, presenting dyspnea and using a continuous O2 catheter 2L/min. Additional tests were requested to assess the viability of the left lung:
- Chest CT: Left main bronchus complete occlusion for 0.5 cm, following a normal bronchus filled with hypodense content, total extension of 2.9 cm. The bronchial caliber increases progressively, distal to this segment, measuring 0.8 mm at the level of the upper lobar bronchus. Total atelectasis of the left lung. Normal right bronchial tree.
On 11/20/2023, she underwent a left bronchotomy demonstrating a viable bronchial stump for anastomosis (2.3 cm). Given this finding, the patient was placed on circulatory assistance with ECMO, and robotic docking was performed on the right. The right and left main bronchus were exposed via the right hemithorax, with a bronchotomy right after the stenosed bronchial portion of the left main bronchus. Therefore, we performed end-to-side bronchoplasty of the left main to the bronchus intermedius.
Intraoperative flexible bronchoscopy confirmed a clear anastomosis.
The patient was removed from ECMO and extubated in the operating room. Post-op X-ray with complete lung expansion. After surgery, she no longer required supplemental oxygen and was discharged on the fifth post-operative day.

CONCLUSIONS
The robotic platform facilitates the performance of minimally invasive surgeries in difficult-to-access locations, just as the use of ECMO allows for easier airway handling.

Disclosure: No significant relationships.
Keywords: Robotic Bronchoplasty, Tuberculosis Sequelae.

V-002

SLEEVE BASAL SEGMENTECTOMY WITH TEMPORARY DIVISION OF PULMONARY ARTERY FOR LUNG CANCER

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OBJECTIVES

Sleeve segmentectomy poses technical challenges, requiring segmental bronchial reconstruction. The presence of the pulmonary artery branch to the preserved lung can complicate bronchial reconstruction. In this presentation, we introduce a technique involving temporary pulmonary artery division, enhancing the surgical field.

VIDEO DESCRIPTION

The patient, a 64-year-old female with double primary squamous cell carcinoma, presented with a 16 mm cystic tumor in the periphery of the right upper lobe and an 11 mm solid tumor in the central part of the right lower lobe. Bronchoscopically, the lower lobe tumor invaded the orifice of the right basal segmental bronchus, sparing the middle lobe bronchus and B6 segmental bronchus.

Through a posterolateral thoracotomy, we performed wedge resection of the upper lobe tumor at first. Then, the basal pulmonary artery was divided in the fissure, and the intersegmental plane was developed between S6 and S10 segments with ICG orientation. Subsequently, the basal segmental vein was divided. The middle lobe bronchus, B6 segmental bronchus, and truncus intermedius were then divided, leading to sleeve basal segmentectomy. To facilitate subsequent segmental bronchial reconstruction, the A6 segmental pulmonary artery was temporarily divided, providing an optimal operative view.

The middle lobe bronchus and B6 segmental bronchus were anastomosed to the truncus intermedius in a double-barrel fashion. The divided A6 was reconstructed, ensuring sufficient blood supply to the preserved segment 6. Both the middle lobe and segment 6 were well-expanded upon resuming ventilation. The postoperative course was uneventful, with satisfactory bronchial healing.

CONCLUSIONS

Temporary division of the pulmonary artery enhances the operative view and facilitates challenging bronchial reconstruction. This technique is valuable in achieving successful sleeve segmentectomy in lung cancer cases.

Disclosure: No significant relationships.
Keywords: Sleeve Basal Segmentectomy, Division Of Pulmonary Artery, Lung Cancer.

V-003

CHEST WALL RECONSTRUCTION WITH DYNAMIC THREE-DIMENSIONAL (3D) TITANIUM CUSTOM-MADE PROSTHESIS: LESSONS LEARNED AND CASE SERIES FROM A SINGLE INSTITUTION

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OBJECTIVES

Recent advances in three-dimensional (3D) technologies pave the way for innovations in the field of chest wall resection and reconstruction. The aim of this video is to describe our dynamic 3D titanium custom-made chest wall prosthesis implantation technique tips and to report our case series.

VIDEO DESCRIPTION

From October 2019 to November 2023, 11 dynamic titanium custom-made chest wall prosthesis were implanted (9 chest wall tumors and 2 pulmonary hernias). To illustrate the technique, a case-video of a 63 year-old male who underwent a pulmonary hernia repair is presented. After patient case and CT-scan evaluation and having decided that a prosthesis is required, in collaboration with the manufacturing company engineers, the area of resection and subsequently the prosthesis model is established. The reconstruction procedure starts by preparing the chest wall for the implant. When possible, soft tissue and muscles should be spared. The prosthesis is temporarily placed in the chest wall to select the anchor points location, where the fixing cable wire systems are set without tightening them. Next, the prosthesis is removed, and a mesh is fixed in the defect. Immediately after, the chest wall implant is repositioned for fixation, and the anchor wires are tightened. Finally, the titanium prosthesis is covered with muscle and soft tissue. Initial results showed a low rate (9%) of complications related to the implant. One patient developed a respiratory failure, 1 persistent air leak, 1 a seroma and 1 a flap failure. Neither dislocation or rupture of any implant nor prosthesis infection were registered. Median follow-up was 8.5 months.

CONCLUSIONS

Reconstruction of the chest wall with custom-made titanium prosthesis offered promising results, emphasizing a low morbidity rate and no implant failure rate. This video provides valuable insights of the implantation technique that will be helpful to other surgeons who are considering this kind of implant.

Disclosure: No significant relationships.
Keywords: Chest Wall Reconstruction, 3D Custom Made Prosthesis, Dynamic Prosthesis.

V-004

REAL-TIME PRESENTATION OF MICROANATOMY BY ARTIFICIAL INTELLIGENCE (AI) SURGICAL SUPPORT SYSTEM IN MEDIASTINAL LYMPHADENECTOMY

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OBJECTIVES
We have developed an AI surgical support system that analyzes the surgical field using AI to present intraoperatively the microanatomical structures, such as the thoracic nerves, dissection layers, and microvessels. Recognition models were created by deep learning using images precisely annotated by expert surgeons for each anatomical structure. More than 6,000 annotated images were used to create the recognition models. In thoracoscopic surgeries for lung cancer, the thoracoscopic system was connected to the AI system and the recognition results were displayed in real time. The aim of this video presentation is to show the accuracy of this system in actual thoracoscopic surgeries.

VIDEO DESCRIPTION
In the first video, the nerves were marked in yellow in left lower lobectomy with mediastinal lymph node dissection for lung cancer. The vagus nerve and its branches were delineated even before the opening of the pleura. The left recurrent laryngeal nerve was well recognized immediately after slight exposure and was well delineated to the periphery. The upper and lower pulmonary branches of the vagus nerve were also marked. There were three branches of the vagus nerve at the caudal side of the lower pulmonary vein that were preserved. The phrenic nerve was also highlighted. Sufficient peripheral exposure of the left recurrent nerve allowed for safe dissection of the station #4L lymph nodes. The bronchial wall and clips were occasionally misidentified as nerves.
The second video shows the simultaneous presentation of two anatomical structures in left upper lobectomy. The nerves were highlighted in yellow and the dissection layers were marked in light blue. The dissection layers are avascular spaces consisting of loose connective tissue fibers that appears when expanded by optimal countertraction.

CONCLUSIONS
The AI surgical support system was accurate in recognizing anatomical structures. It presented the recognition results intraoperatively without time lag or degradation of image quality.

Disclosure: Nao Kobayashi, Kyohei Fukata and Kenji Kanno are employees of Anaut Inc.
Keywords: Artificial Intelligence, Surgery, Nerve, Microanatomy, Lung Cancer.

V-005

EFFECTIVE COMPLICATION MANAGEMENT: INADVERTENT STAPLING OF ENDOBRONCHIAL CATHETER DURING A LEFT VIDEO-ASSISTED UNIPORTAL LOWER LOBECTOMY

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OBJECTIVES
During minimally invasive thoracic surgery, a surgeon must be prepared to identify and treat surgical complications. We present a successful case of the left uniportal VATS lower lobectomy to treat a cT1N0M0 NSCLC with prompt amelioration of an intraoperative surgical complication.

VIDEO DESCRIPTION
A 66-year-old female diagnosed with a 2.6cm NSCLC in the LLL and no lymphadenopathy. For the surgical procedure, she was positioned in the right lateral decubitus position, and a 4cm incision was made at the 6th intercostal space. A 10mm 30° thoracoscope and all instruments were introduced into the chest. Dissection of the fissure was performed, exposing the pulmonary artery and its branches. Next, the inferior pulmonary artery was dissected, and with the vascular load, the inferior pulmonary artery was stapled and transected. The bronchus was exposed by blunt dissection, and with a purple load, the LLL bronchus was stapled and transected. The LLL bronchial stump was irregular, and a suction catheter was identified inside the airway that was stapled with the bronchial stump. The lobectomy was completed with dissection and subsequent transection of the inferior pulmonary vein with a vascular stapler. Using a nerve hook, we removed the staples from around the catheter. Once freed, the catheter was removed from the patient's airway. The bronchial stump was then repaired using individual stitches of 3-0 polyglactin sutures. There were no signs of an air leak. The chest tube was removed, and the patient was discharged on postoperative day two. Final pathology revealed a 2.4cm adenocarcinoma, with the pathologic stage of pT1cN0M0.

CONCLUSIONS
Surgical complications can occur in any surgery, and some cases do not need to be converted to thoracotomy. Fortunately, this complication could be managed by a uniportal approach. Prompt problem-solving skills should be employed to minimize harm, and the goal of complete resection should not be abandoned.

Disclosure: No significant relationships.
Keywords: Lobectomy, NSCLC, Complication Management.

V-006

UNIPORTAL AND ROBOT ASSISTED SUBXIPHOID THYMECTOMY WITH ANGIOPLASTY

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OBJECTIVES

Tumors of the anterior mediastinum easily invade the innominate vein, and superior vena cava due to their anatomical positional relationship, and in many instances concurrent resection must be performed. With the subxiphoid approach, the camera is inserted from the midline of the body, which therefore enables observation of both the proximal side and distal side of the tumor in the innominate vein, and enables taping and clamping.
We report thymectomy by subxiphoid approach with concurrent resection of the innominate vein, or SVC.

VIDEO DESCRIPTION

If only part of the tumor is in contact with the innominate vein, partial resection or cutting of the innominate vein can be performed by roticulating the stapler even with a subxiphoid uniportal approach.
Blood vessels can also be easily closed with sutures using a robotic system. We present the video regarding thymectomy by subxiphoid approach with concurrent resection of the innominate vein, or SVC.

CONCLUSIONS

With new techniques, it is important that it can be reproduced by anyone, and the use of a robot system is a technique that enables end-to-end anastomosis to be performed by anyone for blood vessels that are difficult in endoscopic surgery performed by human hands. In surgery for anterior mediastinal tumors, if the subxiphoid approach with its excellence in securing the visual field is selected, then even for patients with advanced tumors and invasion into the innominate vein, surgery can be performed endoscopically and safely.

Disclosure: No significant relationships.
Keywords: Robotic, Thymectomy, Subxiphoid.

MONDAY 27 MAY 2024
INNOVATIVE/EXPERIMENTAL SESSION II
08:00 - 09:00

O-007

EFFECT OF VIRTUAL REALITY INTERVENTION ON HOSPITALIZED PATIENTS WITH ACUTE PAIN AFTER THORACOSCOPIC SURGERY: A RANDOMIZED CONTROLLED TRIAL

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OBJECTIVES
To determine the analgesic effects of immersive VR on patients after video-assisted thoracoscopic surgery (VATS).

METHODS
Patients with a numerical rating scale (NRS) score ≥ four for postoperative pain were randomly assigned in a 1:1:1 ratio to QTC-VR, Placebo-VR, and control groups. Postoperative standard analgesia comprised an analgesia pump and flurbiprofen injections. All patients received standard analgesics. Patients in the Placebo-VR group watched a 10-minute relaxation-based 2D film through VR headsets, while patients in the QTC-VR group engaged in 10-minute interactive pain relief 3D VR programs wearing VR headsets.

RESULTS
Of the 61 postsurgical patients allocated to all three groups, the data from 45 were employed in the final statistical analyses. There were no significant differences among the three groups in terms of age, sex, smoking status, education level, thoracoscopic surgical modalities, or baseline pain intensity. Patients who received QTC-VR interventions experienced considerable pain alleviation on the first ($P < 0.001$, 95% CI, 0.687 to 1.246), second ($P < 0.001$, 95% CI, 0.158 to 0.642), and third ($P < 0.001$, 95% CI, 0.108 to 0.559) postoperative days. The effect of pain interference on relations with others for patients receiving QTC-VR improved on postoperative days 2 ($P = 0.007$, 95% CI, -2.477 to 0.323) and 3 ($P < 0.001$, 95% CI, -2.420 to 0.780) compared with patients in the placebo-VR group, while the effect of pain on emotion ($P = 0.018$, 95% CI, -1.810 to 0.210), sleep ($P = 0.004$, 95% CI, -2.422 to 0.378), enjoyment of life ($P = 0.005$, 95% CI, -2.207 to 0.326), walking ability ($P = 0.022$, 95% CI, -1.882 to -0.118), and general activity ($P = 0.007$, 95% CI, -1.997 to 0.270) improved only on day 3 following surgery.

CONCLUSIONS
This randomized controlled trial (RCT) demonstrates the efficacy and feasibility of immersive QTC-VR interventions in pain management after VATS.

Disclosure: No significant relationships.
Keywords: Virtual Reality, Thoracoscopic Surgery, Acute Postoperative Pain, Randomized Controlled Trial.

O-008

LOCO-REGIONAL ROPIVACAINE ANALGESIA VIA A SURGICALLY PLACED INTERCOSTAL CATHETER AFTER ANATOMIC LUNG RESECTION: PROSPECTIVE, PLACEBO-CONTROLLED, DOUBLE-BLIND; RANDOMIZED SUPERIORITY TRIAL

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OBJECTIVES
Even after minimally invasive anatomic lung resection, pain remains a burden for patients. Current guidelines recommend the surgical placement of intercostal catheters at the end of the surgery to promote faster recovery after lung surgery. The aim of this trial was to investigate the analgesic efficacy of continuous loco-regional application of ropivacaine via an intercostal catheter and to establish this method as a possible standard of care in postoperative analgesia management.

METHODS
Between December 2021 and October 2023, we evaluated the efficacy of surgically inserted intercostal catheters. Patients were eligible when undergoing anatomic VATS lung resection under general anesthesia for confirmed or suspected stage I lung cancer (UICC, 8th edition). Patients received ropivacaine at a concentration of 2 mg/ml or a placebo through an elastomer pump, flow rate of 6-8 ml/h for 72 hours after surgery. The sample size was calculated to find an NRS (numerical rating scale) difference associated with a pain reduction of 1.5 points.

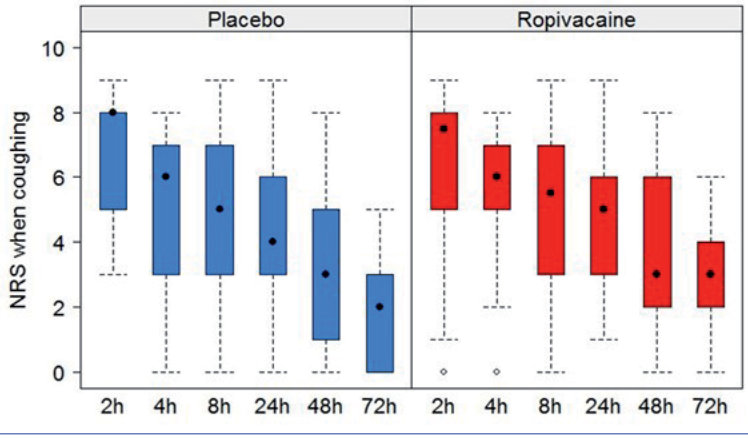
RESULTS
14 patients were randomly included in the ropivacaine group and 18 in the placebo group. The patients' characteristics and preoperative pain scores were similar in both groups.
Between the observed groups there was no statistically significant difference in postoperative pain scores and morphine consumption. The NRS score for cough 24 hours postoperatively was 4.9 (±2.2) in the ropivacaine group and 4.3 (±2.4); p=0.474 in the placebo group. In addition, we were unable to determine any influence of the pain management on the relative postoperative pulmonary function (FEV1, PEF and FVC).

CONCLUSIONS
Our results suggest that the analgesic efficacy of continuous loco-regionally applied ropivacaine administered through a surgically placed intercostal catheter after surgery does not have a positive effect on postoperative pain scores or morphine requirements. Instead, local analgesia

started at the beginning of the procedure and covering several intercostal spaces should be considered.

Disclosure: No significant relationships.
Keywords: Intercostal Catheter, Minimally Invasive, Anatomic Lung Resection.

Graph 1: Postoperative pain scores when coughing after minimally invasive anatomical lung resections without or with locoregional analgesia through intercostal catheter.



O-009

SINGLE-PORT ROBOTIC LOBECTOMY USING THE SINGLE-PORT ROBOTIC SYSTEM VERSUS MULTI-PORT ROBOTIC LOBECTOMY USING THE CONVENTIONAL ROBOTIC SYSTEM: A PROPENSITY-MATCHED STUDY

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OBJECTIVES
In our previous study, we presented the initial experience of single-port (SP) robotic anatomical pulmonary resection using the da Vinci single-port robotic surgical system (SP® system). However, the efficacy of this approach was not established. The objective of this study is to compare the perioperative outcomes of SP subcostal robotic lobectomy using the SP® system with multi-port robotic lobectomy using the Xi robotic surgical system.

METHODS
Data of patients with non-small cell lung cancer who underwent robotic lobectomy by a single surgeon at a single institution were retrospectively reviewed from January 2017 to December 2023. Patient characteristics, intraoperative outcomes and perioperative outcomes were collected. Patients were matched in a 1:1 ratio using propensity score based on age, sex, tumor location, tumor size, and combined other surgery.

RESULTS
A total of 298 patients were enrolled in this study, including 58 who underwent SP robotic lobectomy and 240 who underwent multi-port robotic lobectomy. Following 1:1 propensity score matching, each group included 58 patents. There were no significant differences in total operative time (188.62 ± 47.88 min vs 202.08 ± 66.44 min, P=.213), total number of harvested (20.02 ± 7.63 vs 19.74 ± 8.95, P=.859), and the length of postoperative hospital stays (5.02 ± 2.51 days vs. 5.23 ± 2.29 days, P=.640). SP robotic lobectomy was associated with a lower pain score on POD (postoperative day) 0 (2.59 ± 1.42 vs 3.42 ± 1.12, P=.015) and POD 3 (2.31 ± 1. 01 vs. 2.89 ± 1.12, p=.004).

CONCLUSIONS
Our findings demonstrate the feasibility and efficacy of SP subcostal robotic lobectomy using the SP® system, which is comparable to multi-port robotic lobectomy using the Xi system, with a lower pain score on POD 0 and 3. A future randomized controlled trial is necessary to confirm its potential benefits of this approach.

Disclosure: No significant relationships.
Keywords: Robotics, Robotic Lobectomy, Single-Port.

1. Patient characteristics and perioperative outcomes

	Unmatched patients			PS-matched patients		
	SP (n=58)	MP (n=240)	P-value	SP (n=58)	MP (n=58)	P-value
Age	62.69 ± 8.94	63.04 ± 9.32	0.795	62.69 ± 8.94	63.59 ± 8.83	0.588
Sex (male)	29 (50%)	126 (52%)	0.732	29 (50%)	29 (50%)	0.853
BMI (kg/m2)	24.39 ± 2.94	24.41 ± 8.67	0.986	24.39 ± 2.97	23.81 ± 3.20	0.307
ASA score	2.36 ± 0.48	2.39±0.56	0.712	2.36 ± 0.48	2.33 ± 0.47	0.699
Preoperative FEV1	2.49 ± 0.51	2.52±0.85	0.697	2.49 ± 0.51	2.49 ± 0.60	0.993
Tumor size (cm)	2.43 ± 0.99	2.75 ± 1.38	0.048	2.44 ± 0.99	2.48 ± 1.14	0.849
Tumor location						
RUL	22 (38%)	67 (28%)	0.135	22 (38%)	24 (41%)	0.704
RML	6 (10%)	21 (9%)	0.724	6 (10%)	7 (12%)	1.000
RLL	14 (24%)	51 (21%)	0.633	14 (24%)	13 (22%)	0.826
LUL	8 (14%)	70 (29%)	0.017	8 (14%)	9 (15%)	1.000
LLL	8 (14%)	31 (13%)	0.859	8 (14%)	6 (10%)	0.569
Operative time (min)	188.62 ± 47.88	211.32 ± 4.61	0.013	188.62 ± 47.88	202.08 ± 66.44	0.213
Total number of lymph nodes harvested	20.02 ± 7.63	17.60 ± 8.36	0.045	20.02 ± 7.63	19.74 ± 8.95	0.859
Conversion event						
to multi-port	3 (5%)	5 (2%)	0.189	3 (5%)	2 (3%)	1.000
to VATS	0	7 (3%)	0.353	0	2 (3%)	0.496
to open	0	4 (2%)	1.000	0	0	1.000
Combined surgery	3 (5%)	33 (13%)	0.072	3 (5%)	3 (5%)	1.0000
Chest tube durations (days)	2.90 ± 1.78	3.59 ± 2.71	0.065	2.90 ± 1.78	3.26 ± 1.81	0.277
Postoperative hospital stays (days)	5.02 ± 2.51	6.56 ± 6.99	0.100	5.02 ± 2.51	5.23 ± 2.29	0.640
Postoperative complications (Clavien–Dindo classification)						
none	47 (81%)	173 (72%)	0.164	47 (81%)	44 (76%)	0.498
I	5 (9%)	28 (11%)		5 (9%)	6 (10%)	
II	4 (7%)	17 (7%)		4 (7%)	1 (2%)	
IIIa	2 (3%)	18 (7%)		2 (3%)	5 (9%)	
IIIb	0	1 (1%)		0	0	
V	0	3 (1%)		0	1 (2%)	
Pain on POD 0 (VAS)	2.59 ± 1.42	3.19 ± 1.93	0.009	2.59 ± 1.42	3.42 ± 1.12	0.015
Pain on POD 1(VAS)	2.95 ± 1.49	3.18 ± 1.53	0.308	2.95 ± 1.49	3.25 ± 1.36	0.268
Pain on POD 2 (VAS)	2.76 ±1.40	0.90 ± 1.36	0.487	2.76 ± 1.40	2.91 ± 1.07	0.511
Pain on POD 3 (VAS)	2.31 ± 1.01	2.62 ± 1.15	0.065	2.31 ± 1.01	2.89 ± 1.12	0.004
Peak pain (VAS)	3.86 ± 1.48	4.26 ±1.72	0.065	3.86 ± 1.48	4.25 ± 1.86	0.224

BMI, body mass index; ASA, American Society of Anesthesiology; FEV1, forced expiratory volume in one second; POD, postoperative day; VAS, visual analog scale.

O-010

RADIOMIC FEATURES CAN PREDICT DISEASE-FREE SURVIVAL AFTER LOBECTOMY IN STAGE IA NON-SMALL-CELL LUNG CANCER

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OBJECTIVES
To verify possible relationships between radiomic features of stage IA non-small-cell lung cancer at pre-operative imaging and the risk of recurrence after intentionally curative pulmonary resection.

METHODS
This is a single-institution retrospective analysis of patients with pathological stage IA non-small-cell lung cancer undergoing lobectomy with lymphadenectomy from January 2016 to December 2021. All patients had pre-operative PET-CT scans and radiomic features of nodules were extrapolated through LIFEx® software. Patient follow-up data were collected from outpatient clinical records or phone calls. Radiomic features were divided into seven groups: morphological features, intensity, intensity histogram, grey-level co-occurrence matrix, grey-level run length matrix, neighborhood grey-tone difference matrix and grey-level size zone matrix. We reduced the number of radiomic variables by removing the most redundant ones using the principal component analysis. Both clinical and radiomic factors were evaluated as possible prognostic indicators of recurrence at univariate Cox regression. Only those factors significantly affecting survival at univariate analysis and not reciprocally related underwent multivariate analysis.

RESULTS
Among 102 patients with pathological stage IA selected for the study, 34 patients recurred during follow-up period. Disease free survival rate was of 84.2% at 2 years and 71.3% at 3 years. Out of a total of 106 radiomic variables initially obtained from LIFEx® software, only 58 were selected after principal component analysis as the most influential. A second round of principal component analysis did not allow to filter further the radiomic variables. Multivariate Cox regression analysis for disease-free survival revealed a significant correlation with morph_surfvolratio parameter (morphological features group) (HR= 8.3, 95% CI 1.3-22.5,

p=0.027) and glcm_jointMax parameter (grey-level-co-occurrence matrix group) (HR= 0.3, 95% CI 0.1-0.7, p=0.040).

CONCLUSIONS

Radiomics, and namely morph_surfvolratio and glcm_jointMax, proved to be an additional tool for the evaluation of disease-free survival in patients with stage IA non-small-cell lung cancer after lobectomy.

Disclosure: No significant relationships.

Keywords: Lung Cancer, NSCLC, Radiomics, Disease-Free Survival, Thoracic Surgery.

O-011

ULTRASOUND-BASED RADIOMICS MACHINE LEARNING MODELS FOR DIAGNOSING CERVICAL LYMPH NODE METASTASIS IN PATIENTS WITH NON-SMALL CELL LUNG CANCER: A MULTICENTRE STUDY

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[2]*Department of Oncology, Affiliated Hospital of North Sichuan Medical College, Nanchong, China*
[3]*Department of Ultrasound, Nanchong Central Hospital, Nanchong, China*
[4]*Department of Thoracic Surgery, Suining Central Hospital, Suining, China*

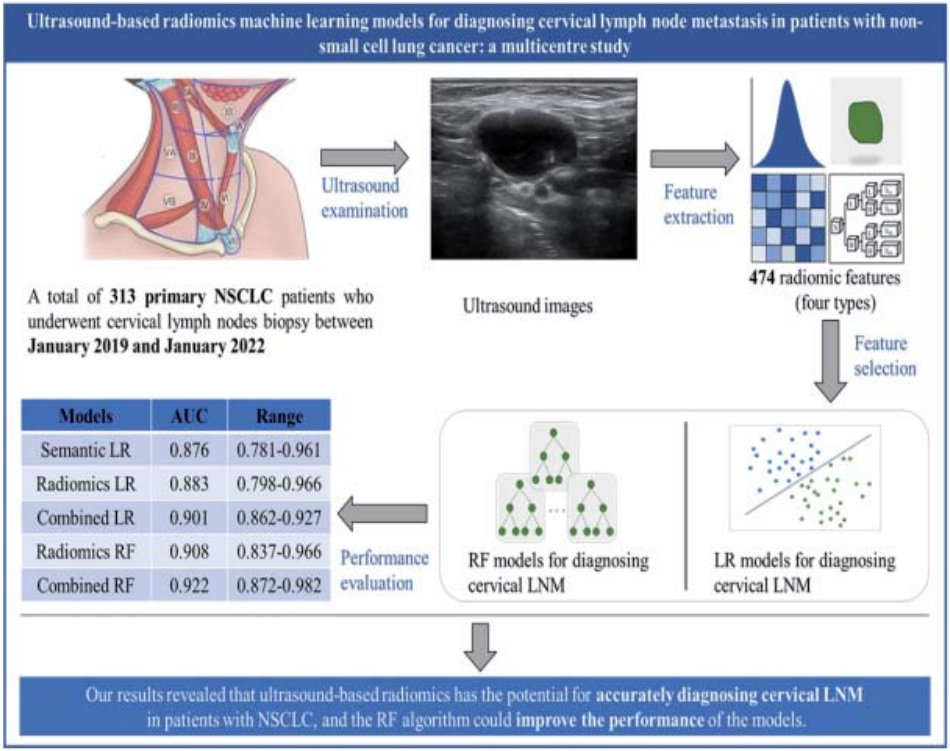
OBJECTIVES
To develop and validate machine learning models using ultrasound radiomic and descriptive semantic features to diagnose cervical lymph node metastasis (LNM) in patients with non-small cell lung cancer (NSCLC).

METHODS
Patients who underwent neck ultrasound examination followed by cervical lymph node biopsy from three institutes between January 2019 and January 2022 were enrolled. For the radiomic feature selection, the interclass correlation coefficient and the non-parametric Mann-Whitney U test performed the initial feature screening. The least absolute shrinkage and selection operator was used to select the modeling features of the logistic regression (LR) model. Feature selection of the random forests (RF) model was determined using the mean decrease accuracy, a measure for ranking feature importance in the RF algorithm. The LR and RF models were developed with these features selected. The performance of models was assessed by the area under the curve (AUC) and validated internally by the 5-fold cross-validation.

RESULTS
In total, 313 patients (median age, 64 years) were included, and 276 (88.18%) encountered cervical LNM. Three descriptive semantic features were selected by multivariate analysis. Out of the 474 radiomic features, nine were determined to fit the LR model, while 15 were for the RF model. The mean AUCs of the semantic and radiomics models were 0.876 and 0.883, respectively. The mean AUC was higher for the semantic-radiomics combined LR model (0.901). When the RF algorithm was applied, the mean AUCs of the radiomics and semantic-radiomics combined models were improved to 0.908 and 0.922, respectively.

CONCLUSIONS
The ultrasound radiomic models showed potential for accurately diagnosing cervical LNM in patients with NSCLC when integrated with descriptive semantic features. The RF model outperformed the conventional LR model in diagnosing cervical LNM.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Ultrasound, Radiomics, Lymph Node Metastasis, Machine Learning.



O-012

PRACTICE VARIATION IN PERIOPERATIVE CARE FOR PATIENTS UNDERGOING ANATOMICAL LUNG RESECTION FOR NON-SMALL CELL LUNG CANCER – A DUTCH EXPERIENCE

Diederik Willem Van Oyen[1,2], Pauline C Mens[1,2], R. Van Den Berg[1], Geertruid M H Marres[1], Erik M Von Meyenfeldt[1,2]
[1]*Albert Schweitzer Hospital, Dordrecht, The Netherlands*
[2]*Amsterdam UMC, Amsterdam, The Netherlands*

OBJECTIVES
This study maps practice variation in perioperative care for lung resections and variation in clinical outcomes in 2018, the year before the publication of the first international Enhanced Recovery After Surgery (ERAS) Society/European Society of Thoracic Surgeons (ESTS)-guideline and in the absence of a national guideline. The study examines practice variation regarding elements from the ERAS/ESTS-guideline in Dutch surgical centres, and this functions as baseline data for the Enhanced Recovery after Thoracic Surgery (ERATS) trial; a Dutch implementation study of the ERATS protocol in line with the ERAS/ESTS-guideline.

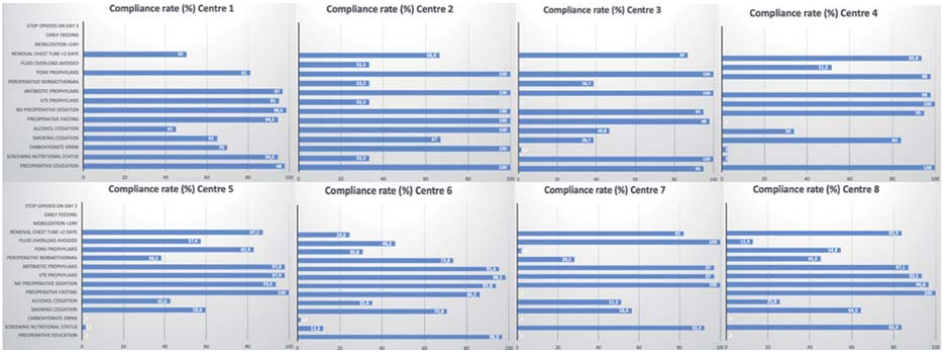
METHODS
Data from the Dutch Lung Cancer Audit-surgery (DLCAs)-data was retrospectively supplemented with perioperative care data (looking at care elements derived from the ERAS/ESTS-guideline) from 8 Dutch centres. Descriptive statistics were used to determine practice variation and outcomes Length of Stay (LOS) and 90-day mortality for each centre. The percentage of patients already treated according to each of the ERAS/ESTS-guidelines perioperative care elements (protocol adherence) was determined. Missing values were interpreted as non-adherence.

RESULTS
385 patients were included in this analysis. As expected, some ERAS/ESTS-guideline recommendations were already implemented, varying between centres (Figure 1). Recommendations for 'carbohydrate drink' and 'perioperative normothermia' had the lowest adherence rates (22% and 32.2%), while 'no preoperative sedation' and 'antibiotic prophylaxis' had the highest (96.6% and 96.5%). The most variation was observed for 'carbohydrate drink' (1.5% to 100%). LOS ranged from 3 to 8 days; 90-day mortality varied from 0% to 7.7% (Figure 1).

CONCLUSIONS
This study demonstrates practice variation in perioperative care elements from the ERAS/ESTS-guideline among Dutch hospitals in 2018. Whether there is a relationship between practice variation and outcome variation, as well as the impact of implementation of the ERATS protocol on practice variation and on outcome is currently being studied in the ERATS-trial. Results are expected in early 2024.

Disclosure: No significant relationships.
Keywords: Perioperative Lung Cancer Care, Lung Cancer, Practice Variation, Lung Resection, Intensive Care Unit.

PROTOCOL ADHERENCE (%)	MEDIAN	CENTRE 1	CENTRE 2	CENTRE 3	CENTRE 4	CENTRE 5	CENTRE 6	CENTRE 7	CENTRE 8
PREOPERATIVE EDUCATION	96	98	100	95	100	0	96,9	0	0
SCREENING NUTRITIONAL STATUS	58,6	94,5	33,3	100	3	2,1	12,3	92,3	83,9
CARBOHYDRATE DRINK	1,6	70	100	1,6	3	0	1,5	0	0
SMOKING CESSATION	64,8	65	67	38,7	84	59,6	70,8	56,4	64,5
ALCOHOL CESSATION	43,8	45	100	46,8	34	42,6	35,4	51,3	25,8
PREOPERATIVE FASTING	96,3	94,5	100	98	0	100	86,2	0	100
NO PREOPERATIVE SEDATION	95,9	98,6	100	95	95	93,6	93,8	100	96,8
VTE PROPHYLAXIS	96	95	33,3	0	100	97,9	98,5	97	93,5
ANTIBIOTIC PROPHYLAXIS	97,5	97	100	100	98	97,9	95,4	97	87,1
PEROPERATIVE NORMOTHERMIA	35,8	0	33,3	38,7	0	38,3	73,8	28,2	45,2
PONV PROPHYLAXIS	82	81	100	100	98	82,9	30,8	2,6	54,8
FLUID OVERLOAD AVOIDED	39,8	0	33,3	0	51,5	57,4	46,2	100	12,9
REMOVAL CHEST TUBE <2 DAYS	83	50	66,6	87	93,8	87,2	24,6	82	83,9
EARLY FEEDING	64,7	56	33,3	14,5	23,4	91,5	75	73,3	93,5
STOP OPIOIDS ON DAY 3	41,9	19,8	33,3	94	35,7	40,4	43,3	65,9	52,7
MEDIAN LOS (DAYS)		**4 [4-7]**	**8 [6-11]**	**3 [3-8]**	**5 [4-8]**	**7 [4-9]**	**7 [6-9]**	**7 [4-11]**	**7 [5-8]**
90D MORTALITY (%)		**4,5**	**0%**	**1,7%**	**2,3%**	**0%**	**1,6%**	**7,7%**	**4,5%**


Compliance rate (%) Centre 1
Compliance rate (%) Centre 2
Compliance rate (%) Centre 3
Compliance rate (%) Centre 4
Compliance rate (%) Centre 5
Compliance rate (%) Centre 6
Compliance rate (%) Centre 7
Compliance rate (%) Centre 8

MONDAY 27 MAY 2024
MISCELLANEOUS SESSION III
08:00 - 09:00

O-013

READMISSION TO HOSPITAL AFTER THORACIC TRAUMA: BETTER SAFE THAN SORRY! THE PREDICTIVE READ-SCORE

Debora Brascia[1], Doroty Sampietro[1], Francesco De Blasi[1], Mariangela Valentini[1], Graziana Carleo[1], Mirko Girolamo Cantatore[1], Maria Luisa Zhurda[1], Loredana D'Aucelli[1], Naomi Savarelli[1], Gowthaman Kularajan[1], Giuseppe Marulli[2], Angela De Palma[1]
[1]*Unit of Thoracic Surgery, Department of Precision and Regenerative Medicine and Ionian Area, University of Bari, Bari, Italy*
[2]*Department of Biomedical Sciences, Humanitas University, Milan, Italy*

OBJECTIVES
Thoracic trauma is considered a major public health problem, representing 20-25% of all trauma worldwide. Readmission rates for thoracic trauma have not been investigated so far; thus the purpose of this study is to reduce patient morbidity associated with thoracic trauma by defining readmission rates and identifying predictors of readmission.

METHODS
Patients admitted between 2019 and 2023 for trauma with major thoracic involvement were included and followed up for 2 months. Univariate analysis was performed to identify factors associated with readmission. Variables with a p-value <0.1 according to a univariate analysis were included in the logistic regression model, and their odds ratios were used to develop the weighted predictive scoring model.

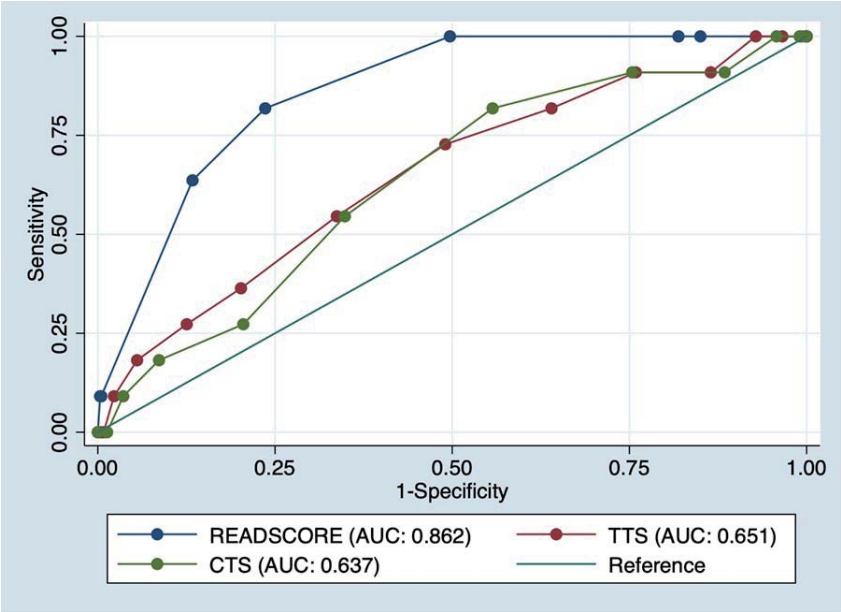
RESULTS
We included 634 patients; mean age was 62.0±19.2 years; mean in-hospital stay was 6.5±3.9 days; surgical procedures were needed in 3.8%, while 29.3% of patients needed a chest tube placement. Overall mortality was 2.4%. Twelve (1.9%) patients were readmitted to the hospital at the latest follow-up. The logistic regression model showed preoperative age>60 (2 points), low falls (1 point), pneumothorax (2 points) and pulmonary embolism (2 points) as independent predictors of readmission. The predictive ability of the model (the READSCORE) was tested using receiver operation curve analysis, where the area under the curve (AUC) was 0.862. Discriminatory capacity for prediction of readmission was compared with that of the Thoracic Trauma Severity (TTS) and Chest trauma (CTS) scores (0.651 and 0.637, respectively; p= 0.0004; Figure 1).

CONCLUSIONS

The developed prediction model can be used to predict readmission risk for thoracic trauma patients and identify those who may benefit from shorter follow-ups and improved medical treatment.

Disclosure: No significant relationships.

Keywords: Thoracic Trauma, Readmission, Prediction Score.



O-014

THE INCIDENCE AND RISK FACTORS OF CHRONIC POST-SURGERY PAIN AFTER VIDEO-ASSISTED THORACIC SURGERY

Chen Chen, Yisheng Luo, Shiwei Yang, Youhui Qian, Hao Wu
Shenzhen Second People's Hospital, Shenzhen, China

OBJECTIVES
Despite the widespread development of minimally invasive surgical techniques, chronic post-surgical pain (CPSP) is an issue that deserves attention. This prospective study aimed to examine the incidence and risk factors of CPSP following lung resection by video-assisted thoracic surgery (VATS).

METHODS
We collected demographic characteristics and surgical data, then conducted telephone follow-ups three months after surgery to assess CPSP using the Numerical Rating Scale (NRS). Based on the scores, patients were divided into CPSP group and non-CPSP group. To balance disparities between the two groups, we employed propensity score matching (PSM). Univariate and multivariate analyses were employed to identify factors influencing CPSP.

RESULTS
Out of 464 patients, 167 (36.0%) had postoperative chronic pain. Of these, 143 (85.6%) reported mild pain, and 24 (14.4%) reported moderate pain, predominantly in the surgical incision (62.8%), chest (41.3%), and back (8.4%). After1:1 PSM (age, preoperative pain, preoperative anxiety, preoperative depression, and preoperative pain catastrophization), there were 142 patients in both the CPSP and non-CPSP groups. Univariate analysis indicated that 24 and 48 hours post-surgery pain, and lymph node dissection ($P < 0.001$, 0.003, and 0.045, respectively) were associated with CPSP. Multivariate analysis identified pain severity at 24 hours post-surgery (OR, 2.792; 95% CI, 1.623-4.802) and intraoperative lymph node dissection (OR, 1.956; 95% CI, 1.119-3.419) as independent predictors of chronic post-surgery pain.

CONCLUSIONS
Our results indicated that CPSP was common after lung resection by VATS. The early postoperative acute pain and whether lymph node dissection is performed are associated with CPSP.

Disclosure: No significant relationships.
Keywords: VATS (Video-Assisted Thoracic Surgery), Postoperative Pain , Chronic Post-Surgery Pain.

	Univariate analysis			*Multivariate analysis*		
	Non-CPSP(n=142)	*CPSP(n=142)*	*P-value*	*OR*	*95%CI*	*P-value*
Hospital time (Week)			0.646			
<1	104(73.2%)	99(69.7%)				
1-2	33(23.2%)	35(24.6%)				
≥2	5(3.5%)	8(5.6%)				
Operation time (Hour)			0.325			
<1	55(38.7%)	43(30.3%)				
1-2	56(39.4%)	64(45.1%)				
≥2	31(21.8%)	35(24.6%)				
Intraoperative blood loss (ml)			0.559			
<50	135(95.1%)	136(95.8%)				
50-100	4(2.8%)	5(3.5%)				
>100	3(2.1%)	1(0.7%)				
Operative laterality			0.904			
Left	60(42.3%)	61(43.0%)				
Right	82(57.7%)	81(57.0%)				
Operation			0.615			
Wedge resection	101(71.1%)	95(66.9%)				
Segmentectomy	9(6.3%)	13(9.2%)				
Lobectomy	32(22.5%)	34(23.9%)				
Incision number			0.157			
1	49(34.5%)	38(26.8%)				
2	93(65.5%)	104(73.2%)				
Lymphonectomy			0.045	1.956	1.119-3.419	0.018
No	111(78.2%)	96(67.6%)				
Yes	31(21.8%)	46(32.4%)				
Drainage tube			0.543			
8.5F	70(49.3%)	63(44.4%)				
12F	2(1.4%)	4(2.8%)				
16F	70(49.3%)	75(52.8%)				
Drainage fluid (ml)			0.224			
<500	126(88.7%)	129(90.8%)				
500-1000	11(7.7%)	12(8.5%)				
>1000	5(3.5%)	1(0.7%)				
Drainage tube removal time (Week)			0.615			
<1	141(99.3%)	139(97.9%)				
1-2	1(0.7%)	3(2.1%)				
Pathology			0.236			
Adenocarcinoma	124(87.3%)	124(87.3%)				

	Univariate analysis			*Multivariate analysis*		
	Non-CPSP(n=142)	*CPSP(n=142)*	*P-value*	*OR*	*95%CI*	*P-value*
Squamous carcinoma	2(1.4%)	0(0.0%)				
Benign	16(11.3%)	18(12.7%)				
Stage			0.879			
I	119(93.7%)	115(93.5%)				
II	4(3.1%)	3(2.4%)				
III	4(3.1%)	5(4.1%)				
24h pain after operation	1.027	0.277	<0.001	2.792	1.623-4.802	<0.001
Mild pain	110(77.5%)	75(52.8%)				
Moderate pain	32(22.5%)	67(47.2%)				
48h pain after operation			0.003	1.867	0.959-3.637	0.066
Mild pain	124(87.3%)	104(73.2%)				
Moderate pain	18(12.7%)	38(26.8%)				

O-015

BUTTRESSING THE BRONCHIAL ANASTOMOSIS DOES NOT CONFER SHORT AND LONG-TERM ADVANTAGE FOR PATIENTS UNDERGOING SLEEVE LOBECTOMY

Tao Chen, Jialiang Wen, Yifan Zhong, Long Xu, Junqi Wu, Jiajun Deng, Yunlang She, Chang Chen
Shanghai Pulmonary Hospital, Shanghai, China

OBJECTIVES
To evaluate if buttressing the bronchial anastomosis with an autogenous pedicled flap can bring short and long-term advantage for patients undergoing sleeve lobectomy.

METHODS
Consecutive patients who underwent bronchial sleeve lobectomy for centrally located non-small cell lung cancer were retrospectively identified. Perioperative outcomes, recurrence-free survival (RFS), and overall survival (OS) were compared between those who received anastomosis coverage and those who did not, before and after propensity score matching.

RESULTS
A total of 682 patients were included. Among them, 211 (30.9%) patients received anastomosis coverage and the other 471 (69.1%) did not. Among the 211 patients, 143 (67.8%), 39 (18.5%) and 29 (13.7%) patients received pleural, intercostal muscle, and pericardial fat or vein flap, respectively. After matching, 151 paired patients (108, 17, and 3 patients received pleural, intercostal muscle, and pericardial fat or vein flap, respectively) were included in the analytical cohort. Perioperative outcomes were comparable except for more blood loss during surgery (median, 200 vs. 100 mL, p=0.016) in patients with anastomosis coverage after matching. Multivariable logistic regression analysis revealed that buttressing the anastomosis wasn't predictive of less postoperative complication (anastomosis coverage: present vs. absent, Hazard Ratio [HR] 1.30, 95% Confidence Interval [CI] 0.81-2.08, p=0.270). Concerning long-term survival, no significant differences were observed for RFS (p=0.854) or OS (p=0.339) after matching. Multivariable Cox regression analysis demonstrated that anastomosis coverage wasn't associated with favorable long-term survival (RFS, HR 0.96, 95% CI 0.67-1.36, p=0.796; OS, HR 0.76, 95% CI 0.52-1.10, p=0.138) for patients undergoing bronchial sleeve lobectomy in the matching cohort.

CONCLUSIONS
Buttressing the bronchial anastomosis does not confer short and long-term advantage for patients undergoing sleeve lobectomy. Our results indicate that bronchial sleeve lobectomy can be safely performed with leaving the anastomosis unprotected.

Disclosure: No significant relationships.
Keywords: Bronchial Sleeve Lobectomy; Anastomosis Coverage; Autogenous Pedicled Flap.

O-016

ENHANCING LUNG CANCER OUTCOMES: THE COST-EFFECTIVENESS OF SURGICAL INTERVENTION AND EARLY DETECTION PROGRAMS

Rudith Guzmán[1,2], Angela Guirao[2], Leandro Grando[2], Pablo Luis Paglialunga[2], Nestor Quiroga[2], Marc Boada[2], David Sánchez[2]
[1]*Hospital Parc Taulí, Barcelona, Spain*
[2]*Hospital Clinic of Barcelona, Barcelona, Spain*

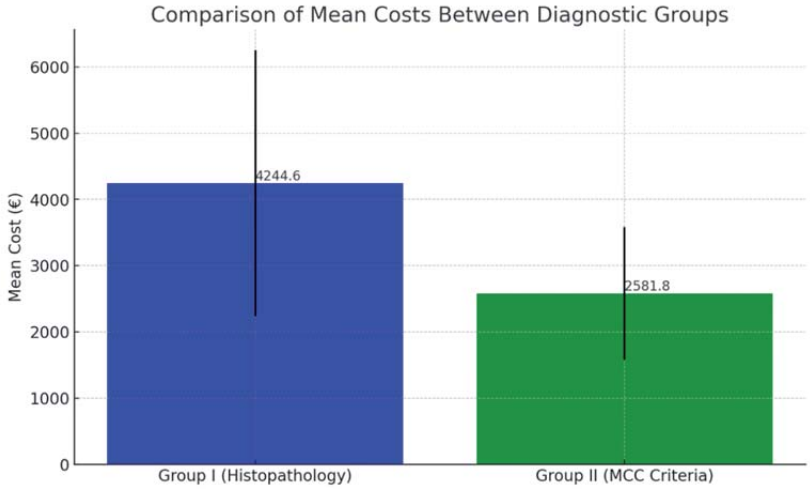
OBJECTIVES
To assess the comparative efficacy and cost-effectiveness of surgical interventions against medical treatments in lung cancer (LC), with a particular focus on the impact of early detection and screening programs.

METHODS
This comprehensive study integrates and analyzes data from two original research papers and a doctoral thesis. The methodology involves mixed-methods approach combining retrospective cohort analysis, comparative cost-benefit evaluation, and statistical modeling. The first study examines a cohort of 12,096 LC patients, contrasting outcomes and healthcare utilization in medical (n = 10,866) and surgical treatments (n = 2,230). Survival analysis techniques, including Kaplan-Meier and log-rank tests, were employed to compare long-term outcomes. The second, a retrospective analysis of 269 LC surgical patients, further stratifies participants into two groups based on diagnostic methodologies: histopathological diagnosis (Group I) and Multidisciplinary Cancer Committee (MCC)criteria (Group II). This segment employs advanced statistical methods, including multivariate regression and ANCOVA, to adjust for confounding factors and compare costs, length of hospital stays, and clinical outcomes. The doctoral thesis overarching these studies offers a meta-analytical perspective, synthesizing data, evaluating the broader economic impact of surgical interventions and the efficacy of LC screening programs.

RESULTS
The surgical cohort exhibited significantly enhanced survival rates, quicker resumption of daily activities, and reduced healthcare costs. Patients in the MCC-guided (Group II) incurred notably lower costs (mean €2581.8, SD €1002.5) and shorter hospital stays than those in the histopathology group (Group I). The cost-benefit analysis, employing a dynamic model, projects the Catalunya LC screening program to achieve a break-even point within 3-6 years, signifying substantial long-term healthcare savings.

CONCLUSIONS
The study conclusively demonstrates that surgical intervention, particularly guided by MCC protocols, is both clinically superior and more cost-effective compared to standard medical therapies in LC treatment. Furthermore, the implementation of structured LC screening programs significantly bolsters the economic and clinical efficiency of LC management.

Disclosure: No significant relationships.
Keywords: Early Detection, Cost-Effectiveness, Healthcare Utilization, Screening Programs, Lung Cancer.



Graph. 1. This graph illustrates the mean costs incurred by patients in Group I (those diagnosed via histopathology) and Group II (those selected based on Multidisciplinary Cancer Committee criteria), along with the standard deviations of these costs. As shown, Group II incurs significantly lower costs on average compared to Group I.

O-017

EXPLORING THE ASSOCIATION BETWEEN LUNG FUNCTION AND ORAL MICROBIOME DIVERSITY: AN NHANES ANALYSIS

Haoshuai Yang, Jin Zhang, Chaoyang Liang
China Japan Friendship Hospital, Beijing, China

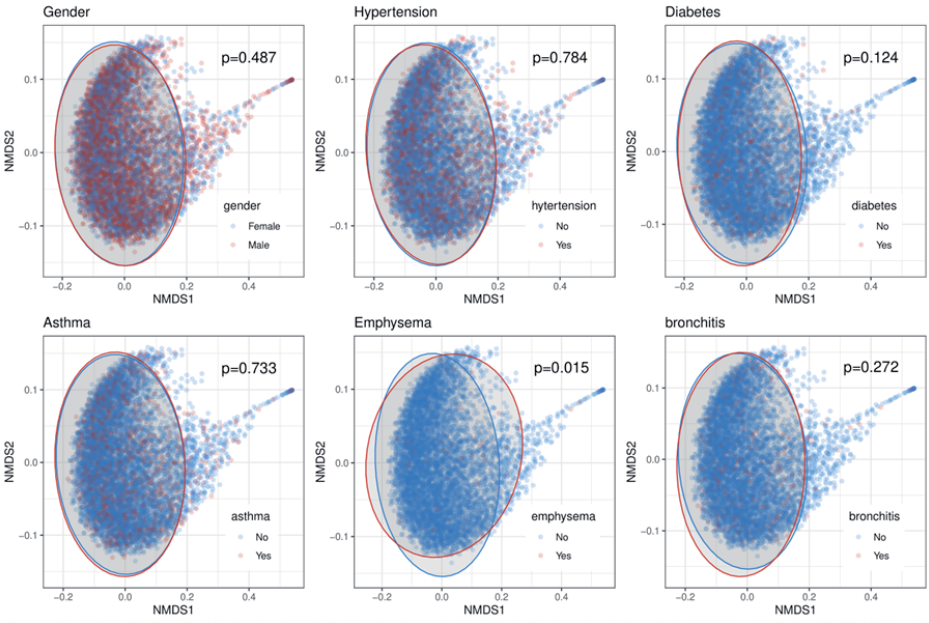
OBJECTIVES
Oral microbiome can affect the occurrence and development of various diseases, and it can also significantly impact lung health. This study aims to explore the relationship between oral microbiota diversity, lung function, and lung diseases based on population data.

METHODS
This study utilized NHANES data (2009-2012) to investigate the relationship between oral microbiome diversity, lung function indicators, and respiratory diseases. Participant selection involved lung function and oral microbiome testing, excluding those without relevant data. Lung function parameters and self-reported lung diseases were assessed. Oral microbiome diversity was measured using 16S ribosomal RNA gene sequencing, which including α-diversity and β-diversity. Multivariate linear regression models adjusted for demographic and health-related covariates.

RESULTS
Among 8689 participants, 15.25% had asthma, 7.82% had emphysema, and 3.68% had chronic bronchitis. Significant associations were observed between certain lung function indicators and observed Amplicon Sequence Variants (ASVs). FVC (-0.025, 95% CI: -0.043, -0.008), FEV1 (-0.03749, 95% CI:-0.07202, -0.00296), and PEF (-0.002, 95% CI: -0.004, -0.001), particularly in participants with asthma (p=0.006) and emphysema (p=0.002). Beta-diversity analysis revealed distinct oral microbiome compositions between individuals with and without emphysema (p=0.015), suggesting potential connections between oral microbiome diversity and respiratory health.

CONCLUSIONS
The results indicate the decrease in oral microbiome α-diversity is associated with poor lung function, as well as with asthma and emphysema. β-diversity is related to emphysema. and the relationship between oral microbiome and lung health still needs further exploration.

Disclosure: No significant relationships.
Keywords: Lung Function, Oral Microbiome.


Gender
p=0.487
gender
Female
Male
Hypertension
p=0.784
hytertension
No
Yes
Diabetes
p=0.124
diabetes
No
Yes
Asthma
p=0.733
asthma
No
Yes
Emphysema
p=0.015
emphysema
No
Yes
bronchitis
p=0.272
bronchitis
No
Yes
NMDS1
NMDS2

O-018

CONTINUED IMPLICATIONS OF THE CORONAVIRUS-19 (COVID-19) PANDEMIC ENVIRONMENT ON NON-SMALL CELL LUNG CANCER CHARACTERISTICS AND TREATMENT IN THE UNITED STATES

Christina M Stuart, Michael R Bronsert, Adam R Dyas, Salvador Rodriguez Franco, Ana L Gleisner, Simran K Randhawa, Elizabeth A David, John D Mitchell, Robert A Meguid
University of Colorado, Anschutz Medical Campus, Aurora, United States

OBJECTIVES

The COVID-19 pandemic significantly impacted the stage of presentation and subsequent therapies for patients who were diagnosed with Non-Small Cell Lung Cancer (NSCLC) during the first pandemic year. We aimed to assess for continued implications of the altered healthcare landscape on NSCLC presentation and treatment in the second year of the pandemic.

METHODS

This was a retrospective review of the United States National Cancer Database (2019-2021). Demographic, cancer-related and treatment variables were compared between patients diagnosed in the pre-pandemic year (2019), pandemic year one (2020) and pandemic year two (2021). Multivariate logistic regression was performed to control for the impact of demographics on oncologic variables, and then for the impact of oncologic variables on treatment modalities and outcomes.

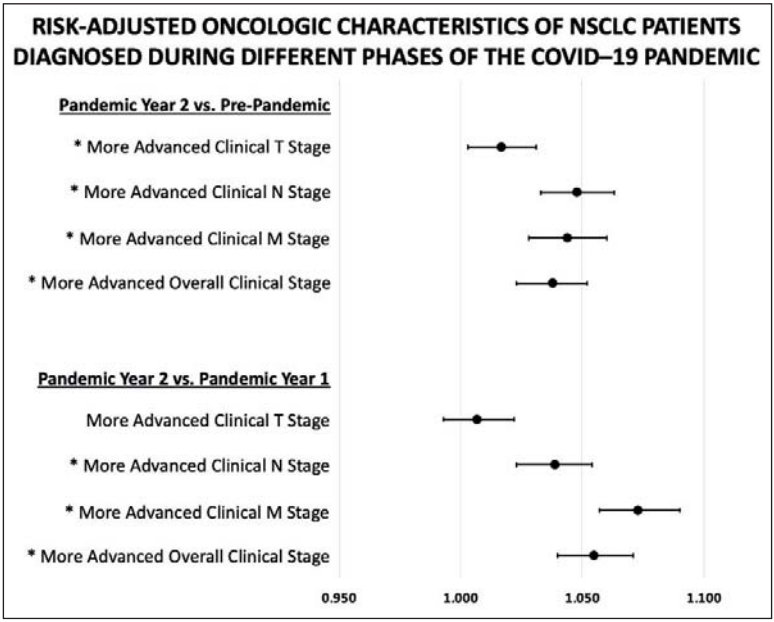
RESULTS

Of 376,193 NSCLC cases, 135,649 (36.1%) were pre-pandemic, 119,338 (31.7%) were pandemic year one, and 121,206 (32.2%) were pandemic year two. Compared to the pre-pandemic year, patients diagnosed in pandemic year two had risk-adjusted increases in clinical T stage (1.017 [95% confidence-interval: 1.003–1.031]), N stage (1.048 [1.033–1.063]), M stage (1.044 [1.028–1.060]) and overall stage (1.038 [1.032–1.052]), see figure. Additionally, compared to the pre-pandemic year, patients diagnosed in pandemic year two continue to see risk-adjusted increases in time from diagnosis to staging (1.044 [1.017–1.072]), to first treatment [1.143 (1.133–1.154), to surgery (1.117 [1.093–1.141]) and to systemic therapy (1.031 [1.024–1.039)].

CONCLUSIONS

Compared to the pre-pandemic year, patients diagnosed with NSCLC in the United States during pandemic year two continue to present at later clinical stage and experience delays to treatment including delays to staging, first course therapy, surgery and systemic therapy. The oncologic and treatment characteristics of NSCLC have not returned to pre-pandemic baseline in the United States possibly due to compounding delays to diagnosis and treatment and a growing back log of cases.

Disclosure: No significant relationships.
Keywords: COVID-19, Non-Small Cell Lung Cancer, Pandemic.



MONDAY 27 MAY 2024
BROMPTON SESSION IV
09:15 - 10:45

B-019

PATIENTS' RISK FACTORS FOR CONVERSION DURING ROBOTIC-ASSISTED ANATOMIC LUNG RESECTION - THE ROBOTIC ASSISTED THORACIC SURGERY (RATS) CONVERSION SCORE (RCS).

Elsa Armand[1], Jean-Marc Baste[2], Marion Durand[3], Pierre-Benoit Pagès[4], Matthieu Glorion[5], Renaud Vidal[6], Christophe Jayle[7], Harry Etienne[8], Ilies Bouabdallah[9], Marie Tardy[10], Benjamin Bottet[2], Alex Fourdrain[1]
[1]*Marseille University Hospital, Marseille, France*
[2]*Rouen University Hospital, Rouen, France*
[3]*Ambroise Paré Hartmann Hospital, Neuilly, France*
[4]*Dijon University Hospital, Dijon, France*
[5]*Foch Hospital, Paris, France*
[6]*Hopital Européen, Marseille, France*
[7]*Poitiers University Hospital, Poitiers, France*
[8]*Tenon Hospital, Paris, France*
[9]*Saint Joseph Hospital, Marseille, France*
[10]*Métropole Savoie Hospital, Chambery, France*

OBJECTIVES
Anatomic resections for lung cancers can be performed by minimally invasive techniques, which can require a conversion in case of intraoperative difficulties or complications. The «Epithor Conversion Score» is used to predict this risk for video-assisted thoracic surgery (VATS) and anticipate patients' management. This score was not calibrated for robotic-assisted thoracic surgery (RATS). We investigated risk factors for conversion during RATS and developed a specific predictive score for this approach.

METHODS
We conducted a multicentre retrospective analysis of 50 French thoracic surgery centres. All have contributed data on anatomic lung resections by robotic approach to the Epithor prospective database over a 7-year period. Our cohort was separated into two third and one third. The first was an "analysis cohort" to determine risk factors, and to develop the Robotic Conversion Score. The second was a "validation cohort" to validate the Robotic Conversion Score.

RESULTS
From January-2016 to December-2022, 49,084 patients were registered for lung surgery in the Epithor database. After excluding non-anatomical resections, open or VATS surgeries, we

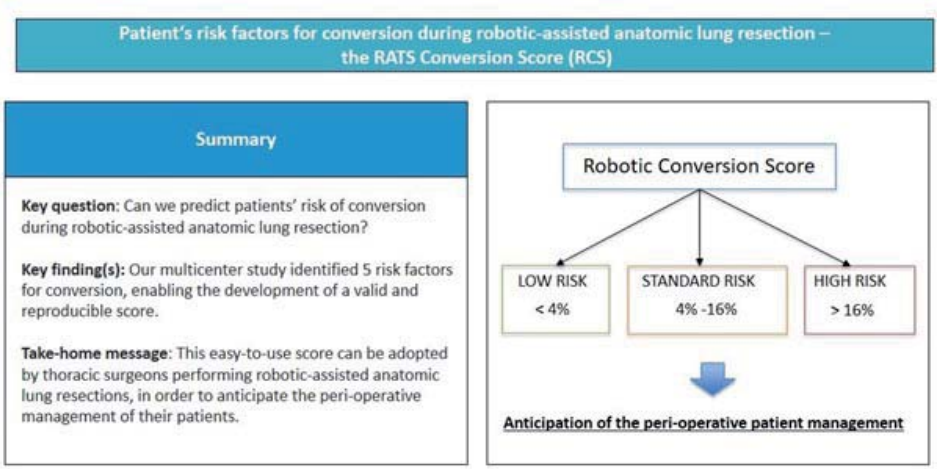
obtained an intent-to-treat cohort of 3,669 patients: 2,445 patients (including 162 conversions, 6.6%) were included in our analysis cohort and 1224 patients (76 conversions, 6.2%) in our validation cohort. Five risk factors for RATS conversions have been identified (previous thoracic surgery, type 2 diabetes, side of surgery, extent of resection, nodal status) enabling the development of a predictive model. The score showed acceptable discrimination (area under cover: 0.67 in analysis cohort and 0.64 in the validation cohort) and good calibration (p= 0.350 in the analysis cohort, and p= 0.413 in the validation cohort).

CONCLUSIONS

We determined 5 preoperative predictive factors for conversion during anatomic major lung resections by RATS. It allowed the development of an easy-to-use score, which can be adopted by thoracic surgeons to anticipate the perioperative management of their patients during RATS.

Disclosure: No significant relationships.

Keywords: Conversion, RATS, Lobectomy, Segmentectomy, Score.



B-020

ASSOCIATION OF THE HOSPITAL CANCER CERTIFICATION STATUS GRANTED BY THE GERMAN CANCER SOCIETY ON PATIENT OUTCOMES AND PATIENT PROVIDER CHOICE IN THORACIC SURGERY

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[2]*Thoraxclinic at Heidelberg University, Bologna, Italy*
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[4]*University of Bologna, Heidelberg, Germany*
[5]*Thoracic Surgery, Wuerzburg, Germany*

OBJECTIVES
The free choice of healthcare provider is a crucial element of patient empowerment that stimulates competition and could lead to improvements in the quality of thoracic surgery. It is unclear whether the ambitious national German cancer center certification program can stimulate competition and encourage patients to choose providers based on medical quality in thoracic surgery.

METHODS
The study analyzed 106,660 complex thoracic resections performed on patients with esophageal or lung cancer in Germany between 2011- 2020. The aim was to investigate patient-provider choice by comparing cancer certified hospitals to non-certified ones and examining patient choice based on travel times across the country. The impact of cancer surgery site on in-hospital mortality was analyzed using multivariable logistic regression analysis. To study the potential impact of hospital competition on patient-provider choice, we utilized a spatial competition index that represents the demand for services and the availability of alternative hospitals.

RESULTS
The mortality rate during hospitalization was 7.2% for esophageal and 3.0 % for lung surgery. Among patients who underwent esophageal cancer surgery, 41.8% selected their nearest, while 58.2% bypassed their nearest available provider (37.4% vs. 62.6% for lung cancer surgery). Hospital bypassers (skipped the nearest available hospital) were younger, had shorter hospital stays, more comorbidities, were less deprived, more likely to choose an urban center and a cancer program-certified center, and had longer travel times than core users. In the multivariable analysis, hospital cancer certification status (OR 0.78 for esophageal and OR 0.66 for thoracic) and patient bypasser status (OR 0.85 for esophageal and OR 0.95 for thoracic) were found to be independently associated with a decrease in in-hospital mortality.

CONCLUSIONS
The certification program for cancer centers in Germany is linked to lower patient mortality rates following oncologic esophageal- and lung cancer surgery. Additionally, it may encourage competition among providers and stimulate patient choice.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Thoracic Surgery Outcomes, Travel Time, Patient Choice.

B-021

RISK FACTORS AND PROGNOSTIC IMPACT OF UNPLANNED REOPERATION FOLLOWING ANATOMIC PULMONARY RESECTION IN A PROSPECTIVE MULTICENTRIC DATABASE

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OBJECTIVES
Unplanned reoperation (UR) after anatomical pulmonary resection for lung cancer mostly results from serious postoperative complications. Identifying preoperative predictors of UR could help decrease its incidence. Our goal was to find variables correlated with UR and to investigate its potential impact on long-term survival.

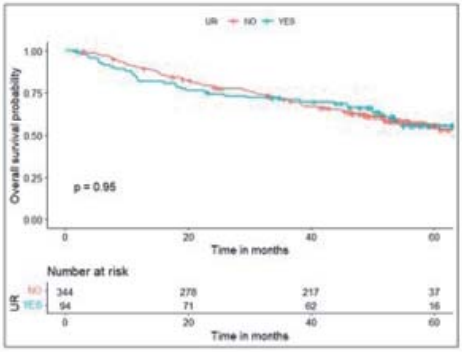
METHODS
Records from patients undergoing anatomical pulmonary resection for lung cancer from December 2016 to March 2018 within a nationwide prospective registry were reviewed. Multivariate logistic regression analyses were performed to find the risk factors for UR. Short-term outcomes were compared, and adjusted odds ratios (OR) on in-hospital and 90-day mortality were calculated. The prognostic value of UR for overall survival (OS) and disease-free survival (DFS) was finally assessed using the Kaplan-Meier method and log-rank test after propensity score matching (1:4, no replacement, caliper: 0.01).

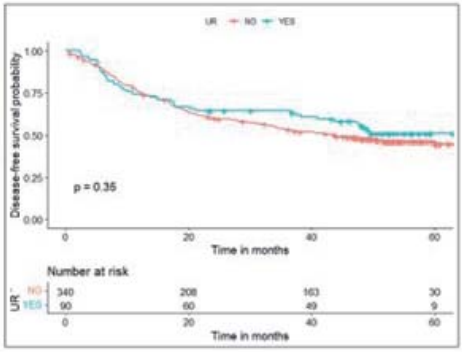
RESULTS
We examined data for 3085 patients. The incidence of UR was 4.12% (127 cases). The most frequent cause of UR was intrathoracic bleeding (36.2%), followed by prolonged air leakage (21.3%). Multivariate logistic regression analyses revealed that male gender (OR = 3.288, P= 0.004), ppoDLCO% (OR = 0.975, P= 0.003), pneumonectomy (OR = 4.748, P= 0.038), strong pleural adhesions (OR = 3.449, P<0.001) and hospital volume ≥150 cases (OR = 1.75, P= 0.026) were independently correlated with UR. Risk of in-hospital and 90-day mortality was higher in UR cases (adjusted OR = 7.312, P<0.001, and = 5.188, P<0.001, respectively). 98 UR and 347 matched cases without UR were included in the long-term follow-up analysis. The median follow-up time was 50.4 months. No significant differences were found in OS, and DFS between groups (log rank P= 0.953 and P= 0.352, respectively).

CONCLUSIONS
Independent risk factors for UR were patients' male gender, ppoDLCO%, pneumonectomy, strong pleural adhesions, and hospital volume. UR was associated with increased perioperative mortality, but not with long-term mortality.

Disclosure: No significant relationships.

Keywords: Unplanned Reoperation, Lung Surgery, Long-Term Survival, Postoperative Mortality, Lung Cancer.





B-022

NEOADJUVANT THERAPY IS NOT AN INDEPENDENT RISK FACTOR FOR POSTOPERATIVE COMPLICATIONS IN NON-SMALL CELL LUNG CANCER: A BI-CENTRIC MATCHED-PAIR ANALYSIS

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OBJECTIVES
To evaluate whether neoadjuvant therapy independently poses a risk factor for postoperative complications in non-small cell lung cancer.

METHODS
It is a retrospective analysis of prospectively recorded patient data at two independent centers. At an institute in Germany with 326 (2014-2017) cases and at a separate institute in South Korea with 3770 (2003-2018) cases. After exclusion, due to lack of data and propensity score matching using R package MatchIt, finally, 626 cases or 331 1:1 matched pairs were included in the final analysis. Clavien-Dindo classification was used for grading the post-operative complications.

RESULTS
The demographic and the clinical characteristics of the non-neoadjuvant (WNA) and neo-adjuvant (NA) cohort after matching had non-significant q-values, demonstrating a homogenous matching (Table 1). Cumulatively, 32% of WNA cases showed post-operative complications as compared to 26% of the NA cohort (q = 0.6; Table 1). Post-operative complications were generally higher in the WNA group compared to the NA group, with varying grades: WNA had higher rates in grade 1 (11% vs. 8%), grade 2 (9% vs. 8%), and grade 3 (4% vs. 3%), while both groups showed the same rate in grade 4 (7%). The estimated effect was -0.005 (SE = 0.03, p = 0.87), indicating that the average effect of postoperative complications was close to no difference for those who received neoadjuvant treatment compared to those who did not.
There was no significant difference in post-operative complications between WNA and NA cohorts when analyzed in subgroups of lobectomy, pneumonectomy, and atypical resections/ segmentectomy.

CONCLUSIONS
The absence of increased risk of postoperative complications after neoadjuvant therapy in non-small cell lung cancer underscores its safe applicability in clinical settings.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Neoadjuvant Therapy, Post-Operative Complications.

Table 1. The demographic and clinical characteristics of all patients between non-neoadjuvant and neoadjuvant therapy groups

Characteristics	Before matching (*N* = 4075)			After matching (*N* = 662)		
	Non-neoadjuvant (*N* = 3624)	Neoadjuvant (*N* = 451)	q value	Non-neoadjuvant (*N* = 331)	Neoadjuvant (*N* = 331)	q value
Age, y, (range)	66 (58, 72)	63 (55, 69)	< 0.001	63 (56, 68)	62 (55, 68)	0.7
Sex, *N* (%)			< 0.001			0.6
Male	2167 (60)	320 (71)		242 (73)	254 (77)	
Female	1457 (40)	131 (29)		89 (27)	77 (23)	
Cardiovascular risk factors, *N* (%)			> 0.9			0.4
Absent	1937 (53)	241 (53)		207 (63)	188 (57)	
Present	1687 (47)	210 (47)		124 (37)	143 (43)	
DM2, *N* (%)			0.06			> 0.9
No	2994 (83)	389 (86)		278 (84)	282)85)	
Yes	630 (17)	62 (14)		53 (16)	49 (15)	
COPD, *N* (%)			0.003			> 0.9
No	3323 (92)	394 (87)		297 (90)	301 (91)	
Yes	301 (8)	57 (13)		34 (10)	30 (9)	
Second cancer, *N* (%)			< 0.001			> 0.9
No	3591 (99)	433 (96)		324 (98)	325 (98)	
Yes	33 (1)	18 (4)		7 (2)	6 (2)	
Smoking history, *N* (%)			< 0.001			0.2
Never	1586 (44)	86 (20)		90 (27)	64 (20)	
Ever (≤ 20 pack years)	723 (20)	83 (19)		70 (21)	71 (22)	
Ever (> 20 pack years)	1314 (36)	266 (61)		171 (52)	192 (59)	
Unknown	1	16		0	4	
FEV1, *N* (%)			< 0.001			0.3
< 80	553 (15)	120 (27)		94 (28)	75 (23)	
≥ 80	3031 (85)	329 (73)		237 (72)	256 (77)	
Unknown	40	2		0	0	
DLCO, *N* (%)			< 0.001			> 0.9
< 60	107 (3)	102 (23)		40 (12)	40 (12)	
≥ 60	3335 (97)	343 (77)		291 (88)	291 (88)	
Unknown	182	6		0	0	
Histology, *N* (%)			< 0.001			> 0.9
Adenocarcinoma	2429 (67)	231 (51)		170 (51)	166 (50)	
Squamous cell carcinoma	721 (20)	156 (35)		114 (34)	117 (35)	
Others	474 (13)	63 (14)		47 (14)	47 (14)	
Unknown	0	1		0	1	
Clinical UICC stage before therapy, *N* (%)			< 0.001			> 0.9
IA	1884 (52)	27 (6)		24 (7)	24 (7)	
IB - IIA	1045 (29)	17 (4)		16 (5)	16 (5)	
IIB - IIIA	556 (15)	229 (51)		201 (61)	201 (61)	
IIIB - IIIC	28 (1)	103 (23)		28 (8)	28 (8)	
IVA - IVB	111 (3)	75 (16)		62 (19)	62 (19)	
Surgery type, *N* (%)			< 0.001			> 0.9
Lobectomy	2901 (80)	337 (75)		247 (75)	247 (75)	
Pneumonectomy	101 (3)	79 (17)		60 (18)	60 (18)	
Atypical resection/Segmentectomy	622 (17)	35 (8)		24 (7)	24 (7)	
Postoperative complications, *N* (%)			< 0.001			0.6
No	2905 (80)	328 (73)		227 (69)	245 (74)	
Yes	719 (20)	123 (27)		104 (32)	86 (26)	
Clavien-Dindo classification, *N* (%)			< 0.001			> 0.9
0	2905 (80)	328 (73)		227 (69)	245 (74)	
1	301 (8)	37 (8)		38 (11)	27 (8)	
2	205 (6)	36 (8)		30 (9)	26 (8)	
3	58 (2)	19 (4)		13 (4)	11 (3)	
4	152 (4)	28 (6)		23 (7)	22 (7)	
5	3 (< 0.1)	3 (1)		0	0	

B-023

PREDICTION OF POSTOPERATIVE INTENSIVE CARE UNIT ADMISSION WITH ARTIFICIAL INTELLIGENCE MODELS IN NON-SMALL CELL LUNG CARCINOMA

Gizem Özçibik Isik, Burcu Kiliç, Ezel Ersen, Mehmet Kamil Kaynak, Akif Turna, Hasan Volkan Kara
Istanbul University Cerrahpasa-Cerrahpasa Medical Faculty Department of Thoracic Surgery, Istanbul, Turkey

OBJECTIVES
There is no standard practice for intensive care admission after NSCLC surgery. Intensive care unit admission is an important issue in terms of both cost and appropriate use. In our study, we aimed to determine the need for intensive care admission after NSCLC surgery with deep learning models.

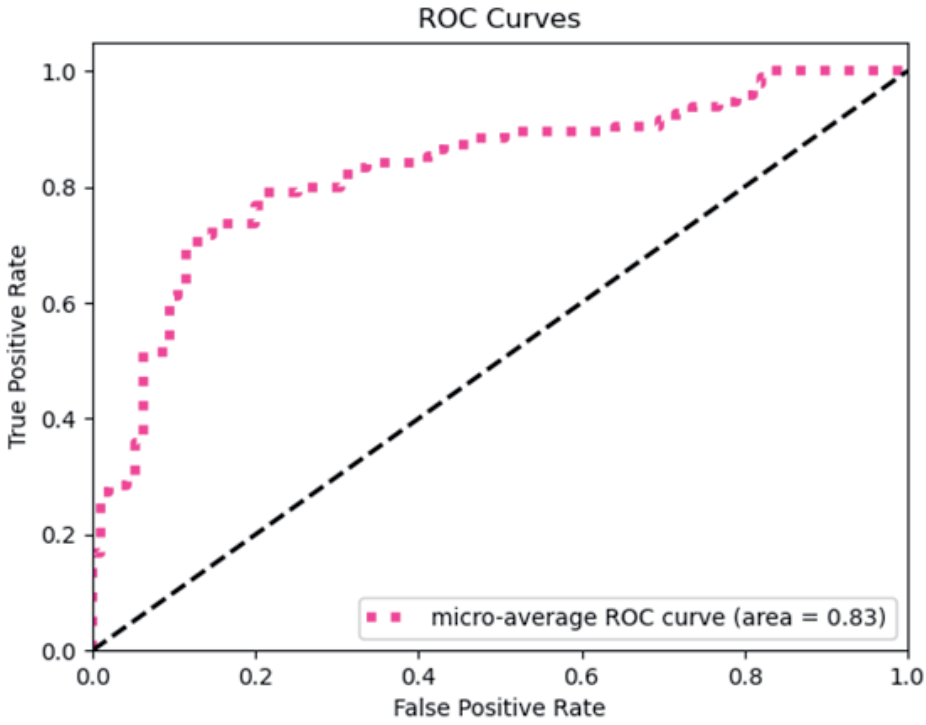
METHODS
The data of 953 patients whom were operated for NSCLC between January 2001-2023 was analyzed. Clinical, laboratory, respiratory, tumor's radiological and surgical features were included as input data in the study. The outcome data was intensive care unit admission. Deep learning was performed with the FCNN algorithm and K-Layer Cross Validation method. The success of the model was evaluated by specificity, sensitivity, negative predictive value, positive predictive value, accuracy, F1 score and AUC in the ROC curve.

RESULTS
The training sensitivity value of the algorithm was 80.1%, the training positive predictive value was 94.5%, and the training accuracy value was 92.0%.The training F1 1 score of the algorithm was 86.7%, the training F1 0 value was 94.2%, and the training F1 average score was 90.5%. The test sensitivity value of the algorithm was 67.7%, the test positive predictive value was 84.0%, and the test accuracy value was 85.3%.Test F1 1 score was 75.0%, test F1 0 score was 89.5%, and test F1 average score was 82.3%(Table 1).The AUC in the ROC curve created for the success analysis of the algorithm's test data was 0.83(Figure 1).

CONCLUSIONS
By using our method deep learning models predicted the need for intensive care unit admission with high success and confidence values. Determining the need for an intensive care unit in the preoperative period will contribute to the correct use of resources and will be protective for the surgery patients. The use of artificial intelligence algorithms for the necessity of intensive care hospitalization will ensure that postoperative processes are carried out safely using objective decision mechanisms.

Disclosure: No significant relationships.
Keywords: Artificial Intelligence, Intensive Care Unit, Non-Small Cell Lung Cancer.

	Train	Test
Specificity	97.7 %	93.8 %
Recall (Sensitivity)	80.1 %	67.7 %
Negative Predictive Value	91.0 %	85.7 %
Positive Predictive Value (Precision)	94.5 %	84.0 %
Accuracy	92.0 %	85.3 %
F1 1 Score	86.7 %	75.0 %
F1 0 Score	94.2 %	89.5 %
F1 Average Score	90.5 %	82.3 %



B-024

BETTER SURVIVAL WITH LOBECTOMY VERSUS (VS) SUBLOBAR RESECTION IN PATIENTS WITH HYPERMETABOLIC C-STAGE IA LUNG CANCER ON POSITRON EMISSION TOMOGRAPHY/COMPUTED TOMOGRAPHY (PET/CT)

Satoshi Shiono[1], Makoto Endo[2], Jun Suzuki[1], Hikaru Watanabe[1], Satoshi Takamori[2]
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[2]*Department of Thoracic Surgery, Yamagata Prefectural Central Hospital, Yamagata, Japan*

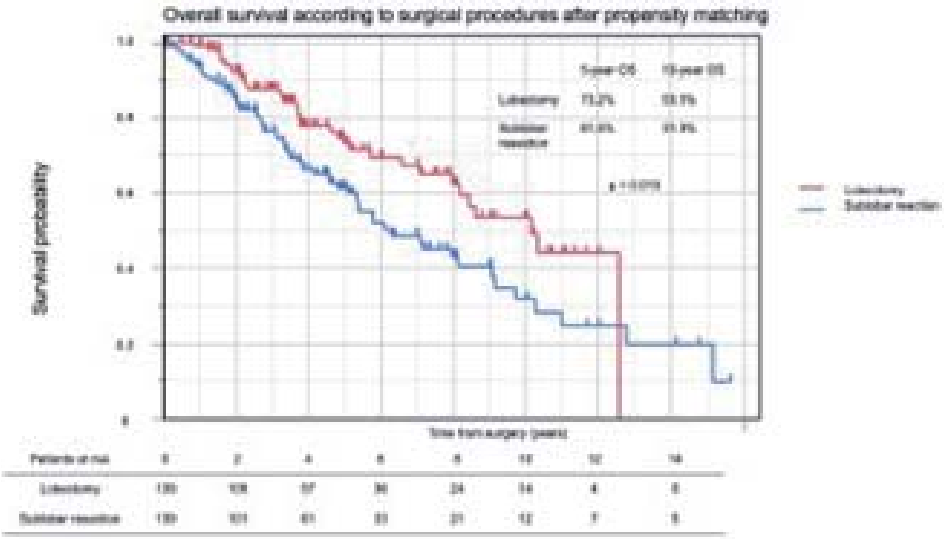
OBJECTIVES
The CALGB 140503 trial showed that sublobar resection was not inferior to lobectomy for disease-free survival in patients with peripherally located non-small cell lung cancer ≤ 2 cm. Overall survival rates with sublobar resection and lobectomy were similar. However, it is not clear whether sublobar resection is indicated for all types of c-stage IA lung cancer. The purpose of this study was to clarify whether sublobar resection is indicated for c-stage IA hypermetabolic lung cancer.

METHODS
Between April 2004 and March 2023, 1469 patients underwent lobectomy or sublobar resection for clinical stage IA lung cancer. Of these, 723 who had a maximum standardized uptake value (SUV) ≧3.0 on F-18 fluorodeoxyglucose (FDG) positron emission tomography (PET)/computed tomography (CT) PET/CT were evaluated. We compared survival rates with lobectomy and sublobar resection. Propensity score matching was performed to balance patient characteristics between groups.

RESULTS
Lobectomy and sublobar resection were performed in 532 (73.6%) and 191 (26.4%) patients, respectively. In the sublobar resection group, 101 segmentectomy and 90 wedge resection cases were included. Sublobar resection cases tended to be older, predominantly male, and have larger tumor size and impaired respiratory function compared with lobectomy cases. Five-year overall survival was worse with sublobar resection vs lobectomy (62.3% vs 79.9%, respectively; $p<0.01$). Similarly, 5-year disease-free survival was worse with sublobar resection vs lobectomy (53.9% vs 70.3%, respectively; $p<0.01$). After propensity score matching, 5-year overall survival remained worse with sublobar resection vs lobectomy (61.4% vs 73.2%, respectively; $p=0.01$), and 5-year disease-free survival remained worse with sublobar resection vs lobectomy (51.7% vs 63.9%, respectively; $p=0.03$).

CONCLUSIONS
Patients with c-stage IA hypermetabolic lung cancer with SUV ≧3.0 on PET/CT who underwent sublobar resection had a worse prognosis than those who underwent lobectomy. Thus, lobectomy should be performed for such patients.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Sublobar Resection, PET/CT.



MONDAY 27 MAY 2024
TRANSPLANT SESSION: THORACOABDOMINAL NRP IN LUNG TRANSPLANTATION
13.45 - 14.45

O-025

SINGLE LUNG TRANSPLANTATION IS SAFE WHEN THE OTHER LUNG IS DECLINED

Richa Asija[1,2], Joshua S Fuller[1], Joseph Costa[1], Alexey Abramov[1], Harpreet S Grewal[1], Luke J Benvenuto[1], Gabriela Magda[1], Lori Shah[1], Angela M Dimango[1], Hilary Y Robbins[1], Bryan Payne Stanifer[1], Joshua R Sonett[1], Selim Arcasoy[1], Frank D'Ovidio[1], Philippe H Lemaitre[1]
[1]*Columbia University Medical Center, New York, United States*
[2]*Community Memorial Health Systems, Ventura, United States*

OBJECTIVES
Single lung transplant (SLT) is an acceptable treatment modality for certain patients with end stage lung disease. SLT occurs when two appropriate donor lungs are split between recipients ("split singles") or when one donor lung is adequate for transplant and the other lung is declined ("isolated single"). Isolated single lungs are selected after standardized donor lung assessment using pre-operative computed tomography, intra-operative lobar gas, palpation of the lobes, assessment of deflation and bronchoscopy. There is a paucity of literature investigating the outcomes in patients who received an isolated SLT. This study analyzes the characteristics and survival outcomes of isolated SLT recipients.

METHODS
The transplant database at our institution was queried for all lung transplants between 2010 and 2021. The primary outcome of survival was assessed using Kaplan Meier curves and Cox regression modeling. Proportional hazards assumption was tested using Schoenfield residuals. Secondary outcomes were assessed using Mann-Whitney U test and Fisher's exact test.

RESULTS
Of 718 identified lung transplant recipients, 315 patients underwent a double lung transplant, 155 patients underwent a split SLT, and 248 patients underwent an isolated SLT. There was no significant difference when comparing most demographic characteristics between isolated SLT and split SLT patients. Isolated SLT recipients had similar overall mortality and mortality over time when compared to split SLT recipients (HR 0.96, CI 0.70-1.32, p=0.81) with a median survival time of 6.41 years versus 6.32 years There was no difference in length of hospitalization (p=0.650), post-operative need for extracorporeal membrane oxygenation (p=0.099) or duration of post-operative ventilation (p=0.755).

CONCLUSIONS

Our analysis demonstrating similar overall survival between recipients of isolated SLT and split SLT shows that a well-selected isolated donor lung can be used safely in the appropriate recipient population. This practice allows expansion of a known scarce donor pool and reduction of the waitlist mortality in lung transplant candidates.

Disclosure: No significant relationships.
Keywords: Transplant, Lung, Single Lung.

O-026

THE ROLE OF CENTRAL PULMONARY VENOUS GAS MEASUREMENT IN EXTENDING DONOR LUNGS CRITERIA FOR TRANSPLANTATION: A MULTICENTER ANALYSIS OF THE EUROPEAN SOCIETY OF THORACIC SURGEONS (ESTS) LUNG TRANSPLANT WORKING GROUP

Francisco Javier González-García[1], Benito Cantador[1], Paula Moreno[1], Lorenzo Rosso[2], Jose Luis Campo-Cañaveral De La Cruz[3], Eloisa Ruiz[1], Alba María Fernández[1], Patricia Childers[1], Francisco Javier Algar[1], Francisco Cerezo[1], Angel Salvatierra[1], Antonio Alvarez[1]

[1]*Department of Thoracic Surgery and Lung Transplantation. University Hospital Reina Sofía, Córdoba, Spain*

[2]*Thoracic Surgery and Lung Transplantation Unit. Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico of Milan, Milan, Italy*

[3]*Department of Thoracic Surgery and Lung Transplantation, University Hospital Puerta de Hierro Majadahonda, Madrid, Spain*

OBJECTIVES

Peripheral arterial PaO2/FiO2 ratio (p-P/F ratio) over 300 mmHg remains as the classical cut-point in the acceptance of lung donors for transplantation. In the era of ex-vivo reconditioning, this parameter should be re-assessed. We aimed at analyzing the early outcomes of lung transplantation from donors with p-P/F ratio under 300 mmHg but with central pulmonary venous P/F ratio (c-P/F ratio) above 300 mmHg, to estimate to what extent the donor pool could be increased.

METHODS

Prospective multicenter analysis recruiting 124 consecutive lung donors over a 1-year period. Donors were categorized into two groups: optimal donors (p-P/F ratio >300 mmHg) and extended donors (p-P/F ratio <300 mmHg and c-P/F ratio >300 mmHg). Both groups were homogeneous and fulfilled the rest of standard donor criteria. Early post-transplant outcomes and survival were compared between groups.

RESULTS

We assessed 106 double-lung and 18 single-lung donors (66M/58F), 51+/-14 [15-78] years old. There were 29 extended (23%) and 95 (77%) optimal donors. In the extended group, p-P/F ratio was 234+/-51 mm Hg and the c-P/F ratio 439+/-76 mmHg (P/F ratio gap: 205+/-82 mmHg) ($p<0.001$). In the control group, p-P/F ratio was 435+/-8 mm Hg and the c-P/F ratio 487+/-103 mmHg (P/F ratio gap: 51+/-80 mmHg) (p=ns).

Lung transplants from the extended donor group did not differ from those optimal donors in terms of early graft function and survival (table).

CONCLUSIONS

1. Peripheral P/F ratio <300 mmHg should not be considered a major criterion to discard a potential lung donor. In these cases, the central venous gas analysis should be assessed. With this strategy, the donor pool for lung transplantation may be increased in up to 23%.

2. In bilateral lung donors, those with p-P/F ratio >215 mmHg should undergo intraoperative assessment and c-P/F ratio determination.

Disclosure: No significant relationships.
Keywords: Lung Transplantation, Donor Assessment, Outcomes.

	Optimal (n=95)	Extended (n=29)	p
Donor gender (Male/Female)	39/51	16/12	0.76
Donor assessment			
Single lung	9 (9)	9 (31)	
Double-lung	86 (91)	20 (69)	0.01
Donor age (years)	50±15	53±11	0.46
Recipient age (years)	53±11	56±9	0.33
Diagnosis			
COPD	28 (29)	16 (55)	
Pulmonary Fibrosis	39 (42)	8 (28)	
Cystic Fibrosis	10 (10)	3 (10)	
Other	18 (19)	2 (7)	0.16
Ischemic time (min)	428±154	394±134	0.29
P/F ratio 24h post-transplant (mm Hg)	324±115	338±173	0.62
P/F ratio 72h post-transplant (mm Hg)	309±101	333±73	0.25
Post-transplant ventilation (days)	10±16	6±10	0.30
PGD (72h)	19 (20)	7 (24)	
Grade 1	10 (10)	1 (3)	
Grade 2	4 (4)	4 (14)	
Grade 3	5 (5)	2 (7)	0.38
Deaths	14 (15)	4 (14)	0.62

O-027

ADULT LIVING-DONOR LOBAR LUNG TRANSPLANTATION USING SMALL-FOR-SIZE GRAFT

Daisuke Nakajima, Mamoru Takahashi, Shigeto Nishikawa, Satona Tanaka, Yojiro Yutaka, Akihiro Ohsumi, Toshi Menju, Hiroshi Date
Department of Thoracic Surgery, Kyoto University Graduate School of Medicine, Kyoto, Japan

OBJECTIVES
The aim of this study was to examine the outcomes of adult living-donor lobar lung transplantation (LDLLT) using small-for-size graft.

METHODS
A calculated graft forced vital capacity (FVC) of <50% of the recipient predicted FVC was considered to indicate small-for-size graft. We performed 80 adult-to-adult LDLLTs between 2008 and 2022, using small-for-size grafts in 15 patients (small group) and non-small grafts in 65 patients (non-small group). Median FVC size matching was 45.8% (range: 37.3-49.1%) in the small group and 64.6% (range: 50.3-109.1%) in the non-small group. Posttransplant outcomes were compared between the groups.

RESULTS
Early posttransplant outcomes were as follows; median duration of mechanical respiratory support (small: 17 days vs. non-small: 11 days; P=0.12), extracorporeal membrane oxygenation requirement (small: 13.3% vs. non-small: 7.7%; P=0.61), and in-hospital mortality rate (small: 6.7% vs. non-small: 1.5%; P=0.34). The 1- and 5-year survival rates were 86.7% and 69.3% in the small group and 93.8% and 77.1% in the non-small group, respectively (P=0.74). Median %FVC of predicted value within 2 years after LDLLT was 50.5% in the small group and 63.5% in the non-small group (P=0.16). In the small group, the native upper lobe(s) or contralateral lung was spared in 8 patients (spared group), whereas two lobar grafts were implanted without any spared native lung in other 7 patients (unspared group). The 1- and 5-year survival rates were significantly better in the spared group (100% and 100%) in comparison to the unspared group (71.4% and 23.8%; P=0.04). Furthermore, the spared group showed significantly higher median %FVC of predicted value after LDLLT than the unspared group (68.5% vs. 44.9%; P<0.01).

CONCLUSIONS
LDLLT procedure using small-for-size grafts provided favorable posttransplant outcomes. When grafts are small, the native lung should be partially spared if possible.

Disclosure: No significant relationships.
Keywords: Living-Donor Lobar Lung Transplantation, Small-For-Size Graft, Forced Vital Capacity, Size Matching.

MONDAY 27 MAY 2024
PULMONARY NEOPLASTIC I SESSION V
13:30 - 14:30

O-028

NEOADJUVANT CHEMOIMMUNOTHERAPY CONFERS SURVIVAL ADVANTAGE FOR PATIENTS UNDERGOING SLEEVE LOBECTOMY

Tao Chen, Yifan Zhong, Jialiang Wen, Long Xu, Junqi Wu, Yunlang She, Chang Chen
Shanghai Pulmonary Hospital, Shanghai, China

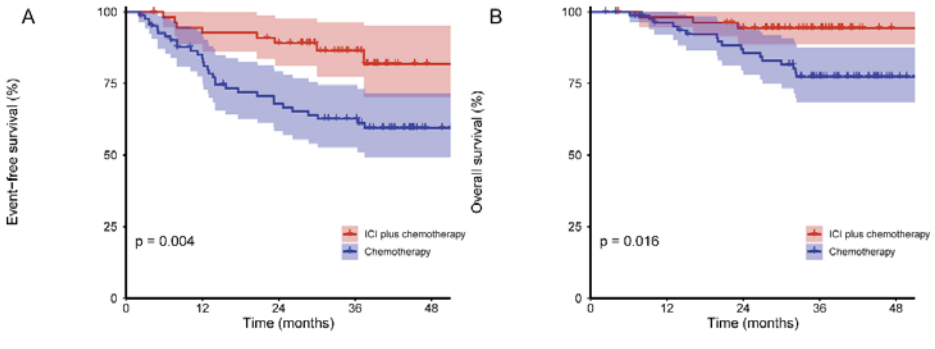
OBJECTIVES
To investigate if neoadjuvant immune checkpoint inhibitor (ICI) plus chemotherapy can bring long-term survival benefit for patients with non-small cell lung cancer (NSCLC) undergoing bronchial sleeve lobectomy.

METHODS
Patients who underwent bronchial sleeve lobectomy following neoadjuvant ICI plus chemotherapy or neoadjuvant chemotherapy were retrospectively identified. Perioperative outcomes, event-free survival (EFS) and overall survival (OS) were compared between groups.

RESULTS
A total of 139 patients were included. Among them, 56 (40.3%) and 83 (59.7%) patients received neoadjuvant ICI plus chemotherapy and neoadjuvant chemotherapy, respectively. Perioperative outcomes were comparable between groups (all $p>0.05$). There was no significant difference regarding postoperative complication rate (26.8% vs. 24.1%, $p=0.720$). More patients achieved complete pathological response (CPR) in the neoadjuvant ICI plus chemotherapy group (28.6% vs. 4.8%, $p<0.001$). Patients receiving neoadjuvant ICI plus chemotherapy had favorable long-term survival in the entire cohort (EFS, $p=0.004$; OS, $p=0.016$), and across clinical stage I-II (EFS, $p=0.036$; OS, $p=0.252$) and stage III (EFS, $p=0.021$; OS, $p=0.031$) subgroups. Moreover, patients achieving CPR tended to have better prognosis than those who did not achieve CPR in both neoadjuvant ICI plus chemotherapy group (EFS, $p=0.260$; OS, $p=0.256$) and neoadjuvant chemotherapy group (EFS, $p=0.477$; OS, $p=0.289$), although the differences were not statistically significant.

CONCLUSIONS
Neoadjuvant ICI plus chemotherapy achieved higher CPR rate without added complication. In addition, neoadjuvant ICI plus chemotherapy was correlated with favorable long-term survival outcomes in patients with NSCLC undergoing sleeve lobectomy.

Disclosure: No significant relationships.
Keywords: Neoadjuvant Therapy, Bronchial Sleeve Lobectomy, Event-Free Survival, Overall Survival, Non-Small Cell Lung Cancer.


A
Event-free survival (%)
100
75
50
25
0
p = 0.004
ICI plus chemotherapy
Chemotherapy
0
12
24
36
48
Time (months)
Number at risk
ICI plus chemotherapy 56 52 48 23 1
Chemotherapy 83 65 51 42 16
B
Overall survival (%)
100
75
50
25
0
p = 0.016
ICI plus chemotherapy
Chemotherapy
0
12
24
36
48
Time (months)
Number at risk
ICI plus chemotherapy 56 54 50 26 2
Chemotherapy 83 74 65 48 20

O-029

SALVAGE SURGERY FOR CLINICAL STAGE III NON-SMALL CELL LUNG CANCER: HIGHER PERIOPERATIVE RISK BUT EQUIVALENT LONG TERM SURVIVAL WITH PLANNED SURGERY

Xun Luo, Jeremiah Hayanga, Elwin Tham, Kenneth Ryan, Paul Rothenberg, James Mehaffey, Jason Lamb, Shalini Reddy, Vinay Badhwar, Alper Toker
West Virginia University, Morgantown, United States

OBJECTIVES

The utility of surgery for stage-III NSCLC has no consensus. Surgery is mainly deployed in a planned multimodality regimen, or as a salvage option (surgery offered due to unexpected improvement after chemoradiation±immunotherapy±targeted therapy). Recently, the improvement of oncologic treatment has inadvertently driven the potential of salvage surgery. We sought to explore outcomes after salvage surgery, planned surgery, or oncological treatment alone for stage-III NSCLC.

METHODS

We identified clinical stage-III NSCLC from National Cancer Database between 2010-2020. We used timing between completion of radiation and surgical resection to define salvage surgery vs planned surgery. Surgery after 3-month following radiation was considered as salvage surgery. Surgery within 3-month following radiation, radiation after surgery, or no radiation were considered as planned surgery. We compared survival of salvage surgery, planned surgery and oncological treatment alone, adjusting for patient and clinical characteristics. We further compared 90-day mortality, unplanned 30-day readmission, and length of stay between salvage surgery and planned surgery.

RESULTS

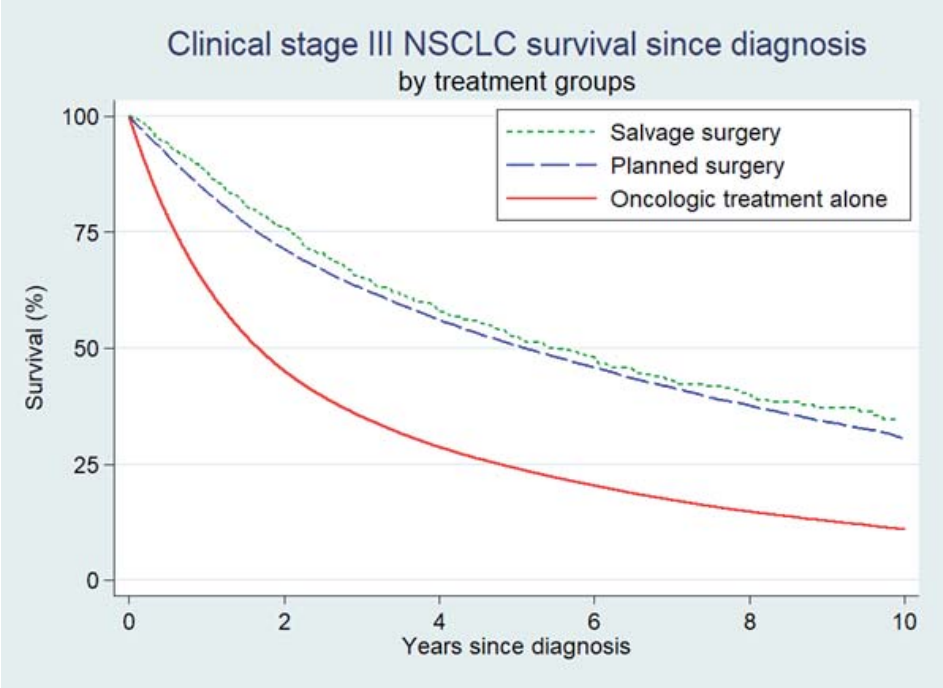
Among 144,133 patients, 692 (0.5%) underwent salvage surgery and 26,412 (18.3%) underwent planned surgery. Median time from radiation to salvage surgery was 3.9(3.3-5.0) months. 10-year survival of salvage surgery (34.6%) or planned surgery (30.6%) was higher than oncological treatment alone (10.9%)(Figure). After adjustment, compared to oncologic treatment alone, salvage surgery had 49% lower mortality (aHR=0.51,p<0.001), and planned surgery had 47% lower mortality (aHR=0.53,p<0.001). Survival was similar between salvage surgery and planned surgery (aHR=0.97,p=0.5). However, compared to planned surgery, salvage surgery had 6-time higher 90-day mortality (aOR=6.36,p<0.001), and 11% longer length of stay (aRR=1.11,p<0.001). Readmission rate was similar between salvage surgery and planned surgery (aOR=0.93,p=0.7).

CONCLUSIONS

Surgery provided higher survival than oncological treatment alone. Salvage surgery had similar long-term survival and readmission with planned surgery with cost of higher short-

term mortality and longer length of stay. Salvage surgery should be offered to selected patients in experienced centers.

Disclosure: No significant relationships.
Keywords: NSCLC, Stage III, Salvage Surgery, Survival.



O-030

USEFULNESS OF PLEURODESIS WITH 50% GLUCOSE FOR AIR LEAK AFTER PULMONARY RESECTION: A MULTI-INSTITUTIONAL RETROSPECTIVE STUDY

Ryosuke Tokuda[1], Satoru Okada[2], Yasuo Ueshima[3], Satoshi Ikebe[1], Masanori Shimomura[2], Shunta Ishihara[3], Tatsuo Furuya[2], Masayoshi Inoue[2]
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[2]*Graduate School of Medical Science, Kyoto Prefectural University of Medicine, Kyoto, Japan*
[3]*Japanese Red Cross Society Kyoto Daiichi Hospital, Kyoto, Japan*

OBJECTIVES
Recently, 50% glucose has gained attention as a new adhesive agent; however, its usefulness is unclear. This study aimed to evaluate the safety and determine the usefulness and factors involved in successful pleurodesis with 50% glucose for air leak after pulmonary resection.

METHODS
A retrospective study among three Japanese institutions was conducted for 70 patients who were treated with 50% glucose for air leak after pulmonary resection between April 2015 and March 2023. Air leak was monitored using a digital drainage system (Thopaz®) mostly at 5–10 cm H2O suction pressure. Patients' characteristics, surgical procedures, and postoperative outcomes were analysed. Success was defined as the control of air leak after pleurodesis with 50% glucose within two times and absence of recurrence within 1 month after drain removal. Predictors for successful pleurodesis were evaluated using multivariable logistic regression analysis.

RESULTS
Pleurodesis with 50% glucose was successfully performed in 58 (83%) patients. The median period from pulmonary resection to pleurodesis was 4 days. The median maximum body temperature within 2 days after pleurodesis was 37.0°C, indicating a slight increase in body temperature. No other serious complications due to pleurodesis were observed. Of the 58 patients, 93% had control of air leak within 2 days after pleurodesis. Multivariable analysis demonstrated that air leak before pleurodesis <300 mL/min and lung collapse rate <10% in chest radiograph were independent predictors for success. The success rate of patients with both or none of these factors was 97% and 29%, respectively.

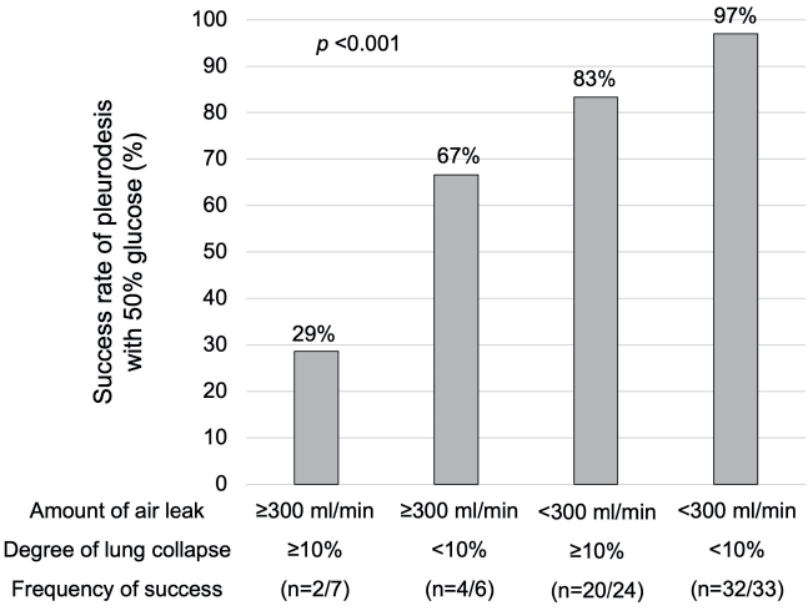
CONCLUSIONS
Pleurodesis with 50% glucose can be a safe and useful treatment for air leak after pulmonary resection to reduce prolonged air leak (>5 days), especially in patients with air leak <300 mL/min and lung collapse rate <10%.

Disclosure: No significant relationships.
Keywords: Pleurodesis, 50% Glucose, Pulmonary Resection, Prolonged Air Leak.

Logistic regression analyses for predicting success of pleurodesis with 50% glucose after pulmonary resection

Variables	Univariable analysis		Multivariable analysis	
	OR (95% CI)	*p* value	OR (95% CI)	*p* value
Female sex	5.68 (0.72-261)	0.092	2.92 (0.21-41.7)	0.429
Not steroid use	10.8 (0.51-680)	0.074	7.03 (0.28-176)	0.235
Air leak <300 ml/min	11.4 (2.34-63.7)	**<.001**	11.4 (1.29-101)	**0.028**
Lung collapse <10%	4.80 (1.05-30.5)	**0.026**	7.92 (1.09-57.6)	**0.041**
Institute		**0.032**		0.120
(A)	1		1	
(B)	0.40 (0.07-2.91)	0.352	0.20 (0.02-1.85)	0.155
(C)	0.13 (0.01-1.26)	**0.042**	0.10 (0.01-1.43)	0.089

OR, odds ratio; CI, confidence interval.



O-031

LONG-TERM SURVIVAL AFTER RESECTION OF STAGE IV NON-SMALL-CELL LUNG CANCER: RESULTS OF A MULTI-CENTER, TRANSCONTINENTAL EXPERIENCE

Michael Eisenberg[1], Raphael Werner[2], Shanique Ries[1], Thedorus Papasotiropoulos[2], Nina Steinmann[2], Isabelle Schmitt-Opitz[2], Mara Antonoff[1]
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[2]*University of Zurich, Zurich, Switzerland*

OBJECTIVES

Recent years have brought a substantial shift in treatment options for patients with metastatic non-small-cell lung cancer (NSCLC) with recognition of the safety and feasibility of surgical resection as local consolidative therapy. However, long-term data remain limited and often incorporate heterogeneous local treatment modalities. We aimed to explore survival outcomes following pulmonary resection for stage IV NSCLC.

METHODS

We reviewed records of patients who underwent lung resection for stage IV NSCLC between 1996-2023 from 2 high-volume transcontinental programs. Gathered data included demographic, clinical, and perioperative variables, as well as aspects of recurrence and survival. Univariate analyses evaluated predictors of overall (OS) and progression-free survival (PFS), and multivariate logistic regression was performed. Kaplan-Meier analyses examined survival outcomes.

RESULTS

179 patients were included, with mean age of 58.3 (51.3-66.0) years and 53.1% (95) women. Mean number of metastases was 1.68 (1.0-2.0), with brain (59, 45.4%) most common site. Notably, a minority of patients developed subsequent locoregional recurrence or progression (64, 35.8%) during a mean follow-up of 50.4 months (14.1-70.5). Recurrences occurred at a median of 15.3 (11.0-25.1) months for locoregional and 15.4 (10.7-23.7) months for distant disease. Median OS was 77.9 (56.5-114.7) and PFS was 36.6 months (25.1-49.4, Figure). Locoregional recurrence worsened OS (37.4 vs 87.5 months, p = 0.049); whereas distant metastasis did not reach significance (p = 0.056). Multivariable predictors of mortality included increased age (OR: 1.07, 95%CI: 1.03-1.12, p=0.002) and greater than lobar resection (OR: 2.63, 95%CI: 1.88-24.0, p=0.04). Survival was not predicted by sex (p=0.30), smoking (p=0.89), brain (p=0.61) or bone metastases (p=0.31), treatment response (p=0.17), or complications (p=0.36).

CONCLUSIONS

Pulmonary resection in stage IV NSCLC results in excellent long-term survival benefits for appropriately selected patients, far exceeding historical expectations for metastatic disease. Widespread recognition of these benefits may amplify access to optimal care for more patients.

Disclosure: Bristol Myers Squibb: Advisory Board.
Keywords: Lung Cancer, NSCLC, Pulmonary Neoplasm, Survival.

Figure:

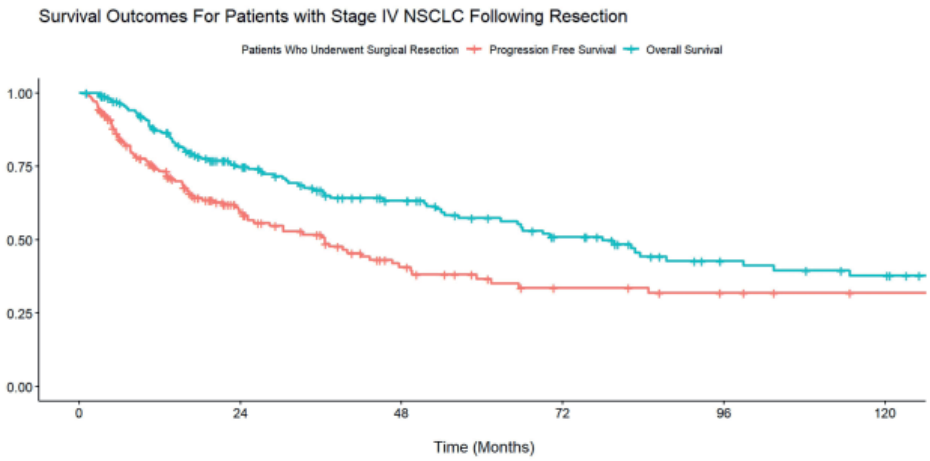

Fig: Kaplan-Meier analysis of survival outcomes for patients with stage IV non-small-cell lung cancer (NSCLC) who underwent surgical resection, N = 179.

MONDAY 27 MAY 2024
EVOLUTION IN MITS SESSION VI
14:30 – 16:00

O-032

ALL SEGMENTS ARE CREATED EQUAL: LOCAL RECURRENCE AND SURVIVAL AFTER SINGLE VERSUS (VS) MULTI-SEGMENT RESECTION IN PATIENTS WITH CLINICAL STAGE IA ≤ 2 CENTIMETER (CM) NON-SMALL CELL LUNG CANCER

Shaikha Al-Thani, Abu Nasar, Jonathan Villena-Vargas, Sebron Harrison, Benjamin Lee, Jeffrey L. Port, Nasser Altorki, Oliver S. Chow
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OBJECTIVES
To compare oncological outcomes of single-segment resection with multi-segment resection in patients with clinical stage IA1 and IA2 non-small cell lung cancer (NSCLC).

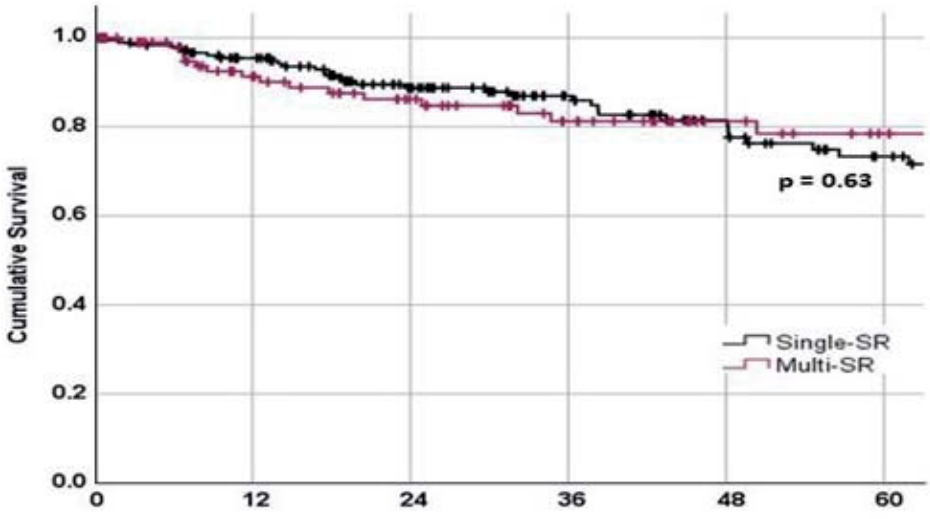
METHODS
A retrospective review of a prospectively maintained database from a single institution was performed from 2011-2022 to identify patients who underwent anatomical segmentectomies for clinical stage IA ≤2cm NSCLC. Patients who underwent anatomical segmentectomy were divided into two groups, those who underwent a single-segment resection (single-SR) and those who underwent a multi-segment resection (multi-SR). Patients were excluded if they had neuroendocrine tumors, small cell lung cancer, or underwent wedge resection, or lobectomy. The primary outcome of interest was local recurrence. The secondary outcome was disease-free survival (DFS).

RESULTS
190 (63.8%) patients underwent a single-SR and 108 (36.2%) patients underwent multi-SR. Baseline demographics and clinical characteristics were similar between the two groups. Patients in the single-SR group had a smaller median pathologic tumor size compared to multi-SR (1.3cm vs 1.45cm, p=0.015), but there was no significant difference between the median margin length between the two groups (1.7cm vs 2.0cm, p=0.146). Patients who had a single-SR had a lower median number of lymph nodes resected compared to patients who underwent a multi-SR (7 vs 10, p<0.001). The single-SR group also had a significantly lower rate of pathologic upstaging (4.2% vs. 10.2%, p=0.033). Local recurrence developed in 6.3% of patients in the single-SR group and 7.4% of patients following multi-SR (p=0.470). With a median follow-up duration of 40 months, five-year DFS was 73% in single-SR and 78% after multi-SR (p=0.63, Figure 1).

CONCLUSIONS

Single-SR appears to have comparable local recurrence rates and disease-free survival when compared to multi-SR for properly selected patients with clinical stage IA NSCLC ≤2cm.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Sublobar Resection, Lung Cancer.



	N	3 years	5 years
Single-Segment Resection	190	83 (87%)	45 (73%)
Multi-Segment Resection	108	44 (81%)	23 (78%)

O-033

NUMBER OF RESECTED N1 LYMPHNODES PREDICTS DISEASE FREE SURVIVAL IN PATHOLOGICALLY N0 NON SMALL CELL LUNG CANCER (NSCLC)

Marco Chiappetta, Filippo Lococo, Elisa Meacci, Carolina Sassorossi, Maria Teresa Congedo, Jessica Evangelista, Annalisa Campanella, Giuseppe Calabrese, Alessia Senatore, Stefano Margaritora
Università Cattolica del Sacro Cuore- Fondazione Policlinico Universitario A. Gemelli - IRCCS, Rome, Italy

OBJECTIVES
The prognostic role of lymphadenectomy in NSCLC remains an argument of debate, trying to identify the most appropriate nodal resection according to tumour stage. Aim of this study is to evaluate the prognostic role of nodal parameter in early stage pathologically N0 patients underwent lobectomy and lymphadenectomy.

METHODS
Clinical and pathological characteristics of patients who underwent anatomical lung resection from 1/01/2010to31/12/2019 were reviewed and retrospectively analyzed.Patients with GGO and part-solid tumors,MIA,AIS,≥5cm in size, with nodal and/or distant metastases,or receiving neoadjuvant treatment were excluded. Operatory and pathological report were reviewed to collect data on lymphadenectomy such as number of resected N1/N2nodes, resected N1/N2stations.
The primary end-point was disease free survival(DFS), calculated from surgery to recurrence appearance.
Clinical and pathological characteristics and nodal parameters were associate to DFS using Kaplan-Meier curves. The log-rank test was used to assess differences between subgroups.A multivariable model was built using Cox-regression analysis including variable resulting significant (p-value<0.05) at univariable analysis.

RESULTS
The final analysis was conducted on 487patients that met the inclusion criteria(table/figure1). Most patients presented stage I tumour(82.4%) and adenocarcinoma resulted the principal histology. The mean number of resected nodes(#RN), resected N1(#RN1) nodes and resected N2 nodes(#RN2) resulted 9.5±8.0, 3.4±4.3 and 5.9±4.4. The mean number of total resected stations(#RS), N1 resected stations(#RSN1)and N2 resected stations(#RSN2) resulted 2.5±1.6, 1±0.8 and 1.5±1.2, respectively.
During a mean follow up of 43±28 months, a recurrence occurred in 137(28.1%)patients, resulting local (thoracic lymphnodes and/or lung parenchyma) in 118(24.2%).
At univariable analysis (figure 1), total number of resected stations≥3(0.032), #RSN1≥3(p=0.001), #RN≥10(p=0.041) and #RN1≥3(p<0.001) resulted significantly correlated with improved DFS. Multivariable analysis confirmed as independent prognostic factor #RN1≥3(p=0.028;HR1.637; 95%CI:1.054-2.543)

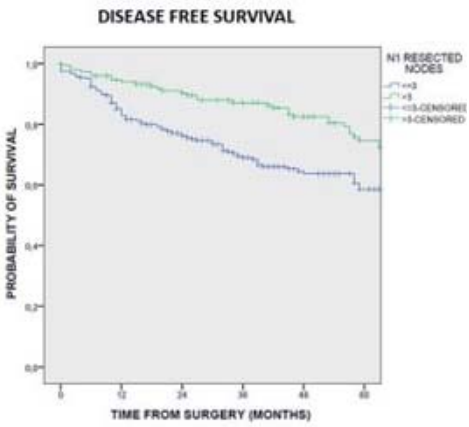
Patients with #RN1≥3 presented a 5-years DFS of 74.7% vs 58.6% of patients with #RN1<3(p=0.001)(figure1).

CONCLUSIONS

Hilar lymphadenectomy seems to significantly correlate with diseases free survival in pN0 NSCLC patients and should be better defined in lymphadenectomy guidelines.

Disclosure: No significant relationships.
Keywords: NSCLC, Surgery, Lymph Nodes.

VARIABLE	N(%) or mean	UNIVARIABLE P VALUE	Multivariable(HR/95%CI)
SEX		0.921	
Male	279(67.1)		
Female	206(42.9)		
AGE	68±9 YEARS	0.112	
SMOKER		0.808	
Yes	218 (45.4)		
no	264(54.6)		
SIDE		0.155	
Dx	277		
Sx	185		
Histology		0.714	
Squamous cell carcinoma	35 (7.3)		
Adenocarcinoma	417(86.6)		
Carcinoid	2(04.1)		
other	10 (2.1)		
pT		0.148	
1a	66 (13.6)		
1b	225(46)		
1c	114(23.6)		
2a	62(12.7)		
2b	24(4.9)		
Resected N1 stations		<0.001	0.159
0	127(26.1)		Ref
1	234(48)		0.100(1.664/0.909-3.054)
>1	112(24.1)		0.664(1.314/0.685-1.612)
Missing	8(1.6)		
Resected N2 stations		0.613	
<3	367 (75.4)		
≥3	113(23.6)		
missing	9 (1.6)		
Total resected stations		0.063	0.949(0.860/0.949-1.632)
<3	232 (47.6)		
≥3	250 (46.9)		
Missing	23(4.2)		
Resected N1 lymphnodes		<0.001	0.008(1.607/1.068-2.568)
<3	333 (68.4)		
≥3	154(31.6)		
Resected N2 lymphnodes		0.153	
<3	366(64.6)		
≥3	101(20.2)		
Missing	30(6.2)		
Total resected lymphnodes		0.041	0.717(1.061/0.703-1.674)
<10	274(56.3)		
≥10	185(38.0)		
Missing	28 (5.7)		



5-years DFS: 74.7% in #RN1≥3 vs 58.6% in patients with #RN1<3(p=0.001)

O-034

PREOPERATIVE PLANNING PROGRAM IN MINIMALLY INVASIVE LUNG SURGERY REDUCES INTRAOPERATIVE ADVERSE EVENTS

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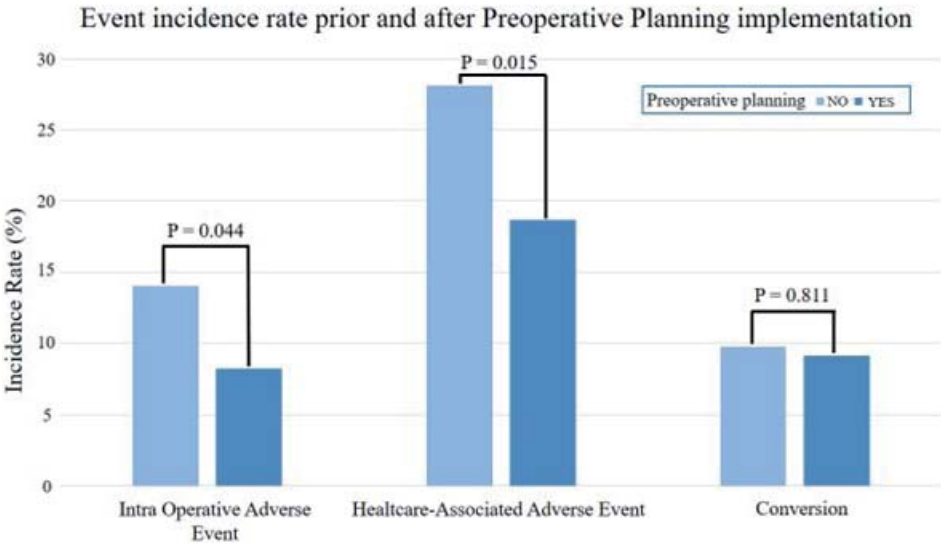
OBJECTIVES
While minimally invasive surgery (MIS) is the preferred approach in patients with early-stage lung cancer, intraoperative adverse events (IOAE) may still occur. The objective of this study was to assess the impact of a dedicated preoperative planning program on adverse event occurrence.

METHODS
A single centre prospective study was conducted, including all patients with proven or suspected lung cancer undergoing curative MIS, prior (November-2021 - October-2022) and after (November-2022 - October-2023) implementation of a preoperative planning program. The preoperative planning program consisted of a weekly assessment of upcoming surgical cases, evaluating surgical strategy, broncho-vascular anatomy and its variation (on-demand 3D-reconstruction), the Epithor Conversion Score, and anticipating surgical difficulties. Data were prospectively collected, and the study was approved by our National Society of Thoracic Surgery ethical committee and review board. The primary outcome was the rate of IOAE defined by the occurrence of a vascular injury, intraoperative conversion, misidentification of broncho-vascular anatomy with incorrect dissection, or incorrect tumor localization/resection. Secondary outcomes were conversion rate, healthcare-associated adverse events, and postoperative morbi-mortality.

RESULTS
We included 486 patients, 256 without preoperative planning and 230 undergoing a preoperative planning program. Patients' preoperative characteristics were similar between the two groups. The overall IOAE rate was 12.8%, significantly lower in the preoperative planning group (8.3% versus 14.1%, p=0.044). The overall healthcare-associated adverse events rate was 23.7%, significantly lower in the preoperative planning group (18.7% versus 28.1, p=0.015). There was no statistical differences between no preoperative planning and preoperative planning program for conversion rate (9.1% versus 9.8%, p=0.81), complication rate (31.7% versus 34.4%, p=0.54), and 90-day mortality (0.4% versus 1.6%, p=0.38). Preoperative planning program impacted surgical strategy in 53/230 patients (23%) including a change in the extent of resection in 20/230 patients (8.7%).

CONCLUSIONS
Implementation of a preoperative planning program in MIS for lung cancer decreases IOAE, improving surgical safety.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Safety, Conversion, Adverse Event, Segmentectomy.



O-035

CHYLOTHORAX IS ASSOCIATED WITH MULTIPLE MEASURES OF AGGRESSIVENESS OF LYMPH NODE MANAGEMENT DURING PULMONARY RESECTION

Devanish N Kamtam, Jake J Kim, Mark F Berry, Mina Satoyoshi, Irmina A Elliot, Brandon A Guenthart, Douglas Z Liou, Natalie S Lui, Leah M Backhus, Joseph B Shrager
Stanford University School of Medicine, Stanford, United States

OBJECTIVES
The increasing discovery of smaller NSCLCs with lower risk for lymph node (LN) involvement has encouraged less aggressive intraoperative LN management. Chylothorax is a morbid and costly complication that tends to originate in the beds of LN resections, but its association with more aggressive LN management remains uncertain. We hypothesized that there would be an association between extent of LN resection and incidence of chylothorax.

METHODS
We retrospectively reviewed patients with adenocarcinoma who underwent resection January 2005-July 2023 and suffered chylothorax. We created a control group without chylothorax by 4:1 propensity score matching on covariates: age, clinical N descriptor, presence of granulomatous LNs, extent of lung resection. We compared the matched groups using various measures of the extent of LN resection.

RESULTS
The incidence of chylothorax was 32/1140(2.8%). The groups were well-matched($p=0.42$-0.85). Patients with chylothorax had significantly higher rates of complete lymphadenectomy (87.5% vs. 70.6%, $p=0.02$) and systematic LN dissection as defined by IASLC/ESMO (90.6% vs. 72.7%,$p=0.04$); a higher median LNs extracted (19 vs. 11,$p<0.001$), N2 LNs extracted (9 vs. 4,$p<0.001$), and LN stations addressed (6 vs. 5,$p=0.03$). Among LN stations, 2 and 4 (46.9% vs. 28.9%; 81.3% vs. 63.3%, both $p=0.05$) had significantly higher rates of being addressed in the chylothorax group. Among the leak sites identified, the right paratracheal region [4/8(50%)] was most common. The chylothorax group had a significantly longer median in-hospital stay (7 vs. 4 days, $p<0.001$), and higher reoperation (18.8% vs. 3.1%,$p=0.005$) and non-operative reintervention (31.3% vs. 3.9%,$p<0.001$) rates. Most leaks (87.5%) resolved with dietary modification/octreotide. Four (12.5%) required reoperation for thoracic duct ligation or direct clipping of leak.

CONCLUSIONS
In propensity-matched groups, chylothorax is highly associated with more aggressive LN management and results in significant perioperative morbidity. This provides a strong rationale for more selective LN management protocols when resecting smaller, less-solid, and/or less FDG-avid NSCLCs.

Disclosure: No significant relationships.
Keywords: Chylothorax, Mediastinal Lymphadenectomy, Lung Cancer, NSCLC.

Variables		Entire study cohort (n=160)	Patients with Chylothorax (n=32)	Matched patients w/o Chylothorax (n=128)	p-value
Extent of LN dissection	Sampling	42 (26.3%)	3 (9.4%)	39 (30.5%)	0.01
	Complete Lymphadenectomy	118 (73.8%)	29 (90.6%)	89 (69.5%)	
Systematic LN dissection (as defined by IASLC/ ESMO) (≥6 LNs and ≥3 N2 stations with Station 7 being one of them)		122 (76.3%)	29 (90.6%)	93 (72.7%)	0.04
CoC Quality measure of adequate LN sampling in Lung cancer resection (1 N1 station and ≥3 N2 stations sampled)		100 (62.5%)	24 (75.0%)	76 (59.4%)	0.10
Adequate mediastinal LN Sampling (as defined by NCCN) (≥3 N2 stations sampled)		102 (63.7%)	24 (75.0%)	78 (60.9%)	0.14
Median number of total LNs extracted		13.0 (8.0-19.0)	19.0 (12.5-28.7)	11.0 (7.0-17.7)	<0.001
Median number of N2 LNs extracted		5.0 (3.0-10.7)	9.0 (4.0-16.7)	4.0 (3.0-8.0)	<0.001
Median number of total LN stations addressed		5.0 (4.0-6.0)	6.0 (4.2-6.0)	5.0 (4.0-6.0)	0.03
Median number of N2 LN stations addressed		3.0 (2.0-3.0)	3.0 (2.2-4.0)	3.0 (2.0-3.0)	0.054
Individual nodal stations addressed	Station 2	52 (32.5%)	15 (46.9%)	37 (28.9%)	0.05
	Station 3	1 (0.6%)	1 (3.1%)	0 (0.0%)	0.20
	Station 4	107 (66.9%)	26 (81.3%)	81 (63.3%)	0.05
	Station 5*	44 (80.0%)	4 (66.7%)	40 (81.6%)	0.59
	Station 6*	17 (30.9%)	3 (50.0%)	14 (28.6%)	0.36
	Station 7	135 (84.4%)	30 (93.8%)	105 (82.0%)	0.17
	Station 8	16 (10.0%)	4 (12.5%)	12 (9.4%)	0.53
	Station 9	81 (50.6%)	17 (53.1%)	64 (50.0%)	0.75
Number of Mediastinal stations ≥4		36 (22.5%)	11 (34.4%)	25 (19.5%)	0.07
Number of Mediastinal LNs ≥3		129 (80.6%)	29 (90.6%)	100 (78.1%)	0.14
Number of Mediastinal LNs ≥4		106 (66.3%)	28 (87.5%)	78 (60.9%)	0.006
Number of Mediastinal LN ≥9		48 (30.0%)	18 (56.3%)	30 (23.4%)	<0.001
Number of Mediastinal LN ≥10		44 (27.5%)	15 (46.9%)	29 (22.7%)	0.006

LN, lymph node; NCCN, National Comprehensive Cancer Network; IASLC, International Association for the Study of Lung Cancer; ESMO, European Society for Medical Oncology.
*Only included patients with left-sided tumors

O-036

EVALUATION OF THE LEARNING CURVE THRESHOLD IN ROBOT-ASSISTED THORACIC SURGERY FOR LUNG CANCER: A NATIONWIDE POPULATION-BASED STUDY

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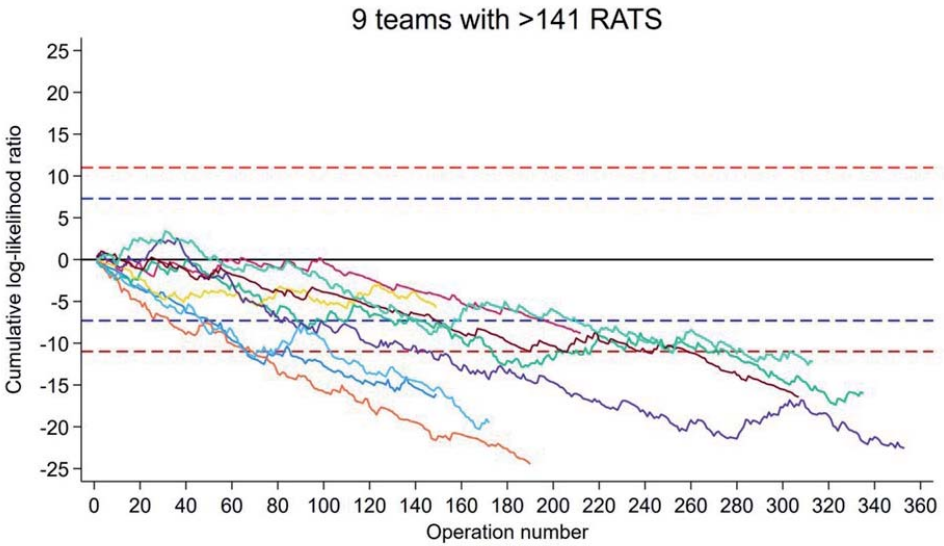
OBJECTIVES
Recent publications suggest that the threshold of the learning curve for robotic pulmonary resection is 25 procedures. The aim of this study was to evaluate the learning curve threshold using a composite quality indicator that is little used in this context.

METHODS
All patients who benefit for robotic lung cancer resection between January 2019 to December 2022 entered in the national medico-administrative database were included. Teams that performed less than 25 procedures were excluded. A composite outcome score included 30-day mortality or major complication (adult respiratory distress syndrome, bronchopleural fistula, empyema, pulmonary embolus, pneumonia, reoperation, myocardial infarction, stroke, heart failure) was created. To estimate the learning curve threshold, we used logistic Regression Models with Broken-Line Relationships. Confirmation of the learning curve threshold was performed using risk-adjusted cumulative log-likelihood ratio statistics.

RESULTS
Twenty-eight teams performed 3,368 RATS. Pulmonary resection was a segmentectomy in 82 patients (2.42%), a lobectomy in 3,277 patients (97%) and pneumonectomy in 9 patients (0.3%). The median number of procedures was 83 (interquartile range 46 -160). The learning curve threshold was estimated at 141 procedures (95% CI [127-153]). Nine centers exceeded this threshold, ranging from 149 to 353 procedures. Nineteen teams were below the threshold, ranging from 25 to 122 procedures. The composite outcome rate was 21% for teams exceeding the threshold versus 28% ($p<0.0001$). The adjusted odds ratio was 0.78 (95%CI [0.65-0.96]). Cumulative log-likelihood ratio test charts confirm that centers with >141 procedures all reached the validation limit. The graph shows that the number of procedures required to reach the validation limit range from 80 to 240 depending on the team. In contrast, only one center reached the validation limit among the 19 teams with <141 procedures.

CONCLUSIONS
To offer patients quality care, the learning curve threshold appears to be over 141 procedures.

Disclosure: Intuitive Surgical consulting fees.
Keywords: Learning Curve, Robotic Surgery, Pulmonary Resection, Lung Cancer.


9 teams with >141 RATS
Cumulative log-likelihood ratio
25
20
15
10
5
0
-5
-10
-15
-20
-25
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360
Operation number

O-037

SURGICAL OUTCOMES OF SUBXIPHOID THORACOSCOPIC COMPLEX BASILAR SEGMENTECTOMY VERSUS LOWER LOBECTOMY

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OBJECTIVES

Indications for anatomic segmentectomy have expanded worldwide as a validated option for early stage lung cancer, and much more for deep metastasis and low-grade lesions. However, basilar nodule location is still rarely proposed for basilar segmentectomy because of the technical procedural complexity and hypothetical risk of increased complications. The optimal minimally invasive approach remains under debate. This study aimed to assess surgical outcomes of complex basilar segmentectomy compared with lower lobectomy, performed through a standardized subxiphoid thoracoscopic approach within an advanced ERAS program.

METHODS

Retrospective analysis of prospectively collected data was performed. Characteristics, perioperative and postoperative data were analyzed and compared between complex basilar segmentectomy and lower lobectomy.

RESULTS

From 2017 to 2023, 98 consecutive patients underwent a standardized subxiphoid thoracoscopic anatomic lung resection for basilar nodule location in cases of primary lung cancer (n = 75), metastases (n = 20), and benign lesions (n = 3), including complex basilar segmentectomy in 39 patients (40%) and lower lobectomy in 59 patients (60%). Both groups were equivalent in terms of age, sex, smoking history or comorbidities. Pathological stage was significantly more advanced in the lobectomy group and all resections were R0. There was one case of oncological conversion to lobectomy after nodal upstaging on frozen section. There were no significant differences between complex basilar segmentectomy and lower lobectomy in terms of conversion to thoracotomy (2.6% vs. 8.5%), overall complications (8% vs. 17%), prolonged air leak (2.6% vs. 1.7%), median length of stay (1 (IQR 1-2) vs 1 (IQR 1-2)), readmission (5.3% vs. 8.5%), and 30-day mortality (0% vs. 1.7%).

CONCLUSIONS

Thoracoscopic complex basilar segmentectomy exhibited satisfactory surgical outcomes comparable to those of lower lobectomy within an advanced ERAS program. From this perspective, subxiphoid approach appears to be a promising way to tackle the technically challenging issue of lung-sparing resection for basilar nodule location.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Basilar Segment, VATS, Lobectomy, Subxiphoid.

Table 1. Lower Lobectomy versus Basilar Segmentectomy Outcomes

	n	Lobectomy (n = 59)	Segmentectomy (n = 39)	p	test
Length of hospitalization (J), median (IQR)	98	1 (1.00; 2.0)	1 (1.00; 2.0)	0.31	Welch
Complications (30 days), n	12	9 (15%)	3 (7.6%)	0.74	Fisher
Pneumonia	4	3 (5.1%)	1 (2.6%)	-	-
Air Leak (>5 days)	2	1 (1.7%)	1 (2.6%)	-	-
Hemothorax	2	2 (3.4%)	0 (0%)	-	-
Respiratory failure	2	2 (3.4%)	0 (0%)	-	-
Empyema	1	1 (1.7%)	1 (2.6%)	-	-
Atrial fibrillation	1	1 (1.7%)	0 (0%)	-	-
Conversion, n	6	5 (8.5%)	1 (2.6%)	0.4	Fisher
Re-admission, n	7	5 (8.5%)	2 (5.3%)	0.7	Fisher
Mortality (30 days)	98	1 (1.7%)	0 (0%)	1	Fisher

O-038

RISK-ADJUSTED DISCRETE INCREASES IN LENGTH OF STAY BY COMPLICATION FOLLOWING ANATOMIC LUNG RESECTION: AN ANALYSIS OF 27,323 CASES ACROSS THE UNITED STATES

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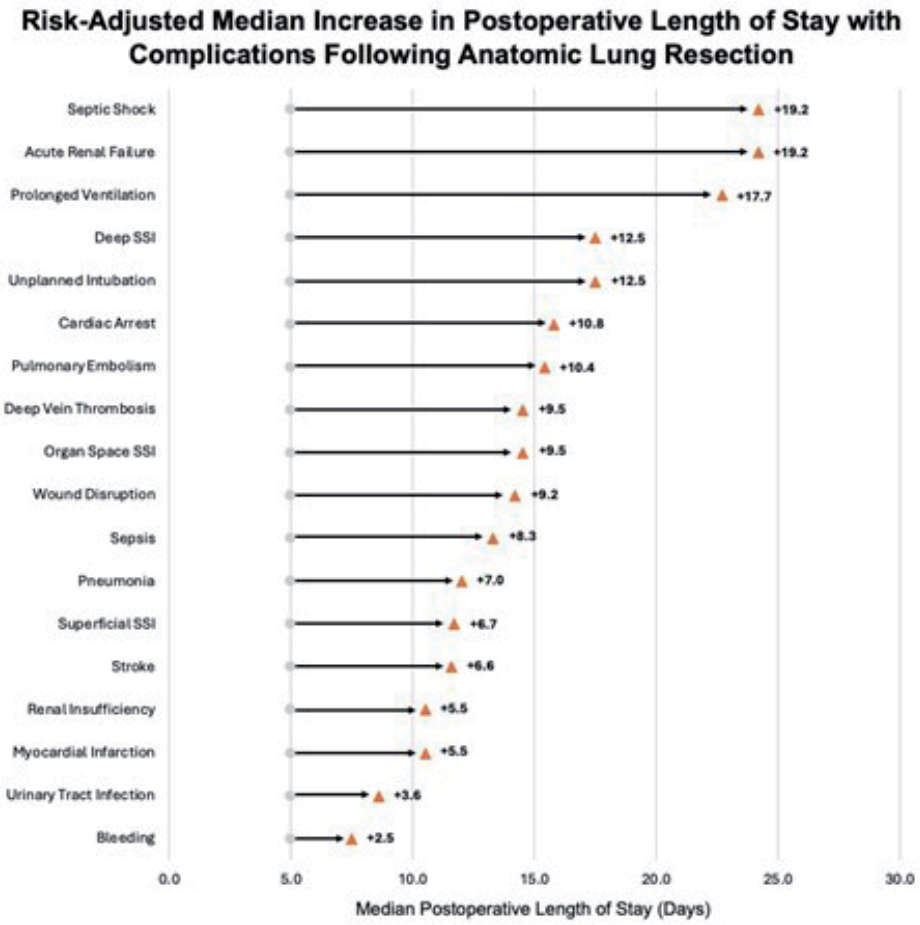
OBJECTIVES
Prior studies have associated morbidity following anatomic lung resection (ALR) with prolonged postoperative length of stay (LOS), however, each complication's individual impact on LOS as a continuous variable has not been studied. The purpose of this study was to determine the risk-adjusted increase in LOS associated with each individual postoperative complications following anatomic lung resection.

METHODS
We utilized the prospectively collected American College of Surgeons National Surgical Quality Improvement Program participant use file, 2005–2018. All ALR patients were included. Patients were excluded if they died within 30-days of the index operation. The association between preoperative characteristics, postoperative complications and LOS in days was tested. A negative binomial model adjusting for the effect of preoperative characteristics and 18 concurrent postoperative complications was used to generate incidence rate ratios. This model was fit to generate risk-adjusted increases in LOS by complication.

RESULTS
Of 31,637 patients, 27,323 (86.4%) were lobectomies. A total of 3,594 patients (11.4%) experienced at least one post-operative complication during their index admission. The most frequent complications were bleeding requiring transfusion (n=1,647, 5.2%), pneumonia (n=1,244, 3.9%) and unplanned reintubation (n=685, 2.2%). On unadjusted analysis, the occurrence of each of the 18 individual complications was associated with significantly increased LOS. This finding persisted after risk-adjustment, with the greatest risk-adjusted increases being associated septic shock and acute renal failure (both +19.2 days), followed by prolonged ventilation (+17.7 days), and deep surgical site infection and unplanned intubation (both +12.5 days), see Figure.

CONCLUSIONS
All 18 postoperative complications studied following ALR were associated with significant risk-adjusted increases in LOS, ranging from an increase of 19.2 days in septic shock and acute renal failure, to 2.5 days following the occurrence of bleeding requiring transfusion. These data can help inform patients and providers about the impact of complications and inform resource allocation.

Disclosure: No significant relationships.
Keywords: Anatomic Lung Resection, Postoperative Morbidity, Lobectomy.



O-039

REAL-WORLD OUTCOMES OF LOBECTOMY, SEGMENTECTOMY, AND WEDGE RESECTION FOR THE TREATMENT OF STAGE CIA LUNG CARCINOMA

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OBJECTIVES
To determine safety and survival outcomes associated with lobectomy, segmentectomy, and wedge resection for early-stage lung cancer by quiring the French population-based registry EPITHOR.

METHODS
Retrospective analysis of 19,452 patients with stage c IA (8th TNM) lung carcinoma who underwent intent-to-cure lobectomy, segmentectomy, or wedge resection between 2016 and 2022. Main outcomes measures were 90-day mortality and 5-year overall survival estimates. Proportional hazards regression and propensity score matching were used to adjust outcomes for key patient, tumor, and practice environment factors.

RESULTS
The treatment distribution was 72.2% for lobectomy, 21.5% for segmentectomy, and 6.3% for wedge. Unadjusted 90-day mortality rates were 1.6%, 1.2% and 1.1%, respectively (P=0.10). Unadjusted 5-year overall survival estimates were 80%, 78% and 70%, respectively (P<0.0001). Multivariate proportional hazards regression showed that wedge was associated with worse overall survival (adjusted hazard ratio [AHR], 1.40 [95%CI, 1.21-1.61]; P<0.0001) compared with lobectomy, while no significant difference was disclosed when comparing segmentectomy to lobectomy (AHR, 1.09 [0.99-1.21]; P=0.092). In both univariate and multivariate models,

the three-way propensity score analyses confirmed similar 90-day mortality rate for wedge resection compared to segmentectomy and lobectomy (AHR: 0.43; 95% CI: 0.16-1.11; P=0.081 and 0.38; 95% CI: 0.14-1.01; P=0.052, respectively). However, wedge and segmentectomy were associated with poorer overall survival when compared to lobectomy (AHR: 1.45; 95% CI: 1.13-1.86; P=0.003 and 1.31; 95% CI: 1.00-1.71; P=0.048, respectively).

CONCLUSIONS

Sublobar resections were associated with comparable 90-day mortality but inferior overall survival when compared to lobectomy. These findings suggest that sublobar resections may not offer equivalent oncologic effectiveness in real-world settings.

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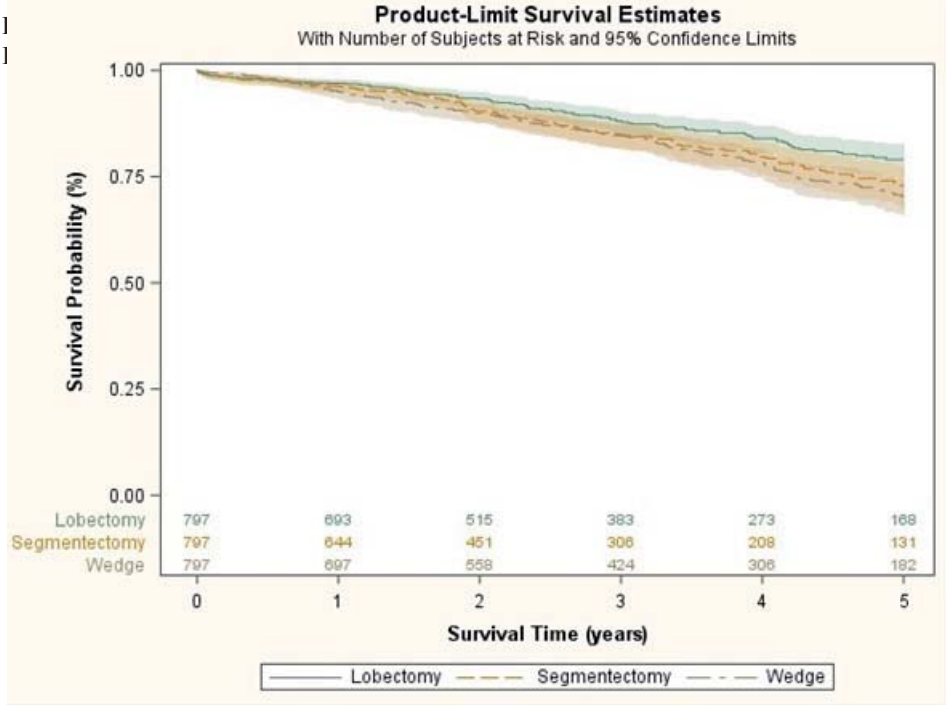

O-040

COMPARISON OF CLINICAL OUTCOMES AND ONE-YEAR QUALITY OF LIFE BETWEEN ROBOTIC-ASSISTED AND VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR LUNG CANCER: A LONGITUDINAL COHORT STUDY

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OBJECTIVES
The comparative effects of robotic-assisted thoracoscopic surgery (RATS) versus video-assisted thoracoscopic surgery (VATS) on direct clinical outcomes of patients with lung cancer remain to be fully elucidated. This study aims to elucidate the clinical outcomes and quality of life (QOL) one year following RATS and VATS.

METHODS
Patients were extracted from a prospective ongoing observational cohort (CN-PRO-Lung 3) from April 2021 to December 2023. In this cohort, patient's characteristics, clinical outcome and longitudinal QOL data of patients were collected. Primary lung cancer patients post RATS or VATS were extracted, excluding those with specific cancer histories, other recent thoracic surgeries, or preoperative treatments affecting QOL. In evaluating QOL, the Five-Level EuroQol Five-Dimensional Questionnaire (EQ-5D-5L) is employed. Clinical outcomes and QOL trajectories from preoperative to 12 months post-surgery were analyzed and compared between RATS and VATS groups. We utilized propensity score matching (PSM) to adjust for confounders between the RATS (n=124 pre-PSM, n=120 post-PSM) and VATS (n=563 pre-PSM, n=120 post-PSM) cohorts.

RESULTS
Systemic lymph node dissection was performed more frequently in RATS patients ($p<0.001$), and less intraoperative blood loss in RATS patients ($p<0.001$). However, robotic-assisted surgery is associated with higher costs ($p<0.001$). There were no differences between the two groups in other clinical outcome indicators such as major complication morbidity, operative time, and total chest tube drainage after surgery ($p>0.05$). Longitudinal EQ-5D-5L utility scores and VAS scores up to 12 months post-surgery showed no significant differences between the RATS and VATS groups (all group $p>0.05$).

CONCLUSIONS
The study found that although RATS led to better intraoperative outcomes compared to VATS, such as more frequent systemic lymph node dissection and reduced blood loss, it was also more costly. However, these differences did not translate into significant discrepancies in one-year (QOL) metrics post-surgery.

Disclosure: No significant relationships.
Keywords: Clinical Outcomes, Quality Of Life, Robotic-Assisted Thoracoscopic Surgery, Video-Assisted Thoracoscopic Surgery, Lung Cancer.

Table 1 Demographic and Clinical Characteristics of Participants Pre- and Post-Propensity Score Matching (PSM)

Variable	Before PSM				After PSM			
	RATS (n=124)	VATS (n=563)	P value[a]	SMD	RATS (n=120)	VATS (n=120)	P value[a]	SMD
Age, mean ± SD, year	55.34 ± 11.24	54.88 ± 11.10	0.677	0.041	55.27 ± 11.41	55.88 ± 10.31	0.665	0.056
BMI, mean ± SD	23.28 ± 3.06	22.76 ± 2.97	0.084	0.17	23.23 ± 3.09	23.22 ± 3.32	0.966	0.005
Sex, %								
Male	49 (39.52)	190 (33.75)	0.264	0.12	45 (37.50)	53 (44.17)	0.358	0.136
Female	75 (60.48)	373 (66.25)			75 (62.50)	67 (55.83)		
Highest education level, %								
Junior high school and below	54 (43.55)	219 (38.90)	0.392	0.095	52 (43.33)	51 (42.50)	1	0.017
Senior school and above	70 (56.45)	344 (61.10)			68 (56.67)	69 (57.50)		
Family annual income, %								
1	49 (39.52)	185 (32.86)	0.33	0.147	46 (38.33)	41 (34.17)	0.672	0.115
2	61 (49.19)	316 (56.13)			60 (50.00)	61 (50.83)		
3	14 (11.29)	62 (11.01)			14 (11.67)	18 (15.00)		
ASA classification, %								
≤ I	117 (94.35)	518 (92.01)	0.479	0.093	113 (94.17)	109 (90.83)	0.462	0.127
> I	7 (5.65)	45 (7.99)			7 (5.83)	11 (9.17)		
CCI score classification, %								
≤1	74 (59.68)	332 (58.97)	0.965	0.014	72 (60.00)	68 (56.67)	0.694	0.068
>1	50 (40.32)	231 (41.03)			48 (40.00)	52 (43.33)		
Smoking history, %								
Person who doesn't smoke	88 (70.97)	457 (81.17)	0.039	0.241	88 (73.33)	87 (72.50)	0.986	0.022
Person who smokes	25 (20.16)	72 (12.79)			21 (17.50)	22 (18.33)		
Person who has smoke history	11 (8.87)	34 (6.04)			11 (9.17)	11 (9.17)		
Pre-neoadjuvant history, %								
Yes	119 (95.97)	558 (99.11)	**0.021**	0.204	118 (98.33)	117 (97.50)	1	0.058
No	5 (4.03)	5 (0.89)			2 (1.67)	3 (2.50)		
Pathological type, %								
Adenocarcinoma	112 (90.32)	532 (94.49)	0.189	0.158	111 (92.50)	111 (92.50)	0.704	0.123
Squamous carcinoma	6 (4.84)	16 (2.84)			4 (3.33)	6 (5.00)		
Other	6 (4.84)	15 (2.66)			5 (4.17)	3 (2.50)		

Table 1. Demographic and Clinical Characteristics of Participants Pre- and Post-Propensity Score Matching (PSM) (continuation)

Variable	Before PSM				After PSM			
	RATS (n=124)	VATS (n=563)	P value[a]	SMD	RATS (n=120)	VATS (n=120)	P value[a]	SMD
Main tumor location, %								
RUL	49 (39.52)	195 (34.64)			49 (40.83)	50 (41.67)		
RML	7 (5.65)	39 (6.93)			6 (5.00)	6 (5.00)		
RLL	18 (14.52)	106 (18.83)	0.51	0.183	18 (15.00)	24 (20.00)	0.659	0.202
LUL	35 (28.23)	137 (24.33)			33 (27.50)	24 (20.00)		
LLL	15 (12.10)	86 (15.28)			14 (11.67)	16 (13.33)		
Resection type, %								
Sub lobectomy	45 (36.29)	321 (57.02)	0	0.425	45 (37.50)	40 (33.33)	0.589	0.087
Lobectomy	79 (63.71)	242 (42.98)			75 (62.50)	80 (66.67)		
pTNM stage, %								
0	0 (0.0)	8 (1.42)			0 (0.0)	1 (0.83)		
IA stage	91 (73.39)	458 (81.35)	7,312	0.301	91 (75.83)	85 (70.83)	0.705	0.169
IB stage	15 (12.10)	56 (9.95)			14 (11.67)	15 (12.50)		
≥ II stage	18 (14.52)	41 (7.28)			15 (12.50)	19 (15.83)		

Abbreviations: PSM, propensity score matching; RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery; SMD, standardized mean difference; SD, standard deviation; BMI, body mass index; ASA, American Society of Anesthesiologists; CCI, Charlson Comorbidity Index; RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL, left upper lobe; LLL, left lower lobe; PSM, propensity score matching; pTNM, postoperative tumour node metastasis;

[a] t-test for continuous variables, Chi-Square tests or Fisher exact probability test for categorical variables.

Table 2. Clinical outcomes Pre- and Post-Propensity Score Matching (PSM)

Variable	Before PSM			After PSM		
	RATS (n=124)	VATS (n=563)	P value[a]	RATS (n=120)	VATS (n=120)	P value[a]
Lymphadenectomy, %						
Systemic lymph node dissection	74 (59.68)	137 (24.33)	**<0.001**	71 (59.17)	45 (37.50)	**<0.001**
Lymph node sampling	50 (40.32)	403 (71.58)		49 (40.83)	71 (59.17)	
Not performed	0 (0.0)	23 (4.09)		0 (0.0)	4 (3.33)	
Number of chest tube, %						
1	105 (84.68)	503 (89.34)	0.187	103 (85.83)	102 (85.00)	1
2	19 (15.32)	60 (10.66)		17 (14.17)	18 (15.00)	
Intraoperative blood loss, median (IQR), ml	50.00 (50.00, 50.00)	50.00 (30.00, 50.00)	0.001	50.00 (50.00, 50.00)	50.00 (50.00, 100.00)	0.006
Blood loss, ml						
≤50	108 (87.10)	428 (76.02)	**0.01**	105 (87.50)	87 (72.50)	**0.006**
>50	16 (12.90)	135 (23.98)		15 (12.50)	33 (27.50)	
Major complication morbidity (Clavien-Dindo grade>2), %						
In-hospital	0 (0.0)	2 (0.36)	1	0 (0.0)	0 (0.0)	/
30-day after surgeryb	0 (0.0)	5 (0.92)	0.59	0 (0.0)	2 (1.68)	0.247
90-day after surgeryb	0 (0.0)	7 (1.28)	0.359	0 (0.0)	2 (1.68)	0.247
Operative time, median (IQR), minute	90.00 (70.00, 110.00)	90.00 (60.00, 120.00)	0.408	90.00 (70.00, 110.00)	100.00 (70.00, 135.00)	0.17
Total chest tube drainage after surgeryb, median (IQR), ml	505.00 (360.00, 730.00)	420.00 (200.00, 700.00)	0.003	500.00 (355.00, 730.00)	510.00 (300.00, 780.00)	0.923
PHS, median (IQR), day	4.00 (3.00, 5.00)	4.00 (3.00, 5.00)	0.747	4.00 (3.00, 5.00)	4.00 (3.00, 5.00)	0.895
LOS, median (IQR), day	7.00 (6.75, 9.00)	7.00 (6.00, 8.00)	0.187	7.00 (6.00, 8.25)	7.00 (6.00, 8.00)	0.73
Total costb, mean ± SD, Chinese Yuan	71989.48 (67395.32, 75201.74)	45315.39 (39297.24, 52808.64)	**<0.001**	71989.48 (67395.32, 75134.21)	49529.68 (42212.22, 55536.01)	**<0.001**

Abbreviations: PSM, propensity score matching; RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery; IQR, interquartile range; PHS, postoperative hospital stay; LOS, length of stay; SD, standard deviation.

[a] t-test or Mann-Whitney U test for continuous variables, Chi-Square tests or Fisher exact probability test for categorical variables;

[b] Complications were not followed up in eighteen patients, total drainage in hospitalization was missing in two patients, and one missing for total cost.

Table 3. Compliance rate for data availability of EQ-5D-5L

Time point	Before PSM		After PSM	
	RATS Response (Compliance rate, %) (n=124)	VATS Response (Compliance rate, %) (n=563)	RATS Response (Compliance rate, %) (n=120)	VATS Response (Compliance rate, %) (n=120)
Pre-operation	105 (84.68)	444 (78.86)	101 (84.17)	91 (75.83)
Discharge day	42 (33.87)	196 (34.81)	41 (34.17)	34 (28.33)
Discharge seri-month	91 (73.39)	385 (68.38)	87 (72.5)	76 (63.33)
Discharge 1 month	80 (64.52)	340 (60.39)	76 (63.33)	74 (61.67)
Discharge 2 month	92 (74.19)	389 (69.09)	89 (74.17)	85 (70.83)
Discharge 3 month	94 (75.81)	395 (70.16)	91 (75.83)	84 (70)
Discharge 6 month	95 (76.61)	391 (69.45)	93 (77.5)	78 (65)
Discharge 9 month	86 (69.35)	371 (65.9)	83 (69.17)	71 (59.17)
Discharge 12 month	78 (62.9)	342 (60.75)	75 (62.5)	71 (59.17)

Abbreviations: RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery.

Table 4. Mean score for EQ-5D-5L after Pre- and Post-Propensity Score Matching (PSM)

Time point	Utility [mean (95%CI)]		VAS [mean (95%CI)]		Utility [mean (95%CI)]		VAS [mean (95%CI)]	
	RATS (n=124)	VATS (n=563)	RATS (n=124)	VATS (n=563)	RATS (n=120)	VATS (n=120)	RATS (n=120)	VATS (n=120)
Pre-operation	0.95 (0.94-0.96)	0.95 (0.95-0.96)	85.44 (82.18-88.69)	80.64 (78.28-83)	0.95 (0.93-0.96)	0.96 (0.95-0.97)	85.59 (82.27-88.92)	81.09 (75.65-86.52)
Discharge day	0.72 (0.65-0.79)	0.69 (0.66-0.72)	53.76 (43.02-64.49)	55.97 (51.68-60.27)	0.72 (0.65-0.8)	0.74 (0.69-0.79)	55.1 (44.44-65.76)	56.68 (45.86-67.49)
Discharge seri-month	0.74 (0.7-0.78)	0.79 (0.78-0.81)	52.58 (45.75-59.42)	60.59 (57.29-63.88)	0.74 (0.7-0.78)	0.78 (0.74-0.81)	52.61 (45.61-59.61)	60.17 (52.82-67.53)
Discharge 1 month	0.81 (0.77-0.84)	0.85 (0.84-0.86)	56.33 (48.25-64.4)	63.92 (60.11-67.73)	0.81 (0.77-0.85)	0.85 (0.82-0.88)	57.42 (49.23-65.61)	62.34 (54.1-70.57)
Discharge 2 month	0.89 (0.86-0.91)	0.9 (0.89-0.91)	58.11 (50.4-65.82)	67.78 (64.25-71.3)	0.89 (0.86-0.91)	0.91 (0.89-0.93)	57.57 (49.65-65.49)	67.41 (59.56-75.26)
Discharge 3 month	0.89 (0.87-0.91)	0.92 (0.91-0.93)	62.27 (54.81-69.73)	68.13 (64.61-71.65)	0.89 (0.87-0.91)	0.92 (0.9-0.94)	61.66 (54.01-69.3)	62.74 (54.5-70.98)
Discharge 6 month	0.92 (0.9-0.94)	0.94 (0.93-0.94)	65.66 (58.01-73.32)	70.38 (66.73-74.04)	0.92 (0.9-0.94)	0.94 (0.92-0.96)	65.24 (57.45-73.03)	71.18 (63.04-79.32)
Discharge 9 month	0.92 (0.91-0.94)	0.94 (0.93-0.95)	70.44 (62.99-77.89)	71.95 (68.2-75.7)	0.93 (0.91-0.94)	0.93 (0.91-0.95)	69.84 (62.17-77.52)	72.44 (63.74-81.14)
Discharge 12 month	0.93 (0.91-0.95)	0.95 (0.94-0.95)	59.38 (50.05-68.72)	71.67 (67.77-75.57)	0.92 (0.9-0.95)	0.94 (0.93-0.96)	59.29 (49.79-68.8)	65.11 (55.75-74.47)

Abbreviations: RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery.

Table 5. Comparative Analysis of EQ-5D-5L Utility Scores Post-PSM Between RATS and VATS Patients Over a 12-Month Follow-Up Period

Time point	RATS vs. VATS (ref)								
	Group			Time			Group*Time		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
Pre-operation (ref)	-	-	-	-	-	-	-	-	-
Discharge day	-0.005	0.014	0.702	-0.264	0.011	<0.001	0.033	0.026	0.206
Discharge seri-month	-0.005	0.012	0.656	-0.16	0.007	<0.001	-0.049	0.017	0.004
Discharge 1 month	-0.005	0.01	0.611	-0.104	0.007	<0.001	-0.037	0.015	0.016
Discharge 2 month	-0.005	0.009	0.572	-0.055	0.005	<0.001	-0.008	0.012	0.493
Discharge 3 month	-0.005	0.009	0.553	-0.037	0.005	<0.001	-0.023	0.012	0.047
Discharge 6 month	-0.005	0.008	0.511	-0.019	0.005	<0.001	-0.008	0.011	0.429
Discharge 9 month	-0.005	0.008	0.501	-0.015	0.005	0.002	-0.011	0.011	0.319
Discharge 12 month	-0.005	0.007	0.467	-0.009	0.004	0.04	-0.016	0.01	0.109

Group*time refers to the interaction between groups and the analysis time;
Abbreviations: PSA-Lung, the Perioperative Symptom Assessment for Lung surgery; RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery; SE, standard error.

Table 6. Comparative Analysis of EQ-5D-5L VAS Scores Post-PSM Between RATS and VATS Patients Over a 12-Month Follow-Up Period

Time point	RATS vs. VATS (ref)								
	Group			Time			Group*Time		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
Pre-operation (ref)	-	-	-	-	-	-	-	-	-
Discharge day	4.506	3.596	0.214	-24.411	5.000	<0.001	-6.083	6.827	0.376
Discharge seri-month	4.506	3.912	0.251	-20.907	3.973	<0.001	-12.085	5.453	0.028
Discharge 1 month	4.506	4.12	0.276	-18.589	4.189	<0.001	-9.833	5.843	0.095
Discharge 2 month	4.506	4.307	0.297	-13.593	4.166	0.001	-14.461	5.792	0.014
Discharge 3 month	4.506	4.337	0.300	-18.27	4.280	<0.001	-5.717	5.921	0.336
Discharge 6 month	4.506	4.302	0.296	-9.773	4.429	0.029	-10.561	6.049	0.083
Discharge 9 month	4.506	4.152	0.280	-8.616	4.490	0.057	-7.159	6.147	0.246
Discharge 12 month	4.506	4.484	0.317	-15.976	4.786	0.001	-10.36	6.645	0.121

Group*time refers to the interaction between groups and the analysis time;
Abbreviations: PSA-Lung, the Perioperative Symptom Assessment for Lung surgery; RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery; SE, standard error.

MONDAY 27 MAY 2024
TRANSPLANT AND AIRWAY SESSION VII
14.45 - 15.45

O-041

PATTERNS OF LARYNGOTRACHEAL INVOLVEMENT AND PREDICTORS FOR COMPLICATIONS AFTER AIRWAY RESECTION AND RECONSTRUCTION. A 20-YEAR TEMPORAL COMPARISON OF TWO SURGICAL COHORTS FROM A SINGLE REFERRAL CENTER

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OBJECTIVES
In 2014 our division demonstrated that clinical comorbidities, previous airway resection and length of resection were predictors for anastomotic complications. The objective of this study is to compare two surgical series (2002-2009 vs 2012-2023) in terms of laryngotracheal involvement and investigate whether predictors for complications have changed overtime.

METHODS
Study included all patients that underwent tracheal-laryngotracheal resection with primary reconstruction between February/2002-January/2009 (n=122) and from January 2012-December 2023 (n=148). All data is stored at RedCAPR database and was collected prospectively from 2018 onwards. Patterns of laryngotracheal involvement were described according to the performed laryngotracheal anastomosis and compared among the series. Predictors for overall complications included diabetes, corticosteroid use, covid-19 infection, resection>40mm, BMI>30, prior airway resection and laryngo-tracheal anastomosis. Variables were tested for the primary outcome by univariate analysis ($p< 0.1$) and multivariate analysis ($p=0.05$).

RESULTS
270 patients were operated for laryngotracheal diseases(207males/63 Females). Sixty patients 60 underwent laryngeal split and cartilagenous grafting and were excluded from the analysis. The mean length of airway resection was 28.87 + 92mm(range 5-60). There was a significant decrease in end-to-end tracheal reconstruction in the recent series (55.3%vs43.9%) with a higher incidence of stenosis at or proximal to the cricoid (Table). In the most recent cohort, overall complications occurred were less frequently than in the first cohort (44.6 vs 33.3%). However, surgical-related mortality increased to 3.4% (n=4); all of them due to trachea-innominate artery fistula. The most common complication was wound infection (11.2%;n=13). Restenosis occurred in 10.3% (n=12). After univariate and multivariate analysis in the recent

cohort, laryngo-tracheal anastomosis was the sole predictor for anastomotic complications (OR 4.86; 95%CI 0.94-25; p=0.05).

CONCLUSIONS

Recent data suggests a shift towards laryngo-tracheal involvement rather than pure tracheal disease. Even though the overall complication rate decreased, mortality increased to 3.4%. Laryngo-tracheal anastomosis was the sole predictor for complications in the most recent cohort.

Disclosure: No significant relationships.
Keywords: Tracheal Stenosis; Subglottic Stenosis; Complications; Predictors; Surgery.

	2002-2009 (n=94)	2012-2023 (n=116)	p
Length of resection	29.19±8.3mm	28.61±10mm	0.6
Overall complications	44.6%	33.3%	0.2
Anastomotic complications	21%	17.5%	0.4
Restenosis	15.9%	10.3%	0.5
Granulation Tissue	4.2%	5.7%	0.6
Dehiscence	1%	4.2%	0.2
Non-anastomotic complications			
Wound infection	10.6%	11.2%	0.3
Wound hematoma	2.1%	3.4%	0.3
Dysphonia	5.3%	6.4%	0.5
Dysphagia	4.2%	3.9%	0.4
Mortality	0	3.4%	0.4
Type of surgery			0.039
End-to-end tracheal anastomosis	55.3%	43.9%	
Crico-tracheal anastomosis	25.5%	45.6%	
Laryngo-tracheal anastomosis	19.2%	10.5%	

O-042

COMPARATIVE ANALYSIS OF OPEN AND ROBOTIC TRACHEOBRONCHOPLASTY FOR EXCESSIVE CENTRAL AIRWAY COLLAPSE AT A HIGH-VOLUME COMPLEX AIRWAY CENTER

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OBJECTIVES
Tracheobronchoplasty (TBP) is an operation that stabilizes the posterior tracheal membrane to treat excessive central airway collapse. In 2020, our institution transitioned from the traditional open approach to the robotic-assisted TBP (rTBP) in select patients. In this study, we compare postoperative complications and short-term outcomes of patients undergoing open versus rTBP at a high-volume center.

METHODS
A retrospective review of all patients who underwent open TBP (2018-2020) and rTBP (2020-2023) was conducted. The primary outcome were postoperative complications classified by the Clavien-Dindo Score. Secondary outcomes included operative time, estimated blood loss (EBL), hospital and ICU length of stay (LOS), reoperation rate, discharge disposition, 30-day readmission, and change in subjective quality of life (QOL) scores and 6-minute walk test (6MWT) at 3 and 12 months.

RESULTS
During the study period, 71 and 30 patients underwent open TBP and rTBP, respectively. rTBP had longer average operative times than open (520.9 vs 412 minutes; p=<0.0001). Both ICU LOS (2.8 vs 5 days, p=0.0006) and hospital LOS (7.7 vs 9 days, p=0.003) were shorter after rTBP compared to open. There were no significant differences in EBL, Clavien-Dindo Score, discharge to home, and 30-day readmission. There were no reoperations in either group. There was one mortality after open TBP and none after rTBP. At follow-up in 3 and 12 months, both groups benefited equally in terms of improvements in their QOL scores or 6MWT.

CONCLUSIONS
These results support the safety and efficacy of rTBP in select patients. Patients undergoing rTBP have shorter ICU and hospital stays, with equivalent complication rates, and reported QOL improvements as the traditional open approach. As the robotic approach becomes more prevalent, further studies on comparative outcomes are necessary at longer term follow-up to ensure the fidelity of the repair is durable.

Disclosure: No significant relationships.
Keywords: Robotic-Assisted Thoracoscopic Surgery, Minimally Invasive Surgery, Airway Surgery, Tracheobronchoplasty, Excessive Central Airway Collapse.

Variable	Open group (n=71)	Robot group (n=30)	p-value
Age, year	60 ± 10.8	56.6 ± 15.7	0.24
Female sex, n(%)	53 (75)	20 (67)	0.56
White race, n(%)	63 (89)	29 (97)	0.32
BMI, kg/m2	33 ± 5.9	32.3 ± 5.9	0.99
Comorbidities			
Smoking history, n(%)	27 (38)	17 (57)	0.13
GERD, n(%)	57 (80)	29 (97)	0.07
COPD, n(%)	15 (21)	12 (40)	0.09
Asthma, n(%)	48 (68)	23 (77)	0.50
OSA, n(%)	44 (62)	26 (87)	0.03*
Charlson Comorbidities Index	3 ± 1.9	3.6 ± 2.5	0.27
Intraoperative			
Operative time, minutes	412 ± 63.9	520.9 ± 122	<0.0001*
EBL, mL	167 ± 125.5	190.9 ± 155.5	0.91
ICU LOS, days	5 ± 6.4	2.8 ± 4	0.0006*
Hospital LOS, days	9 ± 6.6	7.7 ± 8.9	0.003*
Reoperation rate, n(%)	0 (0)	0 (0)	
Clavien-Dindo Score	20 ± 22.3	15.8 ± 21.5	0.37
Discharge to home, n(%)	59 (83)	25 (83)	1
30 day readmission, n(%)	12 (18)	7 (23)	0.76
SGRQ			
Baseline	69 (15)	65.6 (15.4)	0.17
3-month change	- 18.6 (24.8)	- 11.8 (18.0)	0.29
12-month change	- 21.1 (21.0)	- 17.0 (20.6)	0.60
CQLQ			
Baseline	68 (12.5)	69.1 (15)	0.58
3-month change	- 9.7 (14.3)	-8.1 (11.8)	0.65
12-month change	- 13.6 (14.0)	- 4.7 (12.7)	0.08
mMRC			
Baseline	2 (1)	2.5 (1.1)	0.54
3-month change	- 0.48 (1.1)	- 0.8 (0.9)	0.54
12-month change	- 0.63 (1.4)	- 0.06 (1.1)	0.21
6MWT, feet			

Variable	Open group (n=71)	Robot group (n=30)	p-value
Baseline	1247 (377.1)	1166 (437)	0.27
3-month change	+ 148.5 (255.6)	+ 164.9 (410.2)	0.63
12-month change (SD)	+ 87.5 (297.0)	+ 90.5 (79.9)	0.82
FEV1, Liter			
Baseline (SD)	21 (0.6)	2.2 (0.9)	0.65
3-month change (SD)	- 0.09 (0.29)	- 0.05 (0.52)	0.22
12-month change (SD)	- 0.18 (0.50)	+ 0.60 (0.77)	0.02*

O-043

LONG-CORONAVIRUS (COVID) OF THE TRACHEA: AN ANALYSIS ILLUSTRATING THE RELATIONSHIP BETWEEN CORONAVIRUS-19 (COVID-19) INFECTION AND POST-INTUBATION TRACHEAL STENOSIS IN THE UNITED STATES

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OBJECTIVES
During the COVID-19 pandemic many patients needed advanced critical care including intubation and tracheostomy. Long-term impact of COVID-19 infection on the trachea is not known. Here, we identify the incidence and outcomes of long-COVID of the trachea including post-intubation tracheal stenosis.

METHODS
TriNetX, a global health research network comprised of 102 centers worldwide and 98 million patients, was queried for adults (age >18) with ICD codes of COVID-19 that were intubated within 30 days after COVID-19 diagnosis. Patients with post intubation tracheal stenosis within 1 year after COVID infection were compared to all COVID patients who were intubated. Outcomes were assessed with multivariate regression; mortality was assessed with Kaplan-Meier Log-Rank Test.

RESULTS
21,626 (1.0%) patients were intubated following COVID infection from a total of 2.2 million. Of those, 647 (3.0%) developed post intubation tracheal stenosis within one year from their COVID-19 infection compared to 1.5% (6208/389,347) of all intubated patients within the same database who did not get COVID-19. Patients that developed tracheal stenosis were more likely to be younger (57.5 vs 61.3, $p<0.001$) and female (49% vs 40%, $p<0.001$). Patients were also more likely to have had a previous COVID-19 infection (2% vs 0%, $p<0.001$) or previous intubation (2% vs 0%, $p<0.001$). Interestingly, after matching, patients that developed tracheal stenosis had improved mortality at 30 days (OR 0.34, CI 0.26-0.44), 90 days (OR 0.41, CI 0.33-0.53), and 1 year (OR 0.49, CI 0.39-0.61)/

CONCLUSIONS
Patients with prolonged intubation following COVID-19 infection are at higher risk of tracheal stenosis needing continued monitoring of long-COVID of the trachea. Surgeons should not be afraid to intervene with dilation and resection on tracheal stenosis after COVID-19 as those interventions improve survival. Further work is needed to understand why patients develop tracheal stenosis after COVID-19 infection.

Disclosure: No significant relationships.
Keywords: Long COVID, Trachea, Tracheal Resection.

O-044

NEOADJUVANT IMMUNOCHEMOTHERAPY IN PRIMARY TRACHEAL SQUAMOUS CELL CARCINOMA(GALAXY-01)

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OBJECTIVES
Neoadjuvant immunochemotherapy, a promising approach in cancer treatment, has been shown to be effective and safe in resectable non-small-cell lung cancer. Whether neoadjuvant therapy affects pathological or surgical outcomes of primary tracheal tumors remains unclear. This trial (NCT05964101) aimed to investigate the safety and feasibility of neoadjuvant therapy for primary squamous cell carcinoma (SCC).

METHODS
In this open-label, phase 2 trial, we randomly assigned patients with primary tracheal squamous cell carcinoma to receive nivolumab plus platinum-based chemotherapy followed by resection. Eligible patients received two to four cycles of neoadjuvant therapy: nivolumab (360mg), carboplatin (area under the curve 5) and paclitaxel (100 mg/m ²). The primary end points here were major pathological complete response (MPR, viable tumor ≤10%) and R0 resection (0% viable tumor in surgical margins), both evaluated by blinded independent review.

RESULTS
A total of 6 SCC patients who underwent neoadjuvant immunochemotherapy followed by surgery were analyzed. The mean tumor diameter before treatment among all 6 cases was 3.5 cm (range, 1.7 to 4.6 cm). After preoperative treatment, 5 patients achieved tumor extent reduction, including 2 patients achieved partial response (PR). The average tumor diameter was 2.5 cm (range, 1.7 to 4.0 cm) after preoperative treatment. No patient experienced serious adverse events. All patients received surgery after neoadjuvant treatment, none of whom experienced treatment-related surgery delays. R0 resection was achieved in 5 patients, and 5 patients' postoperative specimens with MPR. Postoperative events were observed in 2 patients, including pneumonia and atrial arrhythmia. Neither serious complications nor operative deaths occurred within 30 days.

CONCLUSIONS
In patients with SCC, neoadjuvant immunochemotherapy has shown favorable therapeutic effectiveness, which holds promise as a potential strategy to improve R0 resection rates and enhance MPR rate. Additionally, neoadjuvant therapy didn't impede the feasibility and safety of airway resection and reconstruction, which was in line with organ preservation strategies.

Disclosure: No significant relationships.
Keywords: Neoadjuvant Immunochemotherapy, Primary Tracheal Tumor, Squamous Cell Carcinoma.

Patient characteristics

	Age	Sex	BMI	Pre-tumor extent(cm)	Location	Neoadjuvant therapy	Cycle	Interval	Post-tumor extent(cm)	Radiological response	Frozen section	Pathological outcomes
Case 1	56	Male	27.16	2.4 (spread outside)	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	2	17	2.1 (spread outside)	SD	R1	Non-MPR
Case 2	53	Male	24.91	1.7 (spread outside)	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	2	10	1.7 (spread outside)	SD	R0	PCR
Case 3	62	Male	26.22	3.6 (spread outside)	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	2	28	2.5 (spread outside)	PR	R0	MPR
Case 4	57	Male	23.63	4.6	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	4	31	2.9	PR	R0	PCR
Case 5	68	Male	23.45	4.4	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	4	34	4	SD	R0	PCR
Case 6	63	Male	21.32	4.5	Thoracic segment	PD-1 inhibitor+carboplatin+paclitaxel	2	12	3	PR	R0	MPR

O-045

OUTCOMES OF LUNG TRANSPLANTATION AFTER CONTROLLED DONATION AFTER CIRCULATORY DEATH (DCD) THORACO-ABDOMINAL REGIONAL PERFUSION VERSUS (VS) ABDOMINAL REGIONAL PERFUSION: IMPACT OF SIMULTANEOUS HEART AND LUNG PROCUREMENT IN DONATION AFTER CIRCULATORY DEATH (DCD) SCENARIO

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OBJECTIVES

Effects of thoracoabdominal normothermic regional perfusion (TA-NRP) for heart evaluation and procurement on lung grafts remain largely unknown. We aimed to describe our national experience and evaluate the impact of heart donation on lung transplantation (LTx) by comparing immediate and 1-year outcomes from DCD donors using both TA-NRP and abdominal (A)-NRP.

METHODS

This retrospective multicenter analysis from the Spanish National Organ Transplantation database (February 2021 to September 2023) separates patients into two groups: patients who received lung grafts using TA-NRP with simultaneous heart retrieval and who received lungs using A-NRP. The primary endpoint was the incidence of Primary Graft Dysfunction (PGD) grade 3 at 72 hours. Secondary endpoints included PGD grades at ICU arrival, 24 and 48 hours, days on mechanical ventilation (MV), ICU and hospital length of stay (LOS), early mortality, and 1-year survival.

RESULTS

283 LTx were performed in the study period, 28 (9.9%) using lung grafts from cDCD donors with TA-NRP. In the TA_NRP group, there were significantly more men (71.4% vs. 47.3% in A-NRP, p=0.015), and donors were younger (38 years old [SD 13] vs. 59 [SD 13] in

A-NRP). There were no statistically significant differences between the two groups among demographic variables of recipients, except for age (51yo [SD14] vs. 58 [SD 9], p=0.006) and Lung Allocation Score (31.8 [SD 8.8] in TA-NRP vs. 41.3 [SD 14] in A-NRP). PGD grade 3 at 72 hours was lower in TA-NRP than A-NRP but not statistically significant (0% vs. 6,9%, p=0.387). There were no statistically significant differences in MV, ICU, or LOS days, reintubation and tracheostomy rate, early mortality, and 1-year survival (Table 1).

CONCLUSIONS

Heart and lung simultaneous procurement using the TA-NRP preservation technique in the cDCD scenario seems feasible and safe in terms of lung transplant outcomes when compared with our standard A-NRP approach in cDCD donors.

Disclosure: No significant relationships.
Keywords: Lung Transplant, Donation, TA-NRP, A-NRP.

	TA-NRP	A-NRP	p-value
Donor gender, male, n (%)	20 (71.4)	121 (47.3)	0.015
Donor age (mean, SD)	38 yo [SD 13]	59 [SD 13]	<0.001
Donor BMI (mean, SD)	24.2 [5.29]	25.7 [4.9)	0.036
Recipient age (mean, SD)	51yo [SD14]	58 [SD 9]	0.006
Recipient BMI (mean, SD)	25 [4.41]	24.7 [3.88]	0.606
LAS (mean, SD)	31.8 [SD 8.8]	41.3 [SD 14]	<0.001
Type of LTx, n (%) *Single* *Double*	 0 (0) 28 (100)	 48 (18) 207 (81.2)	0.007
Emergency status, n (%)	2 (7.1)	28 (10.9)	0.750
Intraoperative support, n (%)	10 (35.7)	75 (89.1)	
Any PGD, n (%)	4 (14.3)	103 (41.5)	0.005
PGD at 24 hours, n (%) (data available from 27 TA-NRP and 237 A-NRP) *0* *1* *2* *3*	 21 (77.8) 1 (3.7) 2 (7.4) 3 (11.1)	 142 (59.9) 27 (11.4) 32 (13.5) 36 (15.2)	0.258
PGD at 48 hours (data available from 27 TA-NRP and 237 A-NRP) *0* *1* *2* *3*	 24 (88.9) 1 (3.7) 2 (7.4) 0	 162 (68.4) 34 (14.3) 22 (9.3) 19 (8)	0.039
PGD at 72 hours (data available from 27 TA-NRP and 237 A-NRP) *0* *1* *2* *3*	 25 (92,6) 0 (0) 2 (7.4) 0 (0)	 182 (78.1) 21 (9) 14 (6) 16 (6.9)	0.032
PGD grade 3 at 72h	0%	6.9 %	0.387
MV days (median, IQR)	2 [1-5]	2 [1-10]	0.698
ICU LOS (days, median, IQR)	5 [3-9]	6 [3-18]	0.694
Hospital LOS (days, median, IQR)	33 [20-46]	32 [22-49]	0.772
Reintubation, n (%)	4 (15.4)	28 (11.4)	0.525
Tracheostomy rate, n (%)	5 (18.5)	70 (28.2)	0.282
Early mortality (30 days), n (%)	1 (3.5)	6 (2.5)	0.529
1-year survival (%)	78.6	80.2	1.000

O-046

OPTIMAL EX VIVO LUNG PERFUSION (EVLP) DURATION FOR HEAT STRESS RECONDITIONING OF DAMAGED RAT DONOR LUNGS

Roumen Parapanov, Anne Debonneville, Jérôme Lugrin, Manon Allouche, Lucas Liaudet, Thorsten Krueger
Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland

OBJECTIVES
Ex vivo lung perfusion (EVLP) has been developed to evaluate the quality of donor lungs before transplantation. EVLP may also serve as a therapeutic platform, allowing administration of various therapies to the lungs. It was demonstrated that mild heat stress application during EVLP induced protective effects in damaged rat donor lungs. This protection was associated with increased production of heat shock proteins (HSPs). The aim of this study is to determine an optimal duration of EVLP for the realization of the potential of HS reconditioning.

METHODS
Heat stress groups (HS), the male rats were randomly assigned into five groups, (n=5). In the first group lungs were mounted in the EVLP and perfused for 1h without HS (baseline). In the other HS groups after 1h of EVLP a HS was applied at 41.5°C for 30 min then cooled dawn to 37°C to the end of EVLP. In the HS groups, EVLP duration was 2h, 3h, 4.5h and 6h. In the second experimental setting, the HS group with optimal functional parameters (4.5h) was compared to the Ctrl group EVLP duration of 4.5h At the end of EVLP lung tissue were frozen at -80°C for further analysis.

RESULTS
Lungs exposed to HS in an EVLP model with duration of 4.5h of EVLP displayed better lung function comparing to Ctrl. This was associated with increased production of HSPs (Hsp70, Hsp27, HSC70 and HSP90), increased antioxidant activity, and reduced oxidative stress. In contrast, inflammatory status was similar (IL-1β, and TNF-α).

CONCLUSIONS
In this experimental model we demonstrated that a EVLP duration of 4.5h is a promising model for HS reconditioning. This was supported by the findings that damaged donor lung exposed to HS displayed improved lung function (preserved compliance, reduced edema formation) increased HSPs production associated with increased antioxidant activity and reduced oxidative stress.

Disclosure: No significant relationships.
Keywords: EVLP, Heat Stress Response, Lung Reconditioning.

MONDAY 27 MAY 2024
YOUNG INVESTIGATORS AWARD SESSION VIII
16:30 – 18:00

O-047

RECURRENCE PATTERNS AFTER PRIMARY SURGERY AND NEOADJUVANT CHEMORADIOTHERAPY FOR ESOPHAGEAL ADENOCARCINOMA: ACROSS THE CROSS RECURRENCES

Andreas Bouckaert[1,2], Johnny Moons[1], Toni Lerut[1], Willy Coosemans[1], Lieven Depypere[1], Yannick Mandeville[2], Hans Van Veer[1], Philippe Nafteux[1]
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OBJECTIVES
Our publication Across the CROSS in daily practice challenged the routine use of neoadjuvant chemoradiotherapy for locally advanced esophageal adenocarcinoma, showing a comparable 5-year overall and disease-free survival after primary surgery. This current study reevaluated overall and disease-free survival on long term and aimed to differentiate recurrence patterns and its final impact on overall survival.

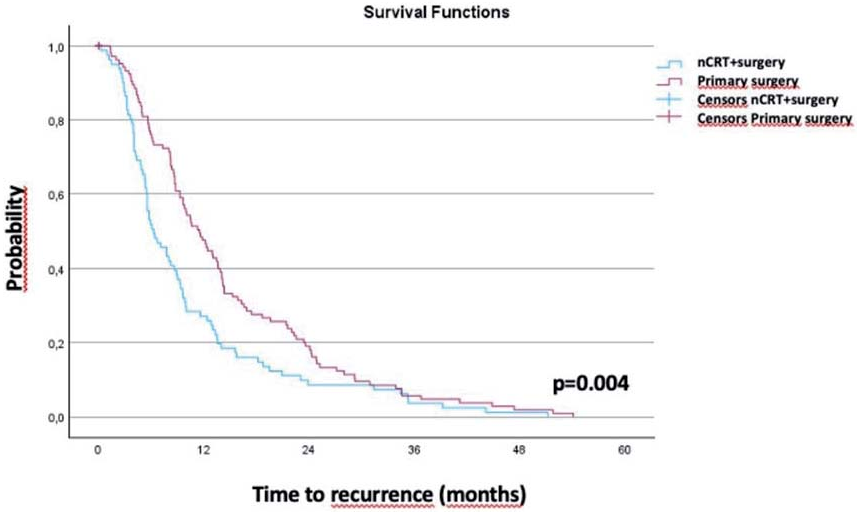
METHODS
This retrospective cohort study with propensity score-matched analysis included all surgically treated patients between 2000 and 2018 with locally advanced adenocarcinoma (cT1/2N+ or cT3/4N0/+). Exclusion criteria of the CROSS trial were applied. Patients were matched on age, Charlson comorbidity score, clinical tumor length, and lymph node status. The primary end point was time to recurrence.

RESULTS
149 propensity score-matched cases were defined in each group. There was still no significant difference after 10 years in median overall survival (33.6 vs 34.9 months, p=0.52) and median disease-free survival (14.1 vs 14.0 months, p=0.13) between both groups. Furthermore, nCRT resulted in a shorter time to overall recurrence (6.3 vs 11.5 months, p=0.004) and locoregional recurrence (6.3 vs 13.6 months, p=0.005). Additionally, overall survival after diagnosis of recurrence was also significantly shorter for nCRT patients than for primary surgery patients (6.9 vs 9.6 months, p=0.032).

CONCLUSIONS
Our propensity score-matched results indicate that primary surgery can offer a comparable long-term overall and disease-free survival as nCRT followed by surgery. Both overall and locoregional recurrences occur earlier in nCRT patients and overall survival after recurrence is significantly longer after primary surgery.

Disclosure: No significant relationships.
Keywords: Esophageal Adenocarcinoma, Locally Advanced Stage, Recurrence Patterns.

Figure: Time to recurrence in locally advanced esophageal adenocarcinoma according to treatment protocol. (nCRT, neoadjuvant chemoradiotherapy)



Number of patients at risk

Months	0	12	24	36	48	60
nCRT + surgery	82	22	7	3	1	0
Primary surgery	107	50	20	6	2	0

O-048

INFLAMMATORY INDICES RELATED TO THE POSTOPERATIVE PROGNOSIS OF THYMIC EPITHELIAL NEOPLASMS.

Federica Carlea[1], Alexandro Patirelis[1], Emanuele Voulaz[2], Veronica Maria Giudici[2], Elisa Meacci[3], Giuseppe Calabrese[3], Luca Frasca[4], Pierfilippo Crucitti[4], Vincenzo Ambrogi[1]
[1]*Tor Vergata University, Rome, Italy*
[2]*Humanitas Research Hospital, Milan, Italy*
[3]*Università Cattolica del Sacro Cuore, Rome, Italy*
[4]*Policlinico Campus Bio-medico, Rome, Italy*

OBJECTIVES
Thymic epithelial tumors presented a variable 5-year survival rate, histological subtype dependent. Completeness of resection is a relevant prognostic factor. Efforts have been made to identify new prognostic markers for this pathology. Neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), and Systemic Inflammatory Index (SII), which is neutrophils multiplied for platelets divided by lymphocytes, proved quite effective in predicting survival in other solid tumors. We evaluated the prognostic significance of NLR, PLR, and SII on overall, cancer-related and disease-free survivals in patients undergoing radical thymectomy for thymic epithelial neoplasms.

METHODS
We conducted a retrospective analysis in a group of 376 patients radically operated in four high-volume italian thoracic surgery centers, followed for a minimum period of six months. Clinical and demographic data were collected from medical records. Immediate pre-operative values of NLR, PLR, SII, easily obtainable from routine blood tests, were recorded. Patients were categorized for each factor based on cutoff values determined statistically using the Youden index. Survival outcomes were analyzed using Kaplan-Meier curves, log-rank tests, and multivariate Cox regression after propensity score matching (1:1) performed for each inflammatory index.

RESULTS
The average values for NLR PLR and SII were 3.0±3.2, 131.4±84.1 and 754.6±28.8, respectively. The calculated cutoff values were 2.9 for NLR, 123.8 for PLR and 489.0 for SII. After propensity score matching, the study included 212 cases for NLR, 256 for PLR, and 280 for SII. Multivariate Cox regression analysis revealed a significant association between thymoma-related survival and NLR ($p=0.030$) and SII ($p=0.033$), while a quasi-significant association was demonstrable for PLR ($p=0.065$).

CONCLUSIONS
Higher NLR and SII cutoff values can be considered predictors of a worse thymic epithelial tumors-related survival after radical operation. This may allow to personalize therapy and follow-up after surgery in patients undergoing radical thymectomy.

Disclosure: No significant relationships.

Keywords: Thymic Epithelial Tumors, Prognostic Factors, Inflammatory Index, Thoracic Surgery.

O-049

ANALYSIS OF PREDICTIVE AND PROGNOSTIC FACTORS IN PATIENTS WITH ANAPLASTIC LYMPHOMA KINASE (ALK) REARRANGED EARLY STAGE LUNG CANCER ADENOCARCINOMA (LUAD): A MULTICENTRIC ANALYSIS

Filippo Tommaso Gallina[1], Riccardo Tajè[2], Enrico Melis[1], Lorenzo Spaggiari[3], Luca Bertolaccini[4], Giorgio Cannone[5], Federico Rea[6], Nicola Martucci[7], Edoardo Mercadante[8], Stefano Bongiolatti[9], Luca Voltolini[10], Isabella Sperduti[11], Francesco Facciolo[12]
[1]*Thoracic Surgery Unit, Rome, Italy*
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[4]*Thoracic Surgery Unit, Milan, Italy*
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[6]*Thoracic Surgery Unit, Padova, Italy*
[7]*European Institute of Oncology, Naples, Italy*
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[11]*University-Hospital of Padova, Rome, Italy*
[12]*Thoracic Surgery and Lung Transplantation Unit, Rome, Italy*

OBJECTIVES

Rearrangements of the anaplastic lymphoma kinase (ALK) gene characterize 6-7% of NSCLC affecting predominantly never-smokers and young patients with adenocarcinoma more. Due to the widespread of alk-directed TKIs and the rarity of the data on the molecular expressions in a non-metastatic setting, their prognostic and predictive role alk-rearrangements in alk-directed-TKIs naïve patients is mostly unknown. In this study, we aim to analyze the clinical and biological factors associated with recurrence in patients with early-stage, ALK rearranged LUAD without evidence of nodal disease in the preoperative staging who underwent lobectomy and radical lymphadenectomy.

METHODS

Patients who underwent radical treatment for clinical stage I and II LUAD with ALK rearrangement in five high volume centers were evaluated. Univariable and multivariable logistic regression was used to quantify the association between clinical and biological variables and the risk of recurrence, in addition to hazard ratios and their 95% confidence intervals.

RESULTS

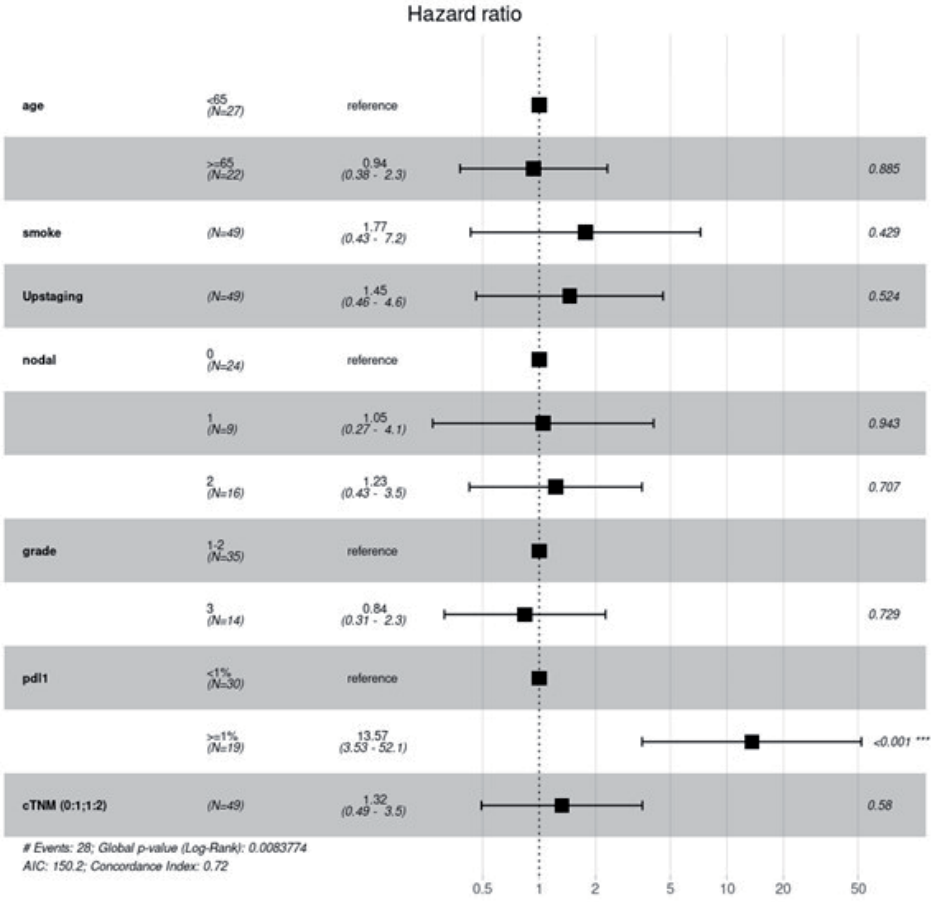
A total of 60 patients were included. Most of the patients underwent minimally invasive surgery. The majority of the patients were female (56.1%) and never or light smokers (57.6%). More than half of the patients showed nodal upstaging after surgery (56.2%), and 72.7% of the patients with nodal upstaging had tumors less than 3 cm (OR 2.788; 1.331-5.929, p=0.008).

Recurrence was reported in 28 patients, of whom 8 had brain metastases. In the multivariate analysis, the PD-L1 status showed a significant correlation with recurrence (HR 13.5, CI 3.53-52.1; p= 0.0001).

CONCLUSIONS

Our results demonstrated a high rate of upstaging and brain recurrence in patients with stage I and II LUAD who had the ALK rearrangement. Additionally, we found a significant correlation between the PD-L1 status and recurrence.

Disclosure: No significant relationships.
Keywords: NSCLC, Early Stage, Alk Rearrangement, Lung Cancer.



O-050

THE ROLE OF EX-VIVO LUNG PERFUSION IN DRUG DISTRIBUTION STUDIES ON LUNG CANCER PATIENTS

Áron Kristóf Ghimessy[1,2], Áron Gellért[3], Bence Ferencz[3], Kristóf Csende[1,2], Balázs Gieszer[1,2], Klára Török[1,2], Péter Radeczky[1,2], Sára Radványi[1], Ákos Kocsis[1,3], László Agócs[1,3], Krisztina Bogos[3], János Fillinger[3], Szilvia Török[3], Melinda Rezeli[4], Dezso Katalin[2], Ildikó Madurka[1], Zsolt Megyesfalvi[3,2], Balázs Döme[3,2,5], Ferenc Rényi-Vámos[3,1,2]
[1]*National Institute of Oncology, Budapest, Hungary*
[2]*Semmelweis University, Budapest, Hungary*
[3]*National Korányi Institute of Pulmonology, Budapest, Hungary*
[4]*University of Lund, Lund, Sweden*
[5]*University of Vienna, Vienna, Austria*

OBJECTIVES

Ex-Vivo Lung Perfusion (EVLP) represents a dynamic and advancing methodology, serving both as an organ assessment tool for lung transplantation and a translational research technique for the comprehensive study of pulmonary physiology. Our aim was to establish a pioneering EVLP model for cancerous human lobes, to assess the viability of conducting drug delivery studies within this experimental framework.

METHODS

We enrolled patients diagnosed with lung cancer who were scheduled to undergo thoracic surgical procedures either by thoracotomy or thoracoscopy. In our EVLP model, cancerous human lobes or lungs after resection underwent perfusion with acellular solution under normothermic conditions. Perfusion and ventilation parameters were adjusted to normal levels. Blood gas analysis was done every 15 minutes to ensure physiological conditions. Sunitinib was infused at concentrations ranging 10-1000 times the normal anticipated plasma levels. The effect of inhaled bronchodilators was also studied. After the experiment was terminated lung samples from both healthy and tumorous specimens were obtained and fast-frozen. Serial cryosections were stained with hematoxylin-eosin and marked with fluorescently labeled antibodies against CD31, CD34, laminin, Ki-67. In order to quantify drug distribution, matrix-assisted laser desorption ionization-mass spectrometry imaging (MALDI) was utilized.

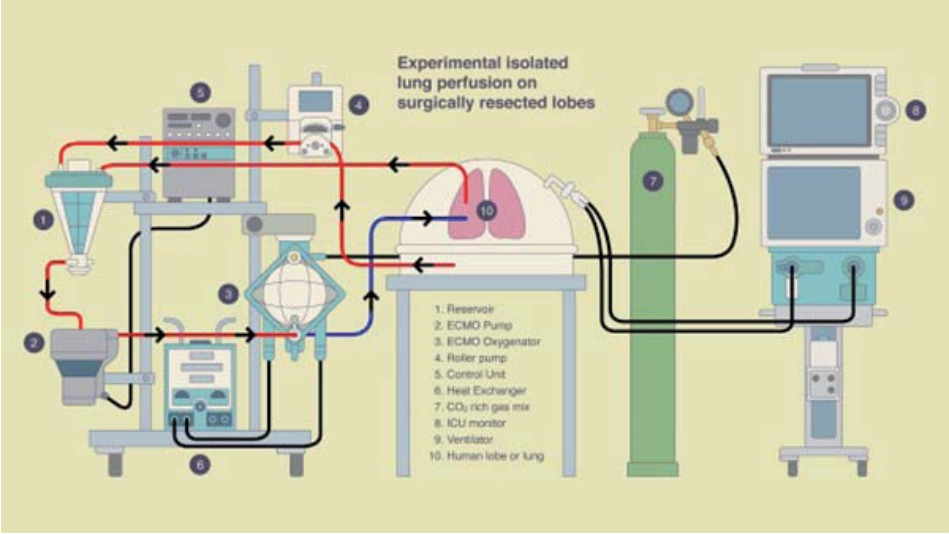
RESULTS

The median circulation duration for sunitinib was recorded as 112 minutes (range: 28 to 183). The mean intensity of sunitinib exhibited a statistically significant elevation in healthy lung tissue as compared to the tumorous area across all three tested concentrations, with an average difference of 25-fold.

CONCLUSIONS

The application of the EVLP technique on cancerous lobes is a viable and unique option that presents a prospective tool for future pharmacological investigations. In our first experiments, drug delivery was less efficient to tumorous regions of the lung, most likely due to the lack of bronchial circulation. This finding underlines why alternative drug delivery pathways, such as inhalation, should be sought.

Disclosure: No significant relationships.
Keywords: Ex-Vivo, NSCLC, Circulation, MALDI.



O-051

IS SEGMENTECTOMY FEASIBLE FOR CLINICAL STAGE IA3 NON-SMALL CELL LUNG CANCER

Lin Huang[1], Alessandro Brunelli[2], Demetrios Stefanous[2], Edoardo Zanfrini[3], Abid Donlagic[3], Michel Gonzalez[3], René Horsleben Petersen[1]
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[2]*Department of Thoracic Surgery, St. James's University Hospital, Leeds, United Kingdom*
[3]*Service of Thoracic Surgery, University Hospital of Lausanne, Lausanne, Swaziland*

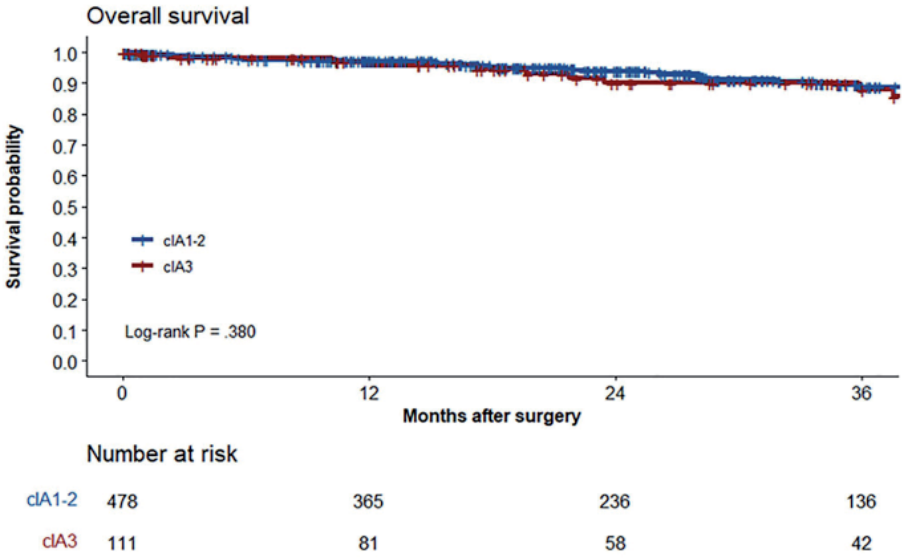
OBJECTIVES
The study aimed to identify the feasibility of segmentectomy for clinical stage IA3 non-small cell lung cancer (cIA3 NSCLC) for compromised patients.

METHODS
We retrospectively analysed data of consecutive patients with segmentectomy for cIA1-3 NSCLC across three centres between January 2017 and December 2022. Patients were stratified into cIA1-2 group and cIA3 group. Continuous variables were compared using the Mann-Whitney U test, and categorical variables were analysed with Fisher's exact test/Pearson Chi-square tests. We conducted Kaplan-Meier analysis with the log-rank test to investigate overall survival (OS) and recurrence-free survival (RFS) differences. We conducted multivariable Cox regression model, adjusted by significant variables ($p < 0.1$) from the univariable analysis, to assess the association of cIA3 (vs. cIA1-2) with OS and RFS.

RESULTS
Of a total of 589 segmentectomies, 478 patients presented with cIA1-2 NSCLC, while 111 patients with cIA3 NSCLC. In comparison with cIA1-2 patients, cIA3 group were significantly older (69 vs 73 years) with poorer lung function and more comorbidity. Patients with cIA3 had more segments removed (2 vs 1) and more lymph node dissected (7 vs 6). The cIA3 group tumours presented significantly higher PET SUVmax values (4.6 vs 3), larger size (23 vs 14 mm), more frequent pleural invasion (27.9% vs 9.6%), and higher rate of lymph node upstaging (9.9% vs 4.0%). After median follow-up of 24.0 months (IQR 12.5-40.1), we did not observe significant difference in recurrence (10.3% vs 12.6%, $p = .468$), OS (3-year 88.8% vs 87.9%) and RFS (3-year 78.5% vs 73.4%) between the cIA1-2 and cIA3 groups (Figure 1). On multivariable analysis cIA3 (vs cIA1-2) was not a significant risk factor for OS or RFS.

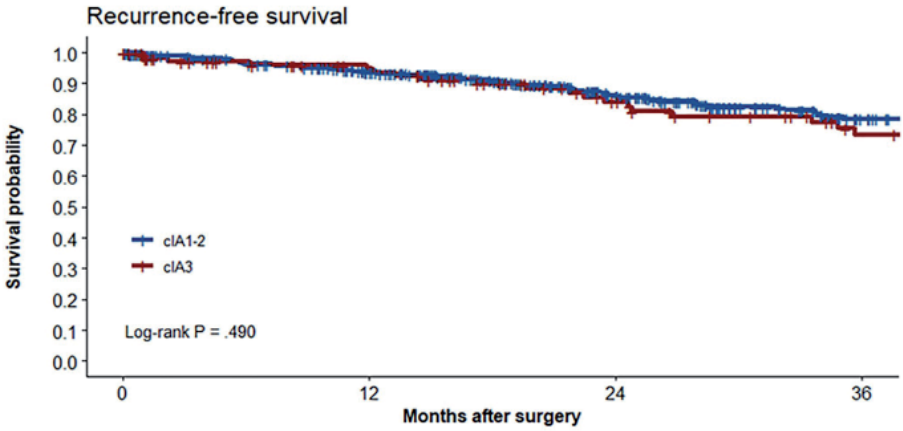
CONCLUSIONS
Despite more comorbidity observed in patients with cIA3 NSCLC compared to cIA1-2, there was no difference in recurrence or survival.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Non-Small Cell Lung Cancer, Clinical Stage IA, Recurrence, Survival.



Number at risk

cIA1-2	478	365	236	136
cIA3	111	81	58	42



Number at risk

cIA1-2	478	359	224	128
cIA3	111	80	55	36

O-052

A EUROPEAN MULTICENTRE STUDY EVALUATING PROGNOSIS OF PERIPHERAL EARLY-STAGE LUNG ADENOCARCINOMA PATIENTS OPERATED ON BY SEGMENTECTOMY OR LOBECTOMY

Lukadi Joseph Lula[1], Rita Costa[2], Amr Rushwan[3], Clara Forcada Barreda[4], Matic Domjan[5], Beatrice Trabalza Marinucci[6], Crt Jasovic[5], Emrah Gökay Özgür[7], Cornel Savu[8], Erino Angelo Rendina[6], Nural Bekiroglu[7], Pedro Fernandes[2], Marcelo Jiménez[4], Tomaz Stupnik[5], Antonio D'Andrilli[6], Emmanuel Martinod[1], Alessandro Brunelli[3]

[1]*Public Hospitals of Paris - Avicenne Hospital, Vascular and thoracic surgery department, and North Paris Sorbonne University, Human Medecine and Biology, Bobigny, France*
[2]*Department of Cardiothoracic Surgery, Centro Hospitalar Universitário São João and Faculty of Medicine of University of Porto, Porto, Portugal*
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[8]*Institute of Pneumonology Marius Nasta, Thoracic surgery clinic - University of Medecine and Pharmacy Carol Davila of Bucharest, Bucharest, Romania*

OBJECTIVES

We aimed at investigating the impact of surgical extent (lobectomy vs segmentectomy) on oncological outcomes of different adenocarcinoma subtypes for peripheral early-stage lung cancer.

METHODS

A retrospective multicentre study including patients who underwent either lobectomy or segmentectomy in six European centers from 2015 to 2021, for at most 2 cm pathological peripheral lung adenocarcinoma. Oncologic outcomes were assessed by Cox regression (overall survival) or competing regression analyses (lung cancer specific and recurrence free survivals) to adjust for patient and tumour related factors.

RESULTS

Lobectomy and segmentectomy were performed in 481 (71%) and 193 (29%) patients. After propensity score matching (n=192), survival was similar in both groups:

- 5-year recurrence-free survival was 86.2% for lobectomy (CI 95%: 80.2 - 92.9%) and 92.4% for segmentectomy (CI 95%: 87.4% - 97.7%), p=0.6,
- 5-year overall survival was 88.2% for lobectomy (CI 95%: 83% - 93.8%) and 87.4% for segmentectomy (CI 95%: 80.6% - 94.9%), p=0.4) and,

- 5-year lung-cancer-specific survival was 94.2% for lobectomy (CI 95%: 95% - 100%) and 93.8% for segmentectomy (CI 95%: 90 %-98.7%), p =0.3.
  Locoregional recurrence (lobectomy 9.3%, vs. segmentectomy 4.6%, p=0.07) and distant recurrence (lobectomy 3.1% vs segmentectomy 2.6%, p=0.7) were the same between two groups.
- Adenocarcinoma subtype influenced recurrence only when it was predominant in univariable analysis p= 0.001 (unlike lepidic and papillary, solid and micropapillary subtypes did have a worse impact, but acinar did have no influence).
- Only pathological factors (lymphovascular invasion and visceral pleural invasion extending to pleural surface) negatively influenced recurrence in multivariable analysis p=0.04.
- Adjuvant systemic treatment did not prevent recurrence; it did not improve survival.
  Second primary lung cancer incidence (lobectomy 3.1% vs segmentectomy 4.6%, p=0.4) was equally distributed between the two groups.

CONCLUSIONS

Segmentectomy may be performed on patients with any early-stage adenocarcinoma subtype.

Disclosure: No significant relationships.

Keywords: Segmentectomy, Adenocarcinoma, Subtypes, Prognosis.

MONDAY 27 MAY 2024
ESOPHAGEAL SESSION IX
17:00 – 18:00

O-053

DO SOCIOECONOMIC FACTORS IMPAIR DELIVERY OF NEOADJUVANT THERAPY FOR PATIENTS WITH LOCOREGIONAL ESOPHAGEAL CANCER?

Rajika Jindani[1], Mohamed Kamel Hussein[2], Roger Zhu[1], Jorge Humberto Rodriguez-Quintero[1], Marc Vimolratana[1], Neel Chudgar[1], Brendon Stiles[1]
[1]*Montefiore Medical Center/ Albert Einstein College of Medicine, Bronx, United States*
[2]*University of Rochester Medical Center, Rochester, United States*

OBJECTIVES
The benefits of neoadjuvant therapy (NT) prior to surgery for patients with locally advanced esophageal cancer have been well established by multiple trials. However, there may be socioeconomic barriers impacting the equitable administration of NT. We aim to identify whether disparities exist in uptake of NT among patients with locoregional esophageal cancer.

METHODS
We queried the National Cancer Database (NCDB), identifying 19,748 patients with clinical stage II-III esophageal cancer who underwent surgical resection (2006-2020). Logistic regression was performed to identify associations between sociodemographic factors and uptake of NT. In propensity score-matched groups, survival was evaluated using the Kaplan-Meier method.

RESULTS
Among 19,748 clinical stage II-III patients, 85% (n=16,781) received NT and 15% (n=2,967) underwent upfront surgery. Of the total population, 79.5% (n=15,696) had adenocarcinoma and 17.1% (n=3,384) had squamous-cell carcinoma on histology. Rates of NT uptake increased over time (Figure 1a). Higher clinical stage (stage III, 92.6% vs. stage II, 76.6%, p<0.001) and node positivity (88.8% vs. 75.7%, p<0.001) correlated with greater NT use. On multivariable analysis after adjusting by clinical stage, factors associated with lower rates of NT included Charlson Comorbidity Index ≥2 (adjusted odds ratio (aOR), 0.76; 95% confidence interval (CI), 0.66-0.88), as well as sociodemographic factors, including older age (>70 years; aOR, 0.52; 95%CI, 0.47-0.57), female gender (aOR, 0.75; 95%CI, 0.68-0.84), black race (aOR, 0.76; aOR, 0.62-0.92), and government rather than private insurance (aOR, 0.82; 95%CI, 0.75-0.90) (Figure 1b). In a propensity-matched cohort accounting for these variables, NT was associated with improved 5-year overall survival compared to upfront surgery (41.5% vs. 35.9%, p<0.001, Figure 1c).

CONCLUSIONS

Sociodemographic factors are associated with the delivery of NT in patients with esophageal cancer, including age, sex, race, and insurance status. Interventions can be put into place to target vulnerable sectors of the population and ensure equitable delivery of care to all patients.

Disclosure: No significant relationships.

Keywords: Esophageal Cancer, Neoadjuvant Therapy, Social Determinants of Health, Barriers to Care.

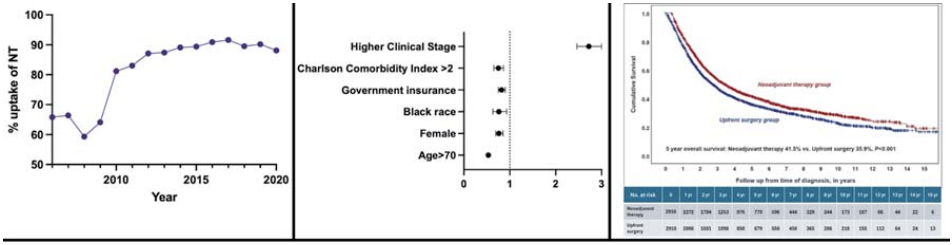


Figure 1a) Trend of neoadjuvant delivery for patients with clinical stage II-III esophageal cancer by year of diagnosis from 2006-2020. Figure 1b) Forest plot showing association of patient factors with neoadjuvant therapy delivery. Variables included in analysis not shown in figure: geographic location, year of diagnosis. Figure 1c) 5-year overall survival in patients receiving neoadjuvant therapy compared to upfront surgery with number at risk per year.

O-054

DEVELOPMENT AND VALIDATION OF A RADIOMICS-BASED NOMOGRAM FOR PREDICTING A PATHOLOGICAL COMPLETE RESPNSE TO NEOADJUVANT IMMUNOCHEMOTHERAPY FOR PATIENTS WITH POTENTIALLY RESECTABLE ESOPHAGEAL SQUAMOUS CELL CARCINOMA

Yongsen Li, Zihao Lu, Xin Lv, Yonghao Cao, Wenxuan Hu, Chun Xu
The First Affiliated Hospital of Soochow University, Suzhou, China

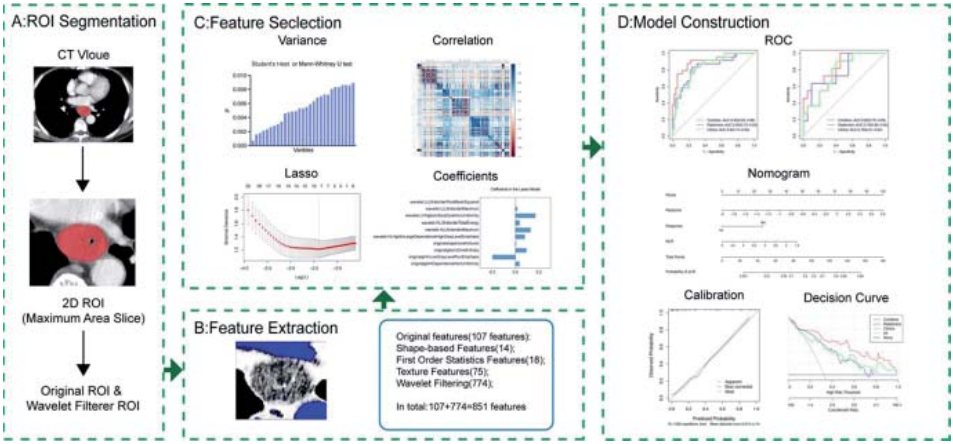
OBJECTIVES
To create and validate an image-based radiomic model using preoperative computed tomography scans and clinical data to predict pathological complete response in resectable esophageal squamous cell carcinoma following neoadjuvant immunotherapy.

METHODS
We retrospectively collected data from patients diagnosed with esophageal squamous cell carcinoma at the hospital between January 2018 and May 2023, who received preoperative neoadjuvant immunochemotherapy. Eligible patients were randomly divided into training and validation sets. Radiomic features extracted from preprocessed computed tomography images were used to develop a radiomic model, incorporating radiomic score and clinical factors through multivariate logistic regression analysis. The model's performance was evaluated for calibration, discrimination, and clinical utility in independent validation.

RESULTS
A total of 105 eligible participants were included and randomly divided into two groups: a training set (N=74) and a validation set (N=31). After data dimension reduction and feature selection, we identified 11 radiomic features, forming the radiomic score. Radiomic score had an AUC of 0.83 (95% CI 0.72-0.93) in the training set and 0.78 (95% CI 0.60-0.95) in the validation set. Multivariate analysis revealed that radiological response and Neutrophil–Lymphocyte Ratio were independent predictors of pathological complete response, with p-values of 0.0026 and 0.0414, respectively. We developed and validated a nomogram combining radiomic score and clinical features, achieving AUCs of 0.90 (95% CI 0.82-0.98) in the training set and 0.85 (95% CI 0.70-0.99) in the validation set. Delong test confirmed the nomogram's superiority over pure radiomic and clinical models. Decision curve analysis and integrated discrimination improvement assessment supported the clinical value and superiority of the combined model.

CONCLUSIONS
The nomogram, combining radiomic score and clinical features, offers accurate and robust prediction of pathological complete response status in post-neoadjuvant immunochemotherapy esophageal squamous cell carcinoma patients, facilitating personalized treatment decisions.

Disclosure: No significant relationships.
Keywords: Radiomics, Nomogram, Pathological Complete Response, Esophageal Squamous Cell Carcinoma, Neoadjuvant Immunochemotherapy.



O-055

PATIENT-REPORTED OUTCOMES OF PROGNOSTIC NUTRITIONAL INDEX FOR RESECTABLE ESOPHAGEAL SQUAMOUS CELL CARCINOMA

Xinming Nie, Wenwu He, Xuefeng Leng, Yongtao Han, Lin Peng, Xin Nie, Yan Miao
Sichuan Province Cancer Hospital, Chengdu, China

OBJECTIVES
To ascertain whether perioperative prognostic nutritional index (PNI) could affect the postoperative patient-reported outcome (PRO) in patients with Esophageal squamous cell carcinoma.

METHODS
We conducted consecutive patients with ESCC who underwent minimally invasive McKeown esophagectomy in a single center from April 2019 to December 2020 grouped into PNI-high group(PNI≥45) and PNI-low group(PNI<45). The clinical characteristics were balanced with propensity score matching(PSM), and longitudinal data on PROs were handled using a mixed-effects model. The MD Anderson Symptom Inventory and European Organization for Research and Treatment of Cancer (EORTC) QOL questionnaires were used to assess symptoms and QOL.

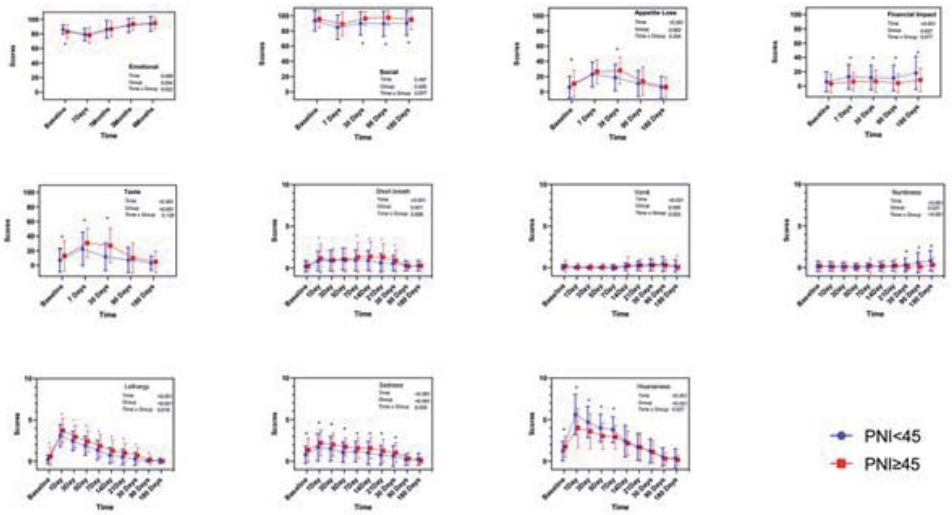
RESULTS
192 remaining patients, 96 in each group, with no significant difference at baseline. In QLQ-C30 and QLQ-S18 scales, compared with the PNI-low group, the PNI-high group reported worse emotional function($p=0.034$) at baseline, better social function ($p=0.025$) from 30 days to 180 days after esophagectomy, more appetite loss ($p=0.002$) at baseline and 30 days after esophagectomy, less financial impact ($p<0.037$) from 7 days to 180 days after surgery, more problems with sense of taste($p<0.001$) from baseline to postoperative 30 days. In the MDASI-Eso scale, the PNI-high group reported a more evident symptom burden of short breath ($p=0.021$) from 7 days to 30 days after surgery, more lethargy($p<0.001$) from baseline to 90 days after surgery and more sadness($p<0.001$) from baseline to 30 days after surgery, and endured less numbness($p=0.031$) after 30 days after surgery, less vomit($p=0.006$) at 180 days after surgery and less hoarseness($p<0.001$) from baseline to 7 days after surgery.

CONCLUSIONS
PNI was associated with health-related quality of life in esophageal cancer. The study showed that the PNI-high group tolerated worse QOL and symptoms after esophagectomy.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Patient-Reported Outcome, Prognostic Nutritional Index, Esophagectomy.

	Before PSM				After PSM			
Characteristics	**Total**	**PNI<45**	**PNI>45**	**p-Value**	**Total**	**PNI<45**	**PNI>45**	**p-Value**
n	316	150	166	NA	192	96	96	NA
Age, median (range)	63(41-80)	64(45-80)	62(41-77)	0.046	63.5(46-77)	63(55.25-68)	64(47-77)	0.442
Sex, n(%)				0.129				
male	261(82.6%)	129(86.0%)	132(79.5%%)		159(82.2%)	80(83.3%)	79(82.3%)	
female	55(14.0%)	21(14.0%)	34(20.5%)		33(17.2%)	16(16.7%)	17(17.7%)	
BMI, median(IQR)	23.13 (20.69,24.76)	22.77 (20.49-24.70)	23.41 (21.23,24.77)	0.090	22.95 (20.42,24.46)	22.70 (20.42,24.60)	23.17 (20.41, 22.44)	0.908
Basic disease (Diabetes, Hypertension, Coronary D isease), n(%)				1.000				1.000
Yes	75(23.7%)	36(24.0%)	39(23.5%)		51(26.6%)	25(26.0%)	26(27.1%)	
No	241(76.3%)	114(76.0%)	127(76.5%)		141(73.4%)	71(74.0%)	70(72.9%)	
Education, n(%)				0.417				0.365
<=Middle school	272(86.1%)	132(88.0%)	140(84.3%)		170(88.5%)	83(86.5%)	87(90.6%)	
>=High school	44(13.9%)	18(12.0%)	26(15.7%)		22(11.5%)	13(13.5%)	9(9.4%)	
Smoking history, n(%)				0.021				0.552
Yes	196(62.0%)	103(68.7%)	93(56.0%)		119(62.0%)	62(64.6%)	57(59.4%)	
No	120(38.0%)	47(31.3%)	73(44.0%)		73(38.0)	34(35.4%)	39(40.6%)	
Drinking history, n(%)				0.077				0.193
Yes	171(54.1%)	89(59.3%)	82(49.4%)		101(52.6%)	55(57.3%)	46(47.9%)	
No	145(45.9%)	61(40.7%)	84(50.6%)		91(47.4%)	41(42.7%) 4)	50(52.1%)	
Tumor location, n(%)				0.579				0.870
upper	31(9.8%)	13(8.7%)	18(10.8%)		16(8.3%)	7(7.3%)	9(9.4%)	
middle	193(61.1%)	96(64.0%)	97(58.4%)		127(66.1%)	64(66.7%)	63(65.6%)	
lower	92(29.1%)	41(27.3%)	51(30.7%)		49(25.5%)	25(26.0%)	24(25.0%)	

	Before PSM				After PSM			
Characteristics	Total	PNI<45	PNI>45	p-Value	Total	PNI<45	PNI>45	p-Value
Clinical stage				<0.001				0.127
I	25(7.9%)	4(2.7%)	21(12.7%)		15(7.8%)	4(4.2%)	11(11.5%)	
II	108(34.2%)	45(30.0%)	63(38.0%)		75(39.1%)	37(38.5%)	38(39.6%)	
III	143(45.3%)	86(57.3%)	57(34.3%)		78(40.6%)	45(46.9%)	33(34.4%)	
IV	40(12.7%)	15(10.0%)	25(15.1%)		24(12.5%)	10(10.4%)	14(14.6%)	
ECOG scores, n(%)				0.082				0.673
0-1	269(85.1%)	122(81.3%)	147(88.6%)		166(96.5%)	84(87.5%)	82(85.4%)	
2-3	47(14.9%)	28(18.7%)	19(11.4%)		26(13.5%)	12(12.5%)	14(14.6%)	
Neoadjuvant therapy, n(%)				<0.001				0.540
Yes	115(36.4%)	82(54.7%)	33(19.9%)		64(33.3%)	34(35.4%)	30(31.3%)	
No	201(63.6%)	68(45.3%)	133(80.1%)		128(66.7%)	62(64.6%)	66(68.8%)	
Adjuvant therapy, n(%)				0.015				1.000
Yes	81(25.6)	29(19.3%)	52(31.3%)		50(13.5%)	25(26.0%)	25(26.0%)	
No	235(74.4)	121(80.7%)	114(68.7%)		142(86.5%)	71(74.0%)	71(74.0%)	



O-056

PREDICTORS OF FAILURE TO RESCUE AFTER ANASTOMOTIC LEAK IN PATIENTS UNDERGOING ESOPHAGECTOMY FOR CANCER IN THE UNITED STATES

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OBJECTIVES
Death after a major complication, or failure to rescue (FTR), is a valuable outcomes measure and reflection of a hospital's quality of care. FTR after an anastomotic leak has not been well-studied and remains a major contributor to perioperative mortality after esophagectomy. Our study aimed to identify the patient and procedure characteristics associated with FTR after an anastomotic leak.

METHODS
The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database was used to identify all patients who underwent an esophagectomy for cancer from 2016 to 2021 and developed a postoperative anastomotic leak. Multivariable logistic regression analysis was used to identify predictors for FTR after anastomotic leak.

RESULTS
A total of 5,630 patients met inclusion criteria of which 841 (15%) developed an anastomotic leak and 52 (0.9%) were unable to be rescued. Compared to the patients who survived to discharge, a greater percentage of the FTR cohort were older than 65 (73.1% vs. 47.9%, $p<0.001$), Black or African American (11.5% vs. 2.0%, $p<0.001$), and sustained an additional major complication apart from the anastomotic leak (98.1% vs. 69.8%, $p<0.001$). There were no significant differences between the groups in terms of gender, ASA classification, surgical approach, tumor location, or pathology. After adjusting for covariates, age above 65 (aOR 3.32, $p=0.002$) Black race (aOR 10.1, $p<0.001$), and development of an additional postoperative complication (aOR 27.7, $p=0.002$) were independent predictors for FTR.

CONCLUSIONS
While FTR after an anastomotic leak remains rare, older individuals and those who are Black are more likely to be affected. These patients require greater perioperative attention if early signs of an anastomotic leak are identified, and it is imperative to intervene early. Furthermore, aggressive treatment of additional complications is crucial as incurring a second post-operative complication was associated with increased FTR.

Disclosure: No significant relationships.
Keywords: Anastomotic Leak, Failure to Rescue, Esophagectomy, Outcomes.

Characteristic	OR1	95% CI1	p-value
Age			
≤ 65	ref	—	
> 65	3.32	1.60, 7.44	0.002
Race			
Not Black	ref	—	
Black or African American	10.1	2.48, 37.0	<0.001
Functional Status			
Independent	ref	—	
Totally or partially dependent	14.8	0.79, 460	0.077
Surgeon Specialty			
General Surgery	ref	—	
Thoracic	1.03	0.51, 2.06	>0.9
Additional Complication ("Second hit")			
No	ref	—	
Yes	27.7	5.10, 522	0.002
Leak Treatment Strategy			
No treatment	ref	—	
Interventional Procedure (image guided drainage / endoscopic stent)	0.23	0.07, 0.91	0.027
Medical Management (NPO, antibiotics, TPN)	0.20	0.04, 0.90	0.036
Reoperation	0.22	0.06, 0.87	0.022
Conversion to Open			
No	ref	—	
Yes	0.8	0.17, 2.54	0.7

O-057

FIBRIN SEALANT FOR PROPHYLAXIS OF CERVICAL ANASTOMOTIC LEAKAGE AFTER MCKEOWN ESOPHAGECTOMY FOR ESOPHAGEAL OR ESOPHAGOGASTRIC JUNCTION CANCER（PLACE030）: A PHASE III, MULTICENTER, RANDOMIZED CLINICAL TRIAL

Zerui Zhao[1], Zhichao Li[1], Geng Wang[2], Weizhao Huang[3], Teng Mao[4], Lin Peng[5], Wenqiang Lv[6], Jiyang Chen[1], Hong Yang[1]
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[2]*Cancer Hospital of Shantou University Medical College, Shantou, China*
[3]*Zhongshan Hospital of Sun Yat-Sen University, Zhongshan, China*
[4]*Shanghai Chest Hospital, Shanghai, China*
[5]*Sichuan Cancer Hospital, chengdu, China*
[6]*People's Hospital of Jieyang, Jieyang, China*

OBJECTIVES
Anastomotic leakage (AL) is one of the most deleterious complications after esophagectomy. Evidence from previous studies indicated that intraoperative application of fibrin sealant (FS) may be advantageous to reduce AL incidence. In this study, the purpose was to evaluate the efficacy and safety of porcine FS in preventing AL.

METHODS
This randomized controlled trial enrolled 360 patients aged 18-75 with resectable esophageal or esophagogastric junction cancer, clinically staged as T1-4aN0-3M0, from 6 centers in China. An open or minimally invasive radical resection of the primary tumor was performed using the McKeown esophagectomy with circular stapled anastomosis, combined with a two-field lymphadenectomy. In the FS group,2.5 ml of FS was applied to the cervical anastomotic site circumferentially. In the control group, patients underwent only standard surgical procedures. The primary endpoint was the proportion of patients with anastomotic leakage within the first 3 months after operation.

RESULTS
A total of 360 patients were recruited from February 2019 to April 2023, of which 178 were in the FS group and 182 were in the control group. The AL incidence was 7.3% (13/178) in FS group versus 13.2% (24/182) in control group (P=0.066). In the subgroup analysis for patients receiving upfront surgery without neoadjuvant treatment, the incidence of AL in the FS group was numberically lower without statistical significance [FS group: 5.9% (5/85) versus control group: 14.9%(13/87); P=0.052, RR=0.397(95% CI, 0.147-1.056)]. Meanwhile, for patients who received preoperative chemoradiotherapy or chemotherapy plus surgery, the AL incidence was comparable between two groups [FS group: 8.6% (8/93) versus control group: 11.6% (11/95); P = 0.498,RR = 0.743(95% CI, 0.313-1.764)]. Incidences of postoperative

complications were similar between two groups (FS group: 41.6% (74/178) versus control group: 48.9% (89/182); P = 0.163).

CONCLUSIONS

Overall, intraoperative sealing with porcine FS has not significantly reduced incidence of cervical AL in the current study.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer; McKeown Esophagectomy; Fibrin Sealant; Anastomotic Leakage; Postoperative Complications.

Table 1 Postoperative complications

Complications	FS group, no.(%) (n=178)	Control group, no.(%) (n=182)	p-value -
Cervical anastomotic leakage	13(7.3)	24(13.2)	0.066
Anastomotic stricture	13(7.3)	8(4.4)	0.554
Thoracic gastric fistula	1(0.6)	0	0.494#
Pneumonia	15(8.4)	29(15.9)	0.030
Arrhythmia	6(3.4)	9(4.9)	0.455
Heart failure	5(2.8)	5(2.7)	0.972
Respiratory failure	8(4.5)	12(6.6)	0.385
Pneumothorax	5(2.8)	4(2.2)	0.748#
Laryngeal nerve injury	13(7.3)	16(10.5)	0.604
ARDS	0	6(3.3)	0.030#
Atelectasis	1(0.0.5)	4(2.2)	0.372#
Pyothorax	2(1.1)	2(1.1)	1.000#
Chylothorax	0	1(0.5)	1.000#

O-058

EFFECTS OF ROBOTIC ASSISTED ESOPHAGECTOMY FOR ESOPHAGEAL CANCER WITH LONG-TERM OUTCOMES FROM A SINGLE INSTITUTION FOR OVER 1100 CASES

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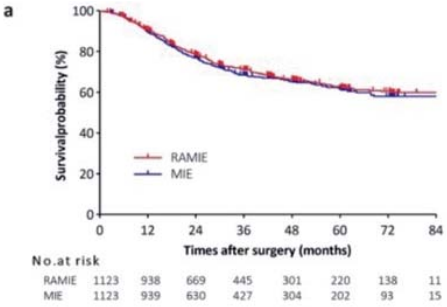
OBJECTIVES
Robot-assisted minimally invasive esophagectomy (RAMIE) accounts for a growing proportion of surgical treatment for esophageal cancer. Preliminary results of the RAMIE trial indicated improved technical capabilities over traditional minimally invasive esophagectomy (MIE). The aim of this study is to evaluate the postoperative and long-term outcomes of RAMIE in comparison with the MIE approach over a 7-year period at a high-volume center.

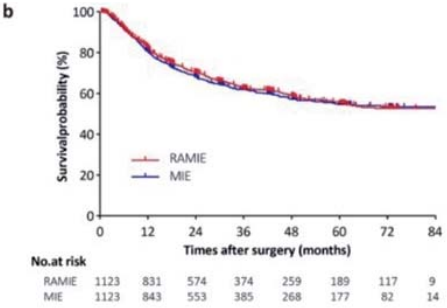
METHODS
From Nov 2015 to Dec 2022, patients who underwent minimally invasive esophagectomy were retrospectively reviewed. A 1:1 propensity match (RAMIE: MIE) for multiple clinical covariates was performed to identify the final study cohorts. The primary outcomes were overall survival and recurrence-free survival. Secondary outcomes included textbook outcome, morbidity, lymph node yield, 30-day, and 90-day mortality.

RESULTS
After matching, a total cohort of 2246 patients undergoing RAMIE (n=1123) or MIE (n=1123) were included. There was no difference in 5-year overall survival (62.5% vs 61.4%, P=0.425) or recurrence-free survival (55.6% vs 54.7%, P=0.476). The rate of textbook outcome was significantly higher following RAMIE (43.7% vs 37.1%, P=0.001). RAMIE is associated with shorter surgical duration (262 vs 281 mins, P<0.001) and a higher lymph node yield (23 vs 20, P<0.001). There were no differences in rates of any complications (43.6% vs 47.6%, P=0.057) or major complications [C-D≥III] (10.3% vs 11.8%, P=0.281), but a decreased postoperative pneumonia was associated with RAMIE as compared with MIE (8.2% vs 13.4%, P<0.001). Also, there was no difference in in-hospital (0.4% vs 0.4%, P=1.000), 30-day (0.7% vs 0.6%, P=0.796) or 90-day mortality (1.1% vs 1.3%, P=0.561) between the two groups.

CONCLUSIONS
RAMIE is associated with improved textbook outcome and surgical efficiency as well as similar mortality and morbidity. Robotic technique could improve lymphadenectomy in patients undergoing esophagectomy, while the survival did not show difference. Final data of the randomized RAMIE trial is warranted.

Disclosure: No significant relationships.
Keywords: Robotic Esophagectomy, Long-Term Prognosis, Textbook Outcome.


a
Survivalprobability (%)
100
80
60
40
20
0
RAMIE
MIE
0
12
24
36
48
60
72
84
Times after surgery (months)
No.at risk
RAMIE 1123 938 669 445 301 220 138 11
MIE 1123 939 630 427 304 202 93 15


b
Survivalprobability (%)
100
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RAMIE
MIE
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72
84
Times after surgery (months)
No.at risk
RAMIE 1123 831 574 374 259 189 117 9
MIE 1123 843 553 385 268 177 82 14

TUESDAY 28 MAY 2024
PULMONARY NEOPLASTIC II (EARLY STAGE LUNG CANCER)
SESSION X
08:00 – 09:30

O-059

EFFICACY OF ADJUVANT URACIL-TEGAFUR THERAPY IN COMPLETELY RESECTED, NODE-NEGATIVE LUNG ADENOCARCINOMA PATIENTS: A MULTICENTER REAL-WORLD CLINICAL REGISTRY STUDY

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OBJECTIVES

In Japan and in several Asian regions, adjuvant treatment with oral uracil-tegafur (UFT) is the standard of care for non-small cell lung cancer patients with pathological stage IA3-IIA disease. On the other hand, adjuvant osimertinib has shown clinical benefit in pathological Stage IB lung adenocarcinoma patients with EGFR mutation in subgroup analysis of the ADAURA study. In this study, we evaluated clinical relevance of adjuvant UFT in surgically resected pathological stage IA3-IIA lung adenocarcinoma patients with/without EGFR mutation.

METHODS

We conducted a multi-institutional retrospective observational study on 4,181 lung cancer patients across 21 institutions in Japan from 2015 to 2018. This study focused on 904 lung cancer patients with known pre-recurrence EGFR status, who underwent complete resection

and were pathological stage IA3-IIA. Using propensity score matching, we balanced the distribution ratios of clinical backgrounds (age, sex, smoking history, performance status (PS), pathological stage, ground-glass opacity component, pleural invasion, lymphatic/vascular invasion, predominant histological pattern, interstitial pneumonia, and EGFR mutation status) between the cohort receiving UFT therapy and the control group

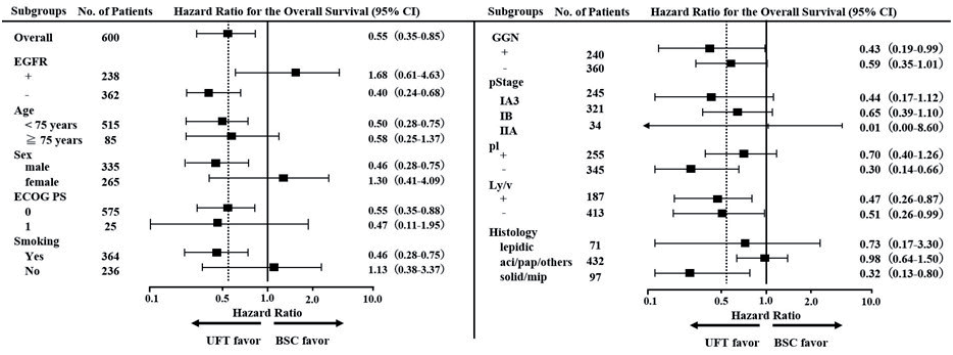
RESULTS

Propensity score matching resulted in 300 patients receiving UFT treatment (including 121 EGFR-mutated cases) and 300 patients not receiving treatment (with 117 EGFR-mutated cases). Overall survival was significantly superior in the UFT treatment group (P=0.007). Subgroup analysis revealed that overall survival was significantly extended in the EGFR wild-type subgroup (HR: 0.40, 95% CI: 0.24-0.68, P<0.001), while no significant difference was observed in the EGFR mutation-positive subgroup (HR: 1.68, 95% CI: 0.61-4.63, P=0.315).

CONCLUSIONS

This multicenter retrospective observational study confirmed the clinical efficacy of UFT in surgically resected IA3-IIA lung adenocarcinoma patients without EGFR mutation. In contrast, adjuvant UFT did not improve overall survival in patients with EGFR mutation. These results support the use of osimertinib in stage IB-IIA cohort with EGFR mutation, anticipating for the results of the ADAURA2 study.

Disclosure: No significant relationships.
Keywords: NSCLC, Adjuvant Chemotherapy, EGFR.



O-060

INTRAOPERATIVE SURGICAL MARGIN ASSESSMENT OF SUBLOBAR LUNG RESECTION SPECIMENS USING COMPUTED TOMOGRAPHY

Shinsuke Kitazawa[1], Nicholas Bernards[1], Yuki Sata[1], Fumi Yokote[1], Hiroyuki Ogawa[1], Takamasa Koga[1], Yoshihisa Hiraishi[1], Takahiro Yanagihara[1], Alexander Gregor[1], Laura Donahoe[1], Jonathan Yeung[1], Marcelo Cypel[1], Marc De Perrot[1], Andrew Pierre[1], Thomas Waddell[1], Shaf Keshavjee[1], Michael Cabanero[2], Kazuhiro Yasufuku[1,3]

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OBJECTIVES

Although sublobar resection is becoming the preferred method for small-sized peripheral lung cancers, inadequate surgical margin (SM) is still a major concern impacting the risk of cancer recurrence. To date, there is no established method for confirming whether a sufficient SM was obtained during surgery. In this study, we aimed to evaluate the feasibility of using CT as an intraoperative SM guidance tool for sublobar resections by comparing with histopathologic SM measurement.

METHODS

Patients scheduled for wedge resection or segmentectomy of lung tumors were enrolled. Following resection, lung samples were re-inflated using a 25-gauge needle. CT images of the specimen were acquired with the staple line perpendicular to the CT axial plane. SM length, defined as the minimum distance between the tumor edge and staple line, was measured. SM length measured by microscopic assessment was extracted from the final histopathology report. The correlation between CT- and pathology-derived SM measurement was assessed by using Pearson's correlation coefficient analysis.

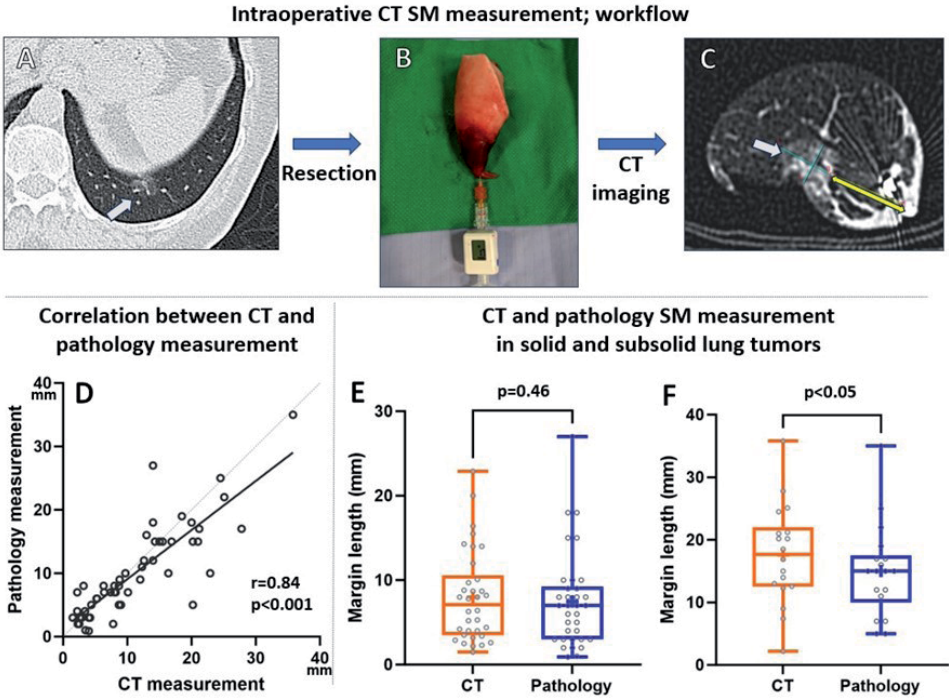
RESULTS

A total of 52 scans of sublobar resection specimens were analyzed. There were 34 solid tumors (65.4%) and 18 subsolid tumors (34.6%). The mean tumor diameter was 14.3 ± 7.7mm (range: 3.0-40.5mm). The mean SM length by intraoperative CT and pathology was 11.3 ± 7.9mm (range: 1.5-35.8mm) and 10.1 ± 7.2mm (range: 0.9-35.0mm). The Pearson's correlation coefficient between two measurements was 0.84 (95% CI: 0.74–0.91, $p < 0.001$). The mean difference between SM on CT and pathology was 0.5 mm in solid tumors and 2.6 mm in subsolid tumors. A statistically significant difference between the two measurements was observed in subsolid tumors ($p < 0.05$) but not in solid tumors ($p = 0.46$).

CONCLUSIONS

SM measurement by CT is feasible and has the potential to aid in the evaluation of SM intraoperatively. However, surgeons must anticipate the potentially greater discordance when employing this technique for subsolid tumors.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Sublobar Resection, Surgical Margin, Computed Tomography.



A. Representative case of left lower lobe subsolid nodule (arrow).
B. Resected lung was re-inflated.
C. The tumor was visualized by intraoperative CT (arrow) and SM length was measured (yellow arrow).
D. Scatter plot of the CT and pathology measurement. The two measurements were strongly correlated
E-F. Box plot for solid (E) and subsolid (F) tumors. A significant difference was observed in subsolid tumors ($p < 0.05$) but not in solid tumors ($p = 0.46$).

O-061

CLINICAL STAGE IA NON-SMALL CELL LUNG CANCER WITH INCIDENTAL PATHOLOGIC N1 AND N2 DISEASE AFTER SEGMENTECTOMY: DOES A COMPLETION LOBECTOMY JUSTIFY?

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West Virginia University, Morgantown, United States

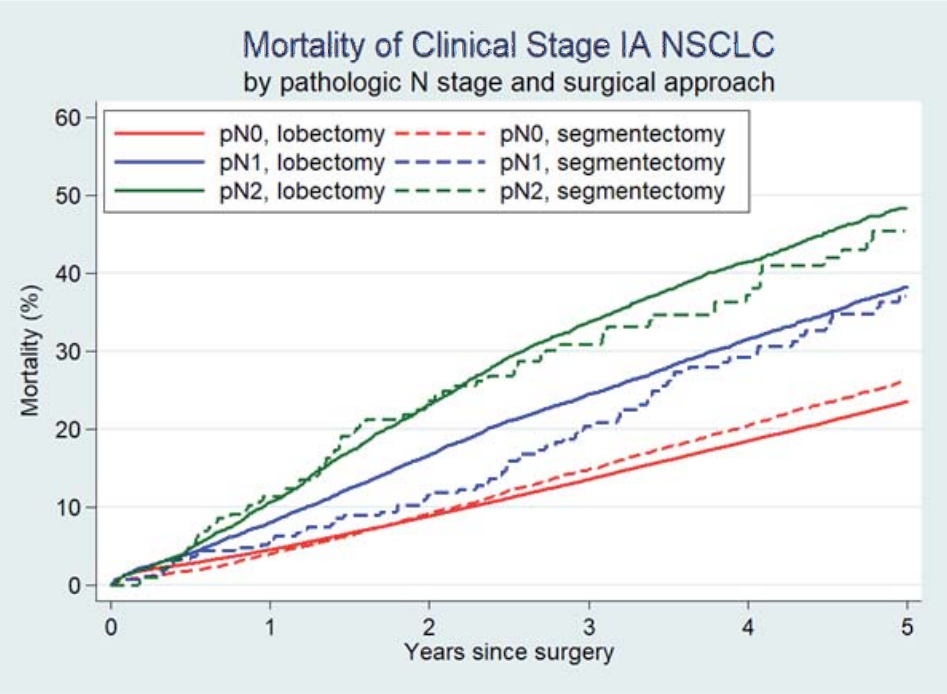
OBJECTIVES
After segmentectomy for clinical stage IA NSCLC, when pathology, especially intra-operative frozen section shows pathologic N1/N2 disease, a debate comes for requirement of lobectomy. To facilitate decision-making for incidental pN1/pN2, we explored outcomes after anatomic resection for clinical stage IA NSCLC with pN1/pN2.

METHODS
We identified clinical stage IA NSCLC undergoing segmentectomy or lobectomy from the National Cancer Database between 2010-2020. We categorized patients by pathologic N stage (pN0, pN1, and pN2). We compared segmentectomy to lobectomy adjusting for patient and clinical characteristics. We explored mortality using time-varied Cox regression, and perioperative outcomes including 30-day, 90-day mortality, unplanned 30-day readmission and length of stay.

RESULTS
Among 123,085 patients with clinical stage IA NSCLC, 9,735 (7.9%) underwent segmentectomy. Pathology showed 2.8% pN1 disease and 1.9% pN2 disease after segmentectomy, and 6.5% pN1 disease and 3.7% pN2 disease after lobectomy. Pathologic N1/N2 disease conferred higher mortality than pN0 (Figure). After adjustment using time-varied Cox regression, for patients with pN1, segmentectomy conferred 32% lower mortality within 2 years (aHR=0.68, p=0.04), but similar mortality after 2 years (aHR=1.05, p=0.7). For patients with pN2, segmentectomy had similar mortality with lobectomy (aHR=1.00, p=0.9). For patients with pN0, segmentectomy conferred similar mortality with lobectomy within 2 years (aHR=1.00, p=0.9) and 16% higher mortality after 2 years (aHR=1.16, p<0.001). For all clinical IA NSCLC, segmentectomy was associated with lower 30-day mortality (aOR=0.56, p<0.001), 90-day mortality (aOR=0.58, p<0.001), unplanned 30-day readmission (aOR=0.86, p=0.01), and shorter length of stay (aRR=0.77, p<0.001) than lobectomy.

CONCLUSIONS
Among clinical stage IA NSCLC, segmentectomy was associated with lower mortality within 2 years for pN1 and comparable mortality with lobectomy for pN2. Short-term mortality, unplanned 30-day readmission, and length of stay were lower among patients after

segmentectomy. In clinical stage IA NSCLC with incidental pN1 and pN2, segmentectomy is safe and might be sufficient for high-risk patients.



O-062

HIGH BARRIERS TO CARE ARE ASSOCIATED WITH STEREOTACTIC RADIATION TREATMENT INSTEAD OF SURGERY FOR PATIENTS WITH OPERABLE STAGE I NON SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES
Although surgery is considered the standard of care for early-stage lung cancer, non-randomized studies suggest comparable outcomes with SBRT, an approach championed by radiation oncologists. We sought to assess geographic patterns of treatment to identify areas with high SBRT utilization. We hypothesized that SBRT is more often delivered to patients who experience barriers to care.

METHODS
The National Cancer Database (2018-2020) was queried for patients with clinical stage IA NSCLC treated with surgery or SBRT, excluding patients with contraindications to surgery. Patients with each of the following were categorized as experiencing "high barriers to care": treatment at a community facility, living in rural areas, income below median national levels, and lack of private insurance. After propensity-matching, the association between determinants of health and treatment modality was studied.

RESULTS
A total of 60,829 patients were included, of whom 13,535 (22.3%) underwent SBRT and 47,294 (77.7%) surgery. Among them, 3,382 (5.6%) experienced high barriers to care. Treatment modality varied among United States geographic regions, with the East Central, West Central, and Mountain regions having higher rates of SBRT ($p<0.001$, Fig-1A). In these regions SBRT/ Surgery ratio was higher among patients with barriers to care (Fig-1B). Overall, more patients undergoing SBRT faced high barriers to treatment (8.6% SBRT vs. 4.7% Surgery, $p<0.001$), and United States geographic region was associated with the delivery of SBRT ($p<0.001$). The magnitude of the association was stronger among those who faced high treatment barriers (Fig-1C). After propensity-matching, high barriers to care were associated with increased use of SBRT (OR 1.74,95%CI 1.56-1.94).

CONCLUSIONS
Significant regional variability exists in the treatment of early-stage NSCLC in the United States. The use of SBRT is more prevalent among patients who experience high barriers to care. Further efforts are urgently needed to standardize treatment approaches for early-stage NSCLC and prevent widening outcome gaps in marginalized groups.

Disclosure: No significant relationships.
Keywords: Stereotactic Radiation, Surgery, Early-Stage Lung Cancer, NSCLC, Disparities of Care.

Figure 1A. Geographic distribution of the ratio between SBRT/ Surgery.

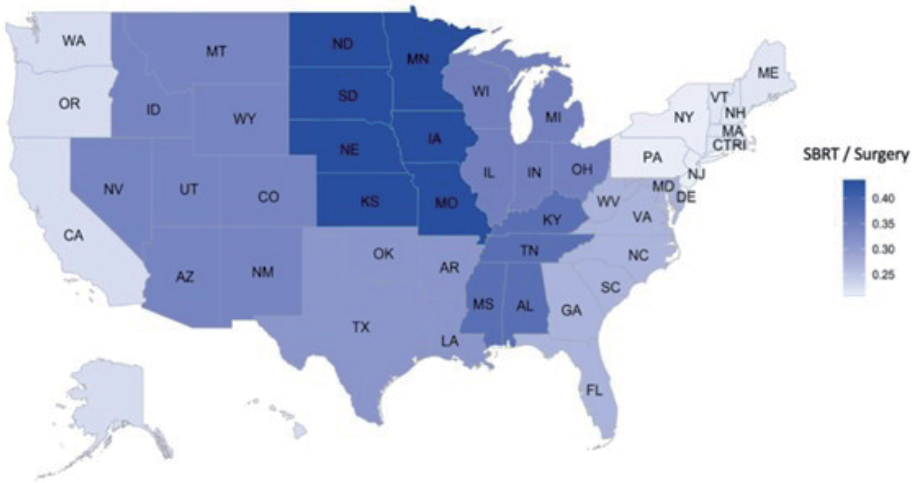
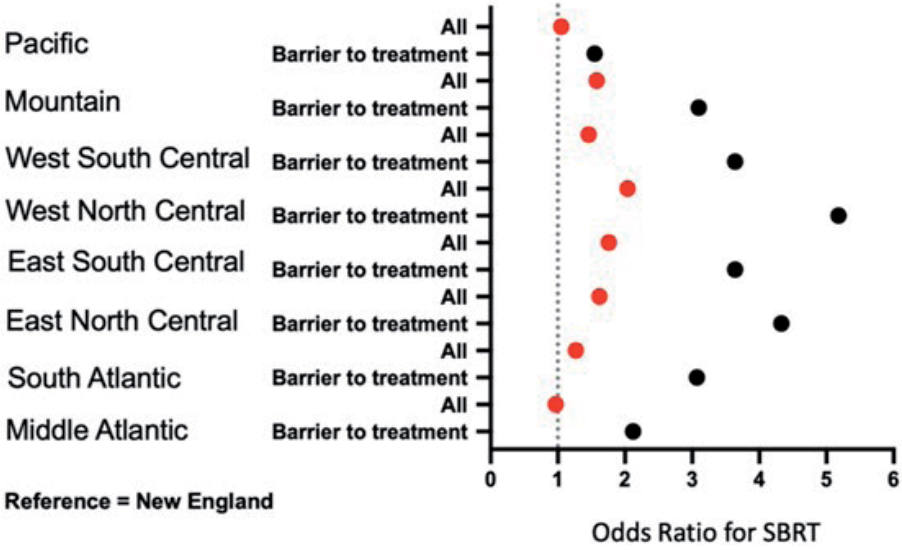


Figure 1B. Treatment approach by geographic region stratified by the presence of "high barriers to care" including a comparison of the SBRT/SLR ratio.

Figure 1B. Treatment approach by geographic region stratified by the presence of "high barriers to care" including a comparison of the SBRT/SLR ratio.

	No Barriers to Treatment			Barriers to Treatment			
US Region	SBRT	SLR	SBRT/SLR	SBRT	SLR	SBRT/SLR	
New England, N	3595	731	0.20	61	9	0.15	
%	83.1	16.9		87.1	12.9		
Middle Atlantic, N	8694	1733	0.20	96	30	0.31	
%	83.4	16.6		76.2	23.8		
South Atlantic, N	10595	2747	0.26	464	210	0.45	
%	79.4	20.6		68.8	31.2		
East North Central, N	8343	2977	0.36	462	295	0.64	
%	73.7	26.3		61.0	39.0		
East South Central, N	3051	1243	0.41	408	219	0.54	
%	71.1	28.9		65.1	34.9		
West North Central, N	3624	1572	0.43	276	211	0.76	
%	69.7	30.3		56.7	43.3		
West South Central, N	2762	863	0.31	216	116	0.54	
%	76.2	23.8		65.1	34.9		
Mountain, N	1500	517	0.34	116	53	0.46	
%	74.4	25.6		68.6	31.4		
Pacific, N	47294	13535	0.29	114	26	0.23	
%	77.7	22.3		81.4	18.6		
			Mean: 0.31			Mean: 0.45	P=-0.033

Figure 1C. Logistic regression for geographic associations with SBRT stratified by "high barriers to care"



O-063

REAL-WORLD DATA AND UTILITY OF NEWLY PROPOSED GRADING SYSTEM FROM INTERNATIONAL ASSOCIATION FOR THE STUDY OF LUNG CANCER FOR INVASIVE LUNG ADENOCARCINOMA IN JAPAN

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OBJECTIVES

The International Association for the Study of Lung Cancer (IASLC) has proposed a new pathology grading system for invasive lung adenocarcinoma, but there're few reports on its utility. We aimed to clarify the usefulness of newly grading system from IASLC for Invasive lung adenocarcinoma and its association with EGFR mutation in lung adenocarcinoma surgery cases in Japan.

METHODS

A multicenter retrospective observational study was conducted at 21 centers in Japan (n=4181). Of those, we investigated the 2028 patients who underwent complete resection with anatomical lung resection for lung adenocarcinoma and in which the subtype of adenocarcinoma could be evaluated retrospectively. The patients were classified into grades 1-3 using the conventional grade classification based on the predominant pattern (hereafter referred to as "old classification") and the new IASLC grading (hereafter referred to as "new classification"). In the new classification, patients were classified as grade 1 if they had mainly lepidic components and less than 20% of micropapillary or solid components, grade 2 if they had mainly acinor or papillary components and less than 20% of micropapillary or solid components, and grade 3 if more than 20% of micropapillary or solid components.

RESULTS

In the old classification, there were 773/935/320 cases of grade 1/2/3, and in the new classification, there were 778/679/571 cases of grade 1/2/3, respectively, showing a decrease in the proportion of grade 2 and an increase in the proportion of grade 3 in the new classification. The proportion of EGFR mutations in the new classification decreased with increasing grade, 55.5%/49.3%/27.7% for grade 1/2/3, respectively. Regarding overall survival, the new classification clearly stratified grade 2 and grade 3, especially in the early stage ($p<0.001$).

CONCLUSIONS

The new classification clarified the previously ambiguous grade 2 and grade 3 stratification, suggesting that it may be useful in predicting prognosis in early-stage lung adenocarcinoma.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Grading System, Pathology, Adenocarcinoma.

O-064

COMPARISON BETWEEN LOBECTOMY AND SEGMENTECTOMY IN DIFFERENT SUBTYPES OF STAGE I ADENOCARCINOMA. A SEER DATABASE ANALYSIS

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OBJECTIVES
To compare lobectomy and segmentectomy among different subtypes of stage I lung adenocarcinoma (ADC).

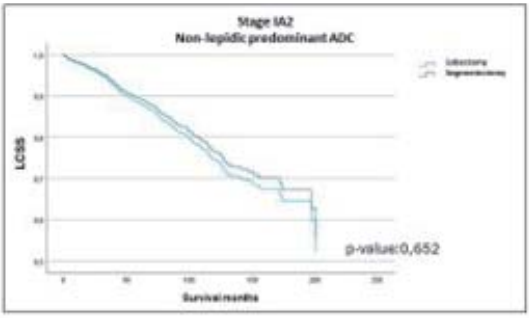
METHODS
We analysed the Surveillance, Epidemiology and End Results (SEER) database for lobectomy and segmentectomy for stage I ADC(≤4cm in size) from 2000 to 2017. The primary endpoints were overall survival (OS) and lung cancer-specific survival (LCSS), and the secondary endpoints were 30-day and 90-day mortality. Survival analysis was performed using Kaplan-Meier analysis and the log-rank test. To assess the effects on the prognosis of both lobectomy and segmentectomy, univariate and multivariate Cox proportional hazards regression were applied. Results were presented as hazards ratio and 95% confidence interval (HR and 95%CI).

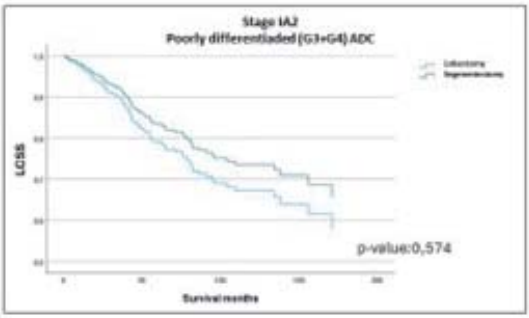
RESULTS
Overall, 13701 patients treated by lobectomy and 942 by segmentectomy were included. There was no OS and LCSS difference between segmentectomy and lobectomy for stage IA1 and IA2 lung ADC. In stage IA3, lobectomy was superior to segmentectomy, except for lepidic-predominant ADC. In stage IB, lobectomy was superior to segmentectomy in OS and LCSS (Figure 1). Lobectomy had higher 30-day mortality than segmentectomy (1.1% vs 2.1%, p=0.01) but not 90-day mortality (3.9% vs 3.0%,p=0.17). In multivariate analysis (stratification for stage-only), no survival differences between segmentectomy and lobectomy until stage IA2 were found. However, lobectomy was superior to segmentectomy for stage IA3 and stage IB. Stratification for the grading system instead of ADC subtypes showed a similar survival trend (data not shown).

CONCLUSIONS
Segmentectomy may not be inferior to lobectomy in OS and LCSS, even for moderately and poorly differentiated ADC ≤2cm. In stage IA3, lobectomy is associated with better OS and LCSS but not for lepidic-predominant ADC. In stage IB, lobectomy is superior to segmentectomy in OS and LCSS. Further analyses for stage IA3 are necessary, and a propensity-matched study is planned in order to provide a better balance between the lobectomy and segmentectomy groups.

Disclosure: No significant relationships.
Keywords: Lobectomy, Segmentectomy, Adenocarcinoma, Lung Cancer, Survival.

STAGE ADC	OS						LCSS					
	Univariate Cox analysis			Multivariate Cox analysis			Univariate Cox analysis			Multivariate Cox analysis		
Lobectomy vs Segmentectomy	HR	95%CI	p-value	HR	95%CI	p-value	HR	95%CI	p-value	HR	95%CI	p-value
Stage IA1	-	-	-	1.27	0.75-2.15	0.372	-	-	-	0.83	0.35-1.93	0.662
Lepidic predominant ADC	1.28	0.61-2.68	0.518	-	-	-	0.68	0.49-1.01	0.055	-	-	-
Non-lepidic predominant ADC	1.33	0.84-2.07	0.222	-	-	-	1.04	0.84-2.69	0.825	-	-	-
Mucinous ADC	0.84	0.28-2.74	0.770	-	-	-	0.54	0.27-4.08	0.534	-	-	-
Stage IA2	-	-	-	1.24	0.85-1.27	0.331	-	-	-	1.34	0.85-1.34	0.742
Lepidic predominant ADC	1.27	0.61-1.21	0.212	-	-	-	1.22	0.84-1.85	0.218	-	-	-
Non-lepidic predominant ADC	1.22	0.85-1.85	0.140	-	-	-	1.05	1.19-1.43	0.832	-	-	-
Mucinous ADC	1.31	0.85-1.85	0.960	-	-	-	1.46	0.71-2.77	0.333	-	-	-
Stage IA3	-	-	-	1.42	1.19-1.83	<0.001	-	-	-	1.38	1.17-2.18	0.004
Lepidic predominant ADC	1.72	1.24-1.38	0.011	-	-	-	1.32	0.89-2.01	0.171	-	-	-
Non-lepidic predominant ADC	1.18	1.09-2.22	0.014	-	-	-	1.80	1.34-2.01	0.111	-	-	-
Mucinous ADC	2.02	1.21-3.37	0.007	-	-	-	2.18	1.14-4.24	0.318	-	-	-
Stage IB	-	-	-	1.28	1.24-1.38	0.001	-	-	-	1.48	1.28-1.38	0.007
Lepidic predominant ADC	1.72	1.27-2.34	0.011	-	-	-	1.18	1.22-2.69	0.358	-	-	-
Non-lepidic predominant ADC	1.18	1.19-2.01	0.012	-	-	-	1.38	1.28-2.28	0.018	-	-	-
Mucinous ADC	1.74	1.28-2.38	0.018	-	-	-	1.21	0.77-2.01	0.202	-	-	-





O-065

PATTERN AND PREOPERATIVE RISK FACTORS OF OCCULT LYMPH NODE METASTASIS IN CLINICAL STAGE I LUNG CANCER

Young Ho Yang, Ha Eun Kim, Byung Jo Park, Jin Gu Lee, Dae Joon Kim, Chang Young Lee
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OBJECTIVES
Recently, segmentectomy has been performed increasingly in early lung cancer, and lobe-specific lymph node dissection (LND) is also increasing. However, there are still controversial about which lymph node (LN) is important to identify during segmentectomy and which cases lobe-specific LND can be applied. We investigated the pattern and the preoperative risk factor of the occult LN metastasis of early-stage non-small cell lung cancers.

METHODS
We retrospectively reviewed data from 1642 patients with clinical stage I lung cancer who underwent total mediastinal LND. We analyzed the frequency of occult LN metastasis between the upper and lower lobes of lung cancer and the preoperative risk factor affecting occult LN metastasis through multivariate logistic regression analysis.

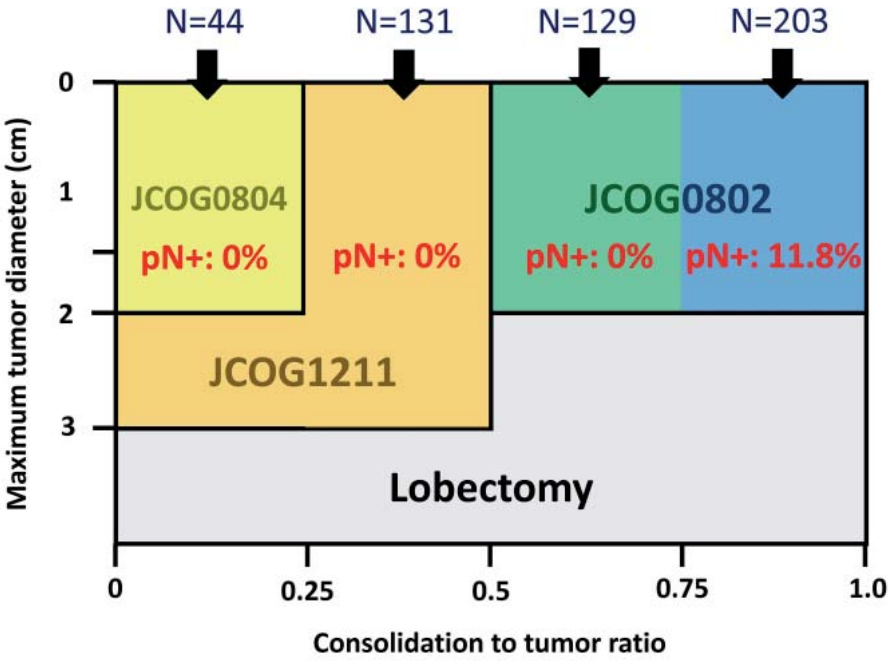
RESULTS
There were 892 upper lobe cancer and 620 lower lobe cancer patients. The occult LN metastasis rate was 11.2 % and the skip metastasis rate was 1.9%. In the case of the N1 LNs, the lobar LNs (7.6%) were the most common site of metastasis regardless of the location of the cancer, followed by interlobar (2.9%) and hilar (1.9%) LNs. In the case of the N2 LN, the upper lobe cancer tends to metastasize to the superior mediastinum (4.2%vs1.4%, inferior mediastinum) and the lower lobe cancer to the inferior mediastinum (5.0% vs 0.5%, superior mediastinum). Smoking (HR 1.803, 95% CI 1.062-3.062), non-peripheral (HR 2.249, 95% CI 1.567-3.062), tumor size (HR 1.403, 95% CI 1.131-1.739), C/T ratio >0.75 (HR 16.449, 95% CI 7.555-35.813), and pleural invasion (HR 1.717, 95% CI 1.183-2.492) are the risk factors affecting occult LN metastasis in early-lung cancer.

CONCLUSIONS
The C/T ratio is the strongest preoperative risk factor affecting occult LN metastasis in stage I lung cancer. When segmentectomy is performed, the dissection of the lobar LN is important for intraoperative evaluation of LN metastasis. Therefore, aggressive resection of the lobar LN is considered necessary.

Disclosure: No significant relationships.
Keywords: Occult Lymph Node Metastasis, Lobe Specific Lymph Node Dissection, Segmentectomy.

Table 1. Frequency of pathologic lymph node metastasis

Variables	Total (n=1512)	Upper (N=892)	Lower (N=620)	*p*
Occult metastasis	170 (11.2%)	91 (10.2%)	79 (12.7%)	0.146
Skip metastasis	29 (1.9%)	13 (1.5%)	16 (2.6%)	0.169
N1 station	146 (9.7%)	81 (9.1%)	65 (10.5%)	0.412
Hilar	29 (1.9%)	15 (1.7%)	14 (2.3%)	0.540
Interlobar	44 (2.9%)	15 (1.7%)	29 (4.7%)	0.001
Lobar	115 (7.6%)	72 (8.1%)	43 (6.9%)	0.471
N2 station	72 (4.8%)	39 (4.4%)	33 (5.3%)	0.465
Superior mediastinal nodes	47 (3.1%)	38 (4.2%)	9 (1.4%)	0.003
Inferior mediastinal nodes	36 (2.4%)	5 (0.5%)	31 (5.0%)	< 0.001



TUESDAY 28 MAY 2024
PULMONARY NON-NEOPLASTIC SESSION XI
08:00 – 09:30

O-066

IMPACT OF THE ESTABLISHMENT OF A MULTIDISCIPLINARY NATIONAL CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH) BOARD ON A MONOCENTRIC SURGICAL ENDARTERECTOMY PROGRAM

Bianca Battilana[1], Mona Lichtblau[2], Laura Mayer[2], Thomas Frauenfelder[3], Thomas Pfammatter[3], Sabine Franckenberg[3], Gilbert Puippe[3], John-David Aubert[4], Benoît Lechartier[4], Andrei Mihai Darie[5], Sabina Anna Guler[6], Jean-François Deux[7], Jean-Marc Fellrath[8], Patrick Yerly[9], Frédéric Lador[10], Silvia Ulrich[2], Isabelle Opitz[1]

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[10]*University Hospital Geneva, Department of Pulmonology, Geneva, Switzerland*

OBJECTIVES

Chronic thromboembolic pulmonary hypertension (CTEPH) is a rare and debilitating disease, marked by diagnostic complexities that lead to delays in diagnosis and treatment. After establishment of a surgical CTEPH center, the need for a national multidisciplinary evaluation board was recognized given the rarity of the disease and the mid-size population of Switzerland. The Swiss CTEPH board was inaugurated in January 2018, supported by the Swiss Society of Pulmonary Hypertension. The board comprises a collaborative team of pulmonologists, cardiologists, radiologists, and thoracic surgeons, uniting their expertise to discuss cases involving potential CTEPH and ensure comprehensive patient care.

METHODS

The patients discussed in the national CTEPH Board were retrospectively analyzed for the diagnosis of CTEPH and subsequent treatment allocation with focus on pulmonary endarterectomy (PEA).

RESULTS

From January 2018 to May 2023, our national CTEPH board received a total of 198 referrals. Among these, CTEPH diagnosis was confirmed in 160 (81%) patients. Out of these, 73 (46%) were directed to PEA and 56 (35%) to BPA. Notably, 8 patients (11%) underwent both PEA and BPA. The annual median number of PEA procedures performed was 12, with a range of 10 to 17. Among the patients undergoing PEA, there was a significant improvement in their median mean pulmonary artery pressure (mPAP) from 43mmHg (preoperatively, range: 19 – 76mmHg) to 23mmHg at 6 months postoperatively (range: 12 – 51mmHg) ($p<0.05$). Additionally, the median 6-Minute Walking Distance showed improvement, increasing from 481m (preoperatively, range: 60 – 696m) to 517m postoperatively (range: 237 – 780m) ($p<0.05$).

CONCLUSIONS

Establishing an interdisciplinary CTEPH board is essential for addressing the unique diagnostic and management challenges in CTEPH patients. The Swiss national CTEPH board has played a crucial role in accurately diagnosing and identifying operable patients who benefit from surgical interventions leading to a considerable increase in PEA procedures since its establishment.

Disclosure: No significant relationships.

	Preoperative	Postoperative (6 Months)	p-value
mPAP (mmHg) median (range)	43 (19-76)	23 (12-51)	<0.05
PVR (WU) median (range)	6.7 (1.9-15)	2.5 (0.6-8.8)	<0.05
6MWD (m) median (range)	481 (60-696)	517 (237-780)	<0.05
PAWP (mmHg) median (range)	11 (2-40)	10 (3-17)	0.21

O-067

EXERCISE TRAINING ATTENUATES ONE-LUNG VENTILATION INDUCED LUNG INJURY BY REGULATING THE PULMONARY MICROBIOTA

Zhiming Chen, Di Lu, Zhizhi Wang, Jiayang Fan, Yikuan Cai, Huajie Li, Kaican Cai
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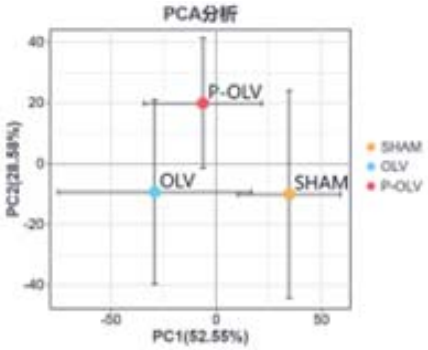
OBJECTIVES
Re-expansion pulmonary edema and subsequent acute respiratory distress syndrome, is one of the most catastrophic complications that occurs after one-lung ventilation (OLV). Several recent studies have shown that pulmonary microbiota may be involved in pulmonary diseases, but the effect of pulmonary microbiota in OLV-induced lung injury has not been reported. Our preliminary study revealed that the composition of bacterial communities was different after OLV, but the mechanism is still unclear. Therefore, we aim to investigate the effect of exercise training on OLV-induced lung injury and whether the respiratory tract flora is involved in such process.

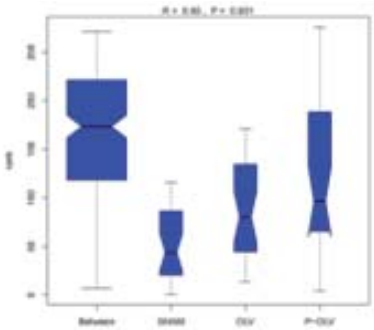
METHODS
Male Sprague Dawley rats were divided into sham-operated animals and sedentary and trained animals submitted to OLV. The run training program consisted of 5 sessions per week, each lasting 60 min/day, at 66% of maximal oxygen consumption for 8 weeks. 16S ribosomal RNA gene sequencing analysis was performed on the BALF samples. Interleukin-6 (IL-6), interleukin-1β (IL-1β), and tumor necrosis factor-α (TNF-α) levels in serums were assayed using an ELISA kit.

RESULTS
The lung injury scores of rats in the trained group were much lower than those in the sedentary group. The PCA scores revealed that the composition of bacterial communities was different among group sham, group sedentary, and group trained in the lung microbial community. Analysis of similarities (Anosim) was used to assess how the distributions of the three groups differed from one another. The findings indicated a substantial difference ($p = 0.001$) between the three groups. The expression of IL-6, IL-1β, and TNF-α after OLV was increased. The trained group displayed a higher survival rate as well as decreased IL-6, IL-1β, TNF-α levels, and lung edema in comparison to the sedentary group.

CONCLUSIONS
Our findings suggest that the pulmonary microbiota may be involved in the positive effect of exercise training in alleviating OLV-induced lung injury.

Disclosure: No significant relationships.
Keywords: One-Lung Ventilation, Acute Lung Injury, Pulmonary Microbiota.


PCA分析
P-OLV
OLV
SHAM
SHAM
OLV
P-OLV
PC2(28.58%)
PC1(52.55%)
40
20
0
-20
-40
-50
0
50



O-068

EARLY OUTCOMES ROBOTIC VERSUS VIDEO-THORACOSCOPIC ANATOMICAL SEGMENTECTOMY: A PROPENSITY SCORE-MATCHED REAL-WORLD STUDY

Maria Teresa Gomez-Hernandez[1], Clara Forcada Barreda[1], Francisco Gomez Valle[1], Mehlika Iscan[2], Marta G. Fuentes Gago[1], Cristina E. Rivas Duarte[1], Jose Luis Aranda Alcaide[1], Oscar Colmenares Mendoza[1], Gonzalo Varela[3], Marcelo Jimenez Lopez[1]
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[2]*Basaksehir Cam and Sakura City Hospital, Istanbul, Turkey*
[3]*Institute for Biomedical Research of Salamanca, Salamanca, Spain*

OBJECTIVES
Minimally invasive anatomic segmentectomy for the resection of pulmonary nodules has significantly increased in the last years. Video-assisted thoracic surgery (VATS) is a commonly selected approach, while robotic-assisted thoracoscopic surgery (RATS) has emerged as a valuable alternative in this context. Nevertheless, there is limited evidence on the safety and feasibility of robotic segmentectomy compared to VATS approach. This study aimed to compare the real-world early outcomes of RATS and VATS in anatomic segmentectomy after adjusting for background factors.

METHODS
Single centre cohort study including a series of consecutive patients undergoing segmentectomy by either RATS or VATS from June 2018 to November 2023. Propensity score case matching (PSM) analysis (1:1, nearest neighbour matching without replacement, covariables: age, gender, body mass index, ppoFEV1%, ppoDLCO% and previous ipsilateral surgery) generated two matched groups undergoing robotic or VATS segmentectomy. Short-term outcomes were compared between the two matched groups. Wilcoxon signed-rank test for continuous covariates and the Mantel–Haenszel $\chi 2$ test for categorial covariates were used to compare those groups.

RESULTS
213 patients (79 RATS and 134 VATS patients) were included. After PSM, 146 patients (73 cases in each group) were compared. One 30-day death was observed in the RATS group (P=1). Two conversions to thoracotomy occurred in the robotic, and none in the VATS group (P=0.478). There were no significant differences between RATS and VATS groups in postoperative complications (13.7% vs 15.1%, P=1), major complications (4.1% vs 4.1%, P=1), prolonged air leak (4.1% vs 5.5 %, P=1), arrythmia (1.4% vs 0%, P=1) and reoperation (2.7% vs 2.7%, P=1). Median length of stay was 2 days (IQR, 2-3 days) in the RATS group vs 3 days (IQR, 2-3.5 days) in the VATS group (P=0.182).

CONCLUSIONS

RATS is a safe and feasible alternative to VATS for patients undergoing anatomical segmentectomy offering similar early postoperative outcomes.

Disclosure: No significant relationships.

Keywords: Segmentectomy, VATS, RATS, Early Outcomes, Postoperative Complications.

O-069

INCREASED SURGICAL RISK DUE TO SMOKING IS ONLY PARTIALLY REVERSIBLE. RESULTS FROM THE FRENCH SOCIETY OF THORACIC AND CARDIOVASCULAR SURGERY (SFCTCV) DATABASE

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[4]*Thoracic Surgery Division, CHU Toulouse, Toulouse, France*
[5]*Service de Chirurgie Thoracique CHU de Bordeaux, Bordeaux, France*

OBJECTIVES
In smokers, the probability of developing postoperative complications after lung resection is increased but this additional risk is difficult to assess as data from large cohorts are limited. The aim of this study was to measure the impact of smoking on postoperative morbidity and differences between active and former smokers analysing data from Epithor, the database of the French Society of Thoracic and Cardiovascular Surgery (SFCTCV).

METHODS
Data of patients who underwent lung resection for primary lung cancer in the period 2002-2020 were extracted from Epithor and cases without information on smoking history were excluded. Mortality and morbidity were analysed according to smoking status and a further analysis compared former smokers and active smokers. The risk of overall and specific postoperative complications according to smoking status was defined by logistic regression models and results were presented in terms of OR and relative 95% confidence intervals adjusted for confounding factors identified in the descriptive analysis.

RESULTS
The study cohort was composed of 7204 patients, 18.9% of which were never smokers. As compared to never smokers, in patients having an history of smoking, an increased mortality and morbidity were recorded in smokers (respectively 1.1% vs 0.4%, p 0.01, and 30.4% vs 20.2%, p<0.01,) due to a significantly higher incidence of respiratory events, prolonged air leak, infections and neurological problems. As compared to never smokers, former smokers (n=4393) presented an intermediate risk of respiratory complications (OR 1.95, CI 1.2-3) and infections (OR 3.2, CI 1.6-6.3), which was even higher in active smokers (OR 3.2 CI 1.9-5.2 and OR 4.66, CI 2.3-9.4 respectively).

CONCLUSIONS
Smokers are at increased risk for morbidity and mortality after lung resection. In former smokers, this risk is reduced but does not reach the low risk profile of never smokers, suggesting that damage due to cigarettes is not fully reversible.

Disclosure: No significant relationships.
Keywords: Smoking, Postoperative Complications, Lung Surgery.

O-070

A NOVEL APPROACH: COMPUTED TOMOGRAPHY BASED ARTIFICIAL INTELLIGENCE IMAGE REGRESSION MODEL TO EVALUATE PULMONARY FUNCTION

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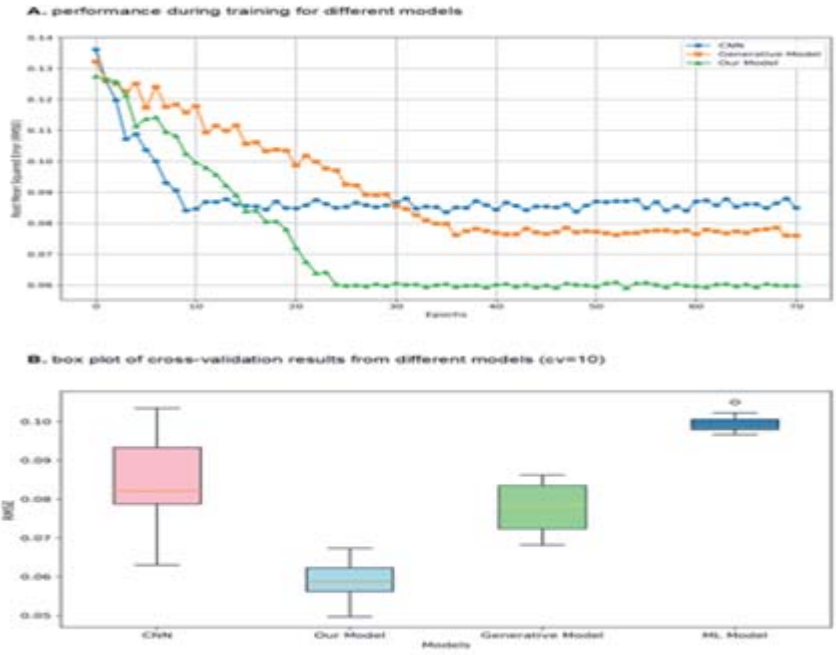
OBJECTIVES
Pulmonary function evaluation is vital for patients before thoracic surgery, which always depends on the spirometry method. However, there're contraindications and patient cooperation issues, leading to inaccurate results. Thus, to find a new approach for lung function evaluation without much cooperation, an artificial intelligence method based on computed tomography (CT) images was developed.

METHODS
A retrospective cohort of patients at Nanfang Hospital, Southern Medical University, China, was built, with pulmonary function results by the spirometry method, CT imaging, and basic information. A bidirectional normalizing flows-based vision transformer model with early convolutions(NF-Co-ViT) was developed, which can learn the relationship between the CT images feature maps and the lung function, and then realize the prediction between the distribution of CT images and the lung function of patient bidirectionally based on the regression and generative modeling tasks. We collected the clinic dataset to train and test this model, meanwhile compared performances with other common models (convolutional neural network (CNN), machine learning (ML), and generative models).

RESULTS
1865 patients with full data were retrospectively enrolled from January 2019 to April 2022. The data from 2/3 of the patients were used for training and the other 1/3 for testing. After reaching stable performance epochs, our model shows a smaller prediction error, with root mean squared error (RMSE) of about 0.060, comparing the CNN model of about 0.087 and the generative model of approximately 0.078 (Figure.A). In the further 10-fold cross-validation, our model still showed more robust and accurate performance than others, with a mean RMSE of about 0.059, comparing the CNN model of about 0.082, generative model approximately 0.078 and ML model of about 0.098 (Figure.B).

CONCLUSIONS
Here we investigated the bidirectional association between lung function and CT images, providing a promising method for evaluating pulmonary function with a great performance in a much easier way.

Disclosure: No significant relationships.
Keywords: Artificial Intelligence, Pulmonary Function, CT.



O-071

IMPACT OF A HYBRID, SHORT-TERM PREHABILITATION ON FUNCTIONAL AND PATIENT-REPORTED OUTCOMES IN PATIENTS UNDERGOING LUNG RESECTION FOR NON SMALL CELL LUNG CANCER (NSCLC) IN A REAL-WORLD SETTING

Gowthanan Santhirakumaran[1], Alice Finch[1], Saif Alshdifat[1], Jack Jones[1], Grant Duncan[1], Piley Cooper[1], Anthony Assadourian[1], Kelvin Lau[1], William Ricketts[1], Cecilia Pompili[1,2]
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[2]*University of Hull, Hull, United Kingdom*

OBJECTIVES

Prehabilitation is well established for optimizing outcomes in cancer surgery. In this proof-of-concept study, we investigated the impact of a short-term, multimodal prehabilitation program on perioperative functional and patient-reported outcomes (PROs) in patients undergoing NSCLC resection.

METHODS

We retrospectively analysed all patients undergoing prehabilitation for lung cancer in a single centre. Patients planning surgical resection could be referred to receive exercise, nutritional and PROs assessment. Patients take part in a hybrid program, twice-weekly, one-to-one combined high-intensity interval style and strength training alongside an App-based exercise and lifestyle support. We compare functional outcomes through Six-Minute Walk Test (6MWT) and one minute sit-to-stand (STS) and PROs through EQ-5D and Patient-Generated Subjective Global Assessment (PG-SGA) of nutritional status. A multivariate logistic regression analysis was performed to identify factors associated with a large improvement in PROs.

RESULTS

In total 82 patients were referred to the prehab from October 2022 to August 2023. 98% consented and 91% (75/82) completed prehabilitation, attending a median of five sessions (IQR: 4-8.5) in 2.5 weeks. 74.6% underwent surgical resection. Mean baseline FEV1 was 78.7% (SD 25.6) and DLCO 68.6% (SD 20.5).

Statistically significant improvements in all objective physiological and PROs assessments were observed preoperatively, including a mean increase in the 6MWT of 62.8 m ($P<0.001$) and in the STS of 8.9 ($P<0.001$). PROs improved significantly including General Health of 6 points ($P=0.012$) and nutritional status according to PG-SGA ($P=0.044$).

After adjusting for other patient-related confounders, female sex, lower deprivation index (most deprived patients) and a smaller number of sessions are associated with higher improvement in quality of life.

CONCLUSIONS

Short-term hybrid prehabilitation in lung cancer resectable patients is feasible and associated with improvement in objective and subjective outcomes, particularly in female patients living in more deprived areas. This prehabilitation may optimize fitness and PROs before consolidation therapy in neoadjuvant settings.

Disclosure: No significant relationships.

Keywords: Quality Of Life, NSCLC, Rehabilitation, Perioperative Assessment, Lung Resection.

O-072

NOVEL USES OF QUANTITATIVE COMPUTED TOMOGRAPHY (CT) SOFTWARE IN LUNG VOLUME REDUCTION

Ben Shanahan, Joanne Hargrave, Periklis Perikleous, Michelle Lee, David Waller
St Bartholomew's Hospital, London, United Kingdom

OBJECTIVES
The StratX software program (Pulmonx Corp.) is used in patient selection for Endobronchial Lung Volume Reduction (EBVLVR) to indicate the likelihood of collateral ventilation. However, we aimed to explore other uses for the information on Fissure Integrity (FI), lung volumes and Emphysema Severity (ES) both in EBLVR and in Lung Volume Reduction Surgery (LVRS).

METHODS
In a 4 year experience we performed 177 consecutive LVR procedures, 83 patients (54M, 29F, Median age 65) underwent RATS LVRS and 94 patients (52M, 42F, Mdian age 69) underwent EBVLVR. Using StratX software we evaluated: (1) the relationship between FI and ES; (2) the relationship between FI and the improvement in FEV-1 after LVRS and (3) the use of StratX to predict Secondary Pneumothorax (SP) post EBVLVR.

RESULTS
In contradiction to common belief FI did not decrease with increasing emphysema severity in the target lobe (correlation coefficient 0.03, p=0.74). The improvement in FEV-1 at 6 months after LVRS was positively correlated with the degree of FI (r= 0.4, p=0.04). Furthermore, after EBLVR the incidence of procedural SP could be predicted using the StratX analysis of ES; patients who experienced SP had a lower ratio of ES in the target: non-target lobe (1.07 (0.83-1.54) (p=0.0015)) and a higher emphysema score (56% (34-89) (p=0.0001)) compared to patients who didn't experience SP.

CONCLUSIONS
We recommend the use of the StratX software analysis of CT imaging in all patients undergoing assessment for LVR as its applications exceed just selection for EBLVR. These include: choice of LVR method (extending EBLVR to more severe cases), prediction of outcome and possible extension of the procedure of LVRS, and complications and potential prophylactic interventions after EBLVR.

Disclosure: No significant relationships.
Keywords: Emphysema, Lung Volume Reduction, Endobronchial Valve.

O-073

MULTIMODAL ANALGESIA AND CARE BASED ON ESTS/ERAS GUIDELINES IMPLEMENTED ACROSS A UNITED STATES (U.S.) HEALTHCARE SYSTEM ARE ASSOCIATED WITH RISK-ADJUSTED DECREASES IN OPIOID UTILIZATION FOLLOWING ANATOMIC LUNG RESECTION

Christina M Stuart[1], Adam R Dyas[1], Michael R Bronsert[1], Kyle E Bata[1], Benjamin A Adams[1], Alyson D Kelleher[2], Annette S Vizena[3], Matthew G Blum[4], Kathryn E Hoidal[1], Mitchell C Erikson[1], Simran K Randhawa[1], Elizabeth A David[1], John D Mitchell[1], Robert A Meguid[1]
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[2]UCHealth Denver Metropolitan, Aurora, United States
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OBJECTIVES
Pain control is an integral part of Enhanced Recovery after Surgery (ERAS) protocols. The objective of this study was to determine how implementation of a multimodal pain regimen protocol from the ESTS/ERAS guidelines affects opioid utilization following anatomic lung resection across a diverse, multi-institutional healthcare system.

METHODS
This was a prospective, multi-institutional cohort study from a diverse healthcare system in the United States, 01/2019-03/2023. The ESTS/ERAS thoracic guidelines were universally implemented across 5 hospitals on 5/2021, including a multimodal pain regimen protocol (ketorolac, pregabalin, acetaminophen). All patients undergoing anatomic lung resection were targeted for inclusion and divided into two groups based on morphine equivalent daily dose (MEDD). High-utilizers were defined as ≥75th percentile of MEDD; low-utilizers were <75th percentile. Group characteristics were compared; multivariable logistic regression was performed to predict MEDD utilization group controlling for preoperative, operative and postoperative characteristics, specifically including prior opioid dependence and surgical approach.

RESULTS
Of 1,115 patients, 279 (25.0%) were high-utilizers of opioids. High-utilizers were significantly less likely to have been on the ERAS Pathway (23.3% vs 51.2%, p<0.001) or on a multimodal pain protocol (38.4% vs 65.8%, p<0.001) vs low-utilizers. These differences persisted following risk-adjustment, (OR 0.49 [95% Confidence Interval: 0.31–0.78] and 0.41 [0.26–0.63], respectively) (Table). High-utilizers were less likely to have received ketorolac (34.4% vs 49.3%, p<0.001), pregabalin (11.8% vs 25.6%, p<0.001), or a lidocaine infusion (2.2% vs 8.6%, p<0.001), and were more likely to have had an epidural (22.9% vs 12.3%, p<0.001). These findings persisted after adjustment for the receipt of other pain-medications.

CONCLUSIONS

Post-operative care on the ESTS/ERAS pathway, and specifically adherence to a multimodal pain regimen, is associated with reduction in opioid utilization following anatomic lung resection across a diverse healthcare system. In particular, utilization of ketorolac, pregabalin and lidocaine infusions are associated with reduced opioid consumption.

Disclosure: No significant relationships.
Keywords: ERAS, Opioid Utilization, Anatomic Lung Resection.

Pain Medication Received	High-Utilizer (N=279)	Low-Utilizer (N=836)	All Patients (N=1,115)	Unadjusted P-Value	High vs Low Utilizer OR [95% CI]	Adjusted P-Value
Ketorolac	96 (34.4%)	412 (49.3%)	508 (45.6%)	<0.001	0.68 [0.50 - 0.91]	0.011
Pregabalin	33 (11.8%)	214 (25.6%)	247 (22.2%)	<0.001	0.35 [0.23 - 0.52]	<0.001
Acetaminophen	149 (53.4%)	408 (48.8%)	557 (50.0%)	0.183	1.30 [0.97 - 1.75]	0.074
Epidural	64 (22.9%)	103 (12.3%)	167 (15.0%)	<0.001	1.79 [1.24 - 2.57]	0.002
Lidocaine Infusion	6 (2.2%)	72 (8.6%)	78 (7.0%)	<0.001	0.28 [0.12 - 0.65]	0.004

O-074

THE IMPACT OF BILATERAL LUNG VOLUME REDUCTION SURGERY ON LUNG FUNCTION DECLINE

Christelle M Vandervelde[1], Jorine E Hartman[2], Walter Weder[3], Dirk-Jan Slebos[2], Stephanie Everaerts[1], Wim Janssens[1], Laurens J Ceulemans[1]
[1]*University Hospitals Leuven, Leuven, Belgium*
[2]*University Medical Center Groningen, Groningen, The Netherlands*
[3]*Klinik Bethanien, Zurich, Switzerland*

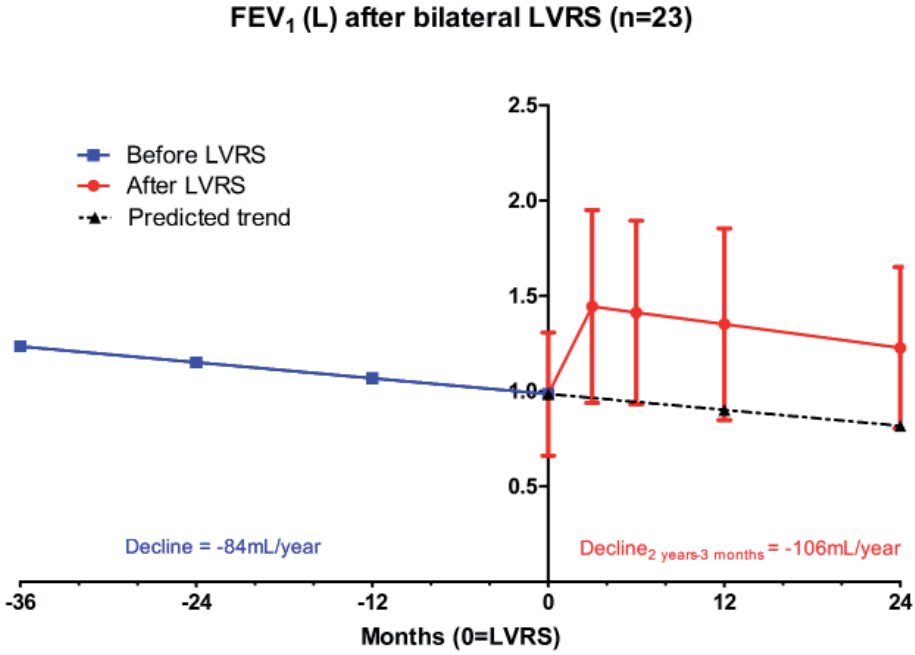
OBJECTIVES
Lung volume reduction surgery (LVRS) is effective for well-selected severe emphysema patients leading to improved pulmonary function up to 5 years. The gain in pulmonary function is most pronounced within the first 3-6 months before gradually declining. Research suggested the potential of a rapid decline in forced expiratory volume in 1 second (FEV1) after LVRS, however evidence is limited. Therefore, we aim to investigate the change in FEV1 decline before and after bilateral VATS-LVRS.

METHODS
A prospective single-center cohort study was performed (08/2021—12/2023). Elective bilateral LVRS patients were included when having a minimum of 4 preoperative pulmonary function data points within a span of at least 2 years before treatment (all referral data), as well as 4 postoperative measurements at specific intervals (3 and 6 months, 1 and 2 years). Linear regression analysis was used to calculate the individual FEV1 decline over time.

RESULTS
In total, 106 bilateral LVRS procedures were performed. In 23 (22%) patients, spirometry data were available at all timepoints (one-staged n=20, staged n=3 (43-56 days between procedures)). Heterogeneous morphology was present in 22 patients. Nine patients (39%) were female, FEV1: 33±7%pred and residual volume: 226±40%pred. Postoperative FEV1 was improved up to 2 years compared to baseline FEV1 (1228±423mL vs. 984±322mL, p<0.001). FEV1 at 2 years post-LVRS was comparable with FEV1 3 years prior to surgery (1235 mL). The mean annual FEV1 decline pre-LVRS was −84±43 mL/year compared to −106±125 mL/year post-LVRS and was not significantly different (p=0.37).

CONCLUSIONS
Bilateral LVRS did not alter the natural decline in lung function in our patients with severe emphysema. Moreover, FEV1 remained stable up to 2 years post-LVRS and showed a trend towards approaching the mean pre-LVRS FEV1 recorded 3 years prior to surgery.

Disclosure: No significant relationships.
Keywords: Lung Volume Reduction Surgery, Emphysema, Lung Function.


FEV1 (L) after bilateral LVRS (n=23)
Before LVRS
After LVRS
Predicted trend
2.5
2.0
1.5
1.0
0.5
Decline = -84mL/year
Decline2 years-3 months = -106mL/year
-36
-24
-12
0
12
24
Months (0=LVRS)

TUESDAY 28 MAY 2024
ESTS VOGT-MOYKOPF LECTURE
09:30 – 10:00

O-075

PROGNOSTIC IMPLICATIONS OF TUMOUR SIZE IN THYMIC EPITHELIAL TUMOURS: AN ANALYSIS FROM THE EUROPEAN SOCIETY OF THORACIC SURGEONS (ESTS) THYMIC DATABASE

Marco Chiappetta[1], Filippo Lococo[1], Carolina Sassorossi[1], Bernhard Moser[2], Paul Van Schil[3], Apostolos Agrafiotis[4], Alexandr Podobed[5], Moishe Liberman[6], Isabelle Opitz[7], Giovanna Rizzardi[8], Charalambros Zisis[9], Matthias Esch[10], Hruy Menghesha[11], József Furák[12], Paolo Mendogni[13], Enrico Ruffini[14], Francesco Guerrera[14], Federico Venuta[15], Luca Voltolini[16], Francesco Londero[17], Monica Casiraghi[18], Marco Scarci[19], Ivan Bravio[20], Emanuele Voulaz[21], Vitaly Barmin[22], Florentino Hernan Trancho[23], Akif Turna[24], Vipin Zamvarv[25], Andrea Billè[26], Stefano Cafarotti[27], Annalisa Campanella[28], Stefano Margaritora[1]

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[25]Royal Infirmary of Edinburgh, Edinburgh, United Kingdom

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[27]Ente ospedaliero cantonale, Bellinzona, Switzerland
[28]Fondazione Policlinico Universitario A. Gemelli-IRCCS, Roma, Italy

OBJECTIVES

The 9th TNM proposal for thymic epithelial tumours (TET) introduced size as category in stage I, confirming tumour infiltration type as category for the other stages. Aim of this study is to evaluate the role of tumour size in TETs considering different possible cut-offs among different subgroups.

METHODS

Clinical and pathological data of patients from ESTS thymic database underwent surgery for TETs from 1/2000to12/2022 were reviewed and analysed.
Patients clinical data, tumour characteristics,size and organs infiltration were collected and correlated to overall survival(OS) using Kaplan-Meier curves.The log-rank test was used to assess differences between subgroups. A multivariable model was built using Cox-regression analysis including clinical relevant variables resulting significant at univariable(p-value<0.05).

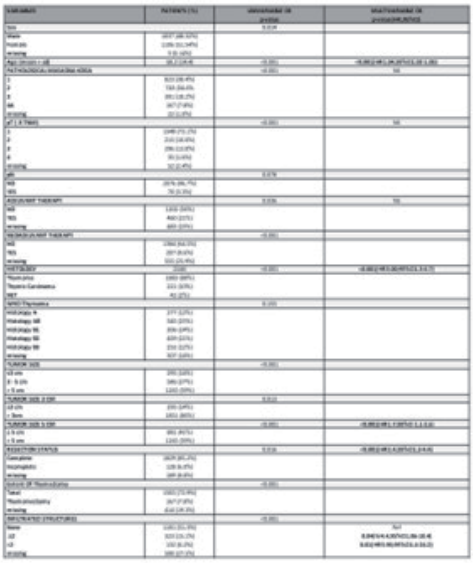
RESULTS

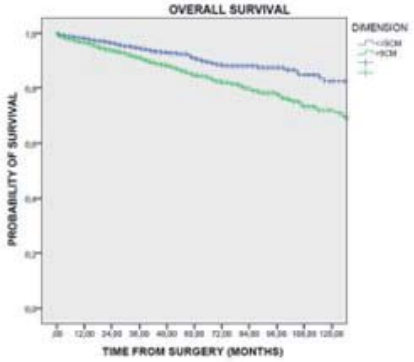
The final analysis was conducted on 2146patients(table/figure1). Most patients presented tumour size>5cm(59%) without surrounding structures infiltrations(51.3%).
Recurrence occurred in 235(11%)patients and 199(9.3%)died. Univariable analysis(table/figure1) identified as negative prognostic factors for OS male sex(p=0.014),advanced age(p<0.001),advanced Masaoka(p<0.001) and pT stage(p<0.001), adjuvant therapy absence(p<0.001), neoadjuvant (p<0.001),carcinoma/NET histology(p<0.001), incomplete resection(p<0.001), number of infiltrated structures>2(p<0.001), thymomectomy(p<0.001) and TETs increased size(p<0.001). TETs size resulted statistically significant considering different cut-off at 3cm(p=0.013) and 5cm(p<0.001).
Multivariable confirmed as independent negative prognostic factors TETs size>5cm(p<0.001,HR1.7;95%CI 1.1-2.6),advanced age(p<0.001), carcinoma/NET histology(p<0.001), incomplete resection(p<0.001) and infiltration of surrounding structures(p=0.04).
Five and ten-year OS(5-10YOS) resulted 94.3% and 82.8% vs 86.5% and 74.9%in TETs≤3cm vsTETs>3cm(p=0.062), 90.8% an d82.5%vs85% an d72.0%in TETs≤5cm vsTETs>5cm(p<0.001,figure), respectively. A significant survival difference was also present comparing TETs size between 3 and 5cm vs TETs>5cm:5-10YOS 89.55 and 82.2%vs85% and 72.0%(p<0.001). Considering subgroups based on infiltrated structures, TETs size remains a significant prognostic factor in infiltration absence only: 5-10YOS 93.3% and 88.7% vs 87.9% and 80.7% in ≤5cm vs>5cm(p=0.026). Conversely, a significant difference in OS was present considering surrounding organ infiltration in TETs≤5cm(p=0.004) and TETs>5cm(p<0.001).

CONCLUSIONS

Tumour size is an independent prognostic factor in TETs, with the possibility to identify different cut-offs. Its prognostic role is valid especially in TETs without infiltrations, while other parameters should be considered in TETs with surrounding structures infiltrations.

Disclosure: No significant relationships.
Keywords: Thymoma, Stage, Surgery.





5-10year OS: - 90.8% and 82.5% in TETs≤5cm
- 85.2% and 72.0% in TETs>5cm
(p<0.001)

TUESDAY 28 MAY 2024
CHEST WALL / DIAPHRAGM / PLEURA SESSION XII
10:30 - 11:30

O-076

SURGERY FOR PLEURAL MESOTHELIOMA IN MULTIMODALITY SETTING: COMPARISON BETWEEN SURGICAL TECHNIQUES IN A HIGH-VOLUME CENTER

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[2]*Department of Surgery, Oncology and Gastroenterology; Medical Oncology 2, Veneto Institute of Oncology IOV-IRCCS, Padova, Padova, Italy*
[3]*Radiotherapy, Veneto Institute of Oncology IOV - IRCCS, Padova, Padova, Italy*
[4]*Radiology Unit, University Hospital of Padova, Padova, Italy*
[5]*Pathology Unit, University Hospital of Padova, Padova, Italy*

OBJECTIVES
Pleural mesothelioma (PM) is a rare and aggressive disease associated with asbestos exposure that poses significant challenges in treatment. The most recommended approach is multimodal treatment, even if the concept of resectable PM and the superiority of one surgical technique over the other [pleurectomy/decortication (P/D) vs extra-pleural pneumonectomy (EPP)] are still matter of debates. The aim of this study is to compare the two techniques in terms of short- and long-term outcomes at a high-volume center.

METHODS
All clinical data of patients affected by PM and submitted to radical surgery (P/D and EPP) at our center between 1994 and 2022 were collected. Propensity score matching was performed to minimize potential confounders between the two groups. Kaplan-Meyer method and Cox regression were performed for survival analysis.

RESULTS
Among 264 patients affected by PM and radically operated, 128(49%) underwent EPP and 136(51%) P/D. In both unmatched and matched analysis 30- and 90-days mortality were not different between the two groups; overall survival was similar in the unmatched cohort (20 months for EPP vs 19 months for P/D; p=0.11) while in the matched one, slightly lower for EPP (13 months vs 19 months, p=0.048). Cox multivariable analysis identified respectively the presence of pre-operative comorbidities (HR 1.51; p 0.031) and a high pre-operative disease burden (HR 1.01; p 0.044) to be associated with worst survival while a high pre-operative total lung capacity (TLC) (HR 0.97; p: 0.002) associated with better survival.

CONCLUSIONS

Even if recent evidences highlight the superiority of P/D compared to EPP in terms of surgical outcomes, our experience showed acceptable short- and long-term outcomes in both procedures, making EPP still an option in high volume centers and in highly selected patients. Even if the role of surgery is recently strongly debated, it should be performed only in expert centers to minimize post-operative risks.

Disclosure: No significant relationships.
Keywords: Pleural Mesothelioma, Surgery, Extra-Pleural Pneumonectomy, Pleurectomy-Decortication.

O-077

LONG TERM OUTCOME AND PROGNOSTIC FACTORS AFTER CHEST WALL RESECTION AND RECONSTRUCTION

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OBJECTIVES
Resection and reconstruction of tumors involving chest wall are technically challenging and adequate surgical technique is a crucial factor for good perioperative and long-term outcome. Additional prognostic factors are needed to guide treatment-algorithms.

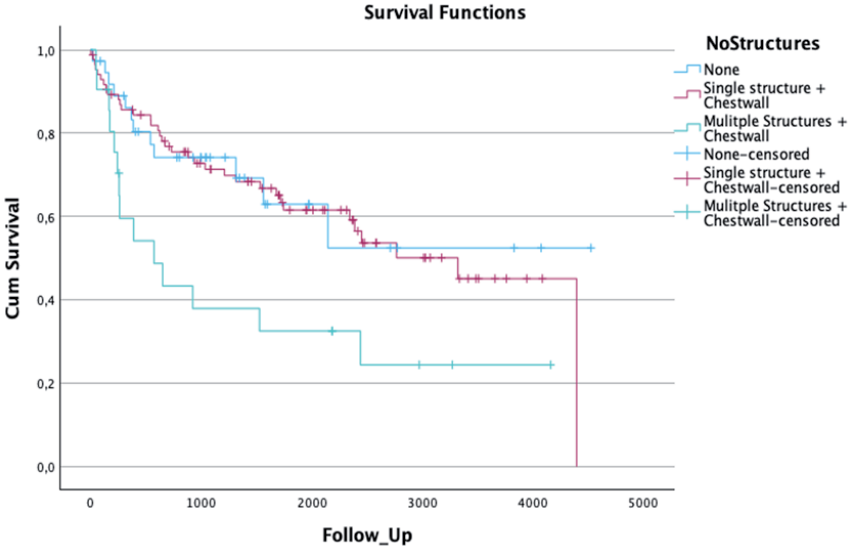
METHODS
Retrospective analysis of consecutive tumors requiring chest wall resection and reconstructions 2010-2023 was conducted. OS and DFS were analyzed using Kaplan–Meier-method and log-rank-test. Uni- and multivariable analyses for prognostic factors for DFS and OS were performed.

RESULTS
148 patients (70 females; median age 62 years (IQR 51-68) were operated during the observation period. 88% were malignant. 75% of patients received perioperative systemic therapy or radiation. Median tumor diameter was 10cm (IQR 7-15). Rib-resection only was performed in 99 cases, additional sternal-resection in 26, spine in 17 and clavicle/scapula in 6 cases. Additional resections were lung (n=75), diaphragm (n=6), pericardium (n=2), subclavian vein (n=2), pulmonary artery (n=1) and multiple structures (n=22). Synthetic (n=89), metallic (n=6) and material combinations (n=32) were used for reconstruction. Biological flaps were used in 24 patients (15 muscle-flap, 6 pedicled myocutaneous-flaps, 3 free myocutaneous-flaps). R0 resection was achieved in 86,5%. Complications occurred in 24,3%. 30-day-mortality was 2,1%. Median LOS was 8 days (IQR 7-12). Local recurrence developed in 9,5%. Median DFS and OS was 890 and 1212 days. 5-year-DFS and -OS was 50,1% and 57,7%. Resection of multiple additional structures reduced OS to 32,5%, while in patients with no or single additional structure resections 5-year-OS was 62,9% and 61,5%, respectively (Long-rank p = 0,017). Multivariable analysis showed histology and R0 as independent prognostic factors for recurrence. Age, maximum tumor-diameter, and postoperative complication were prognostic factors for OS.

CONCLUSIONS
Resection of additional multiple structures in chest wall resection doesn't increase perioperative risk for morbidity or mortality, however, is a negative prognostic factor for 5-year survival.

Additionally, tumor-size, age and postoperative complications are independent prognostic factors for 5-year-survival.

Disclosure: No significant relationships.
Keywords: Chest Wall Tumor, Reconstruction, Survival, Complete Resection.



OVERALL SURVIVAL (OS)

O-078

SURVEY OF ISOLATED CHEST TRAUMA IN JAPAN BASED ON THE JAPAN TRAUMA DATA BANK

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OBJECTIVES
There have been no nationwide studies comprehensively describing clinical features of any types of isolated chest trauma. We conducted a survey of isolated chest trauma using data from the Japan Trauma Data Bank. Specifically, we focused on the in-hospital mortality rate of these patients and investigated the associated factors.

METHODS
Between January 2004 and May 2019, 361,706 patients with trauma were registered in the Japan Trauma Data Bank. Among them, we extracted 9,475 patients (2.6%) with isolated chest trauma after data cleaning. All of the patients were divided into three groups based on the registration period (2004-2008: n=981, 2009-2013: n=3338, 2014-2019: n=5156). Clinical features were compared over the study period. Next, we compared the clinical features between patients who survived (n=8266) and those who did not (n=1209) at the time of hospital discharge. Finally, we identified the factors associated with in-hospital mortality using univariate and multivariate analyses.

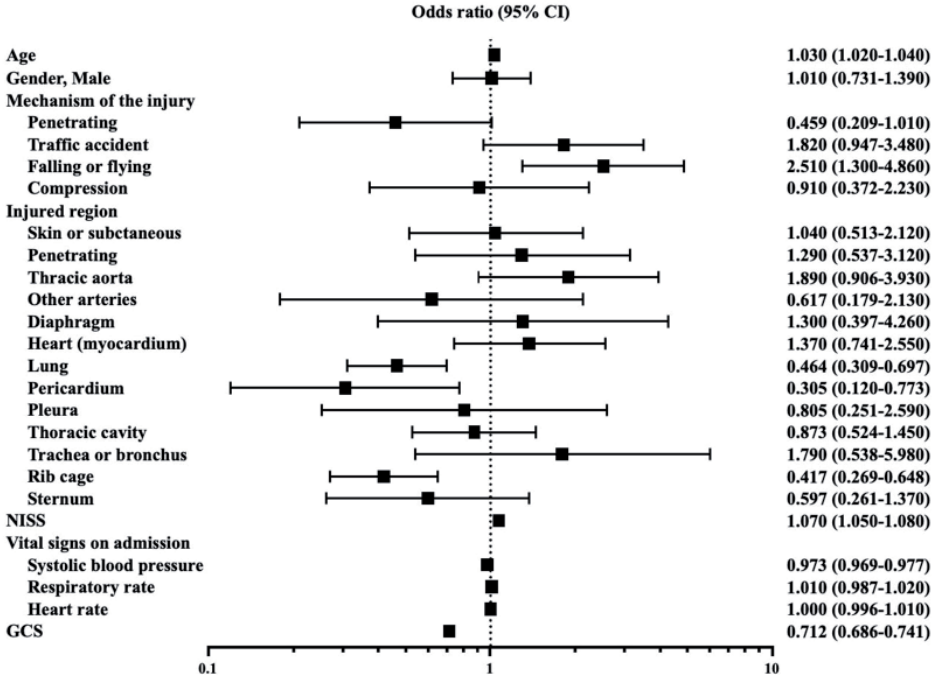
RESULTS
The in-hospital mortality rate for all patients was 12.8%. In-hospital mortality improved over the study period ($p<0.0001$) (Table 1). Multivariable analyses revealed that age (odds ratio: 1.030, 95% CI: 1.020-1.040, $p < 0.0001$) and falling or flying (odds ratio: 2.510, 95% CI: 1.300-4.860, $p < 0.0001$) as the mechanism of injury were significantly associated with in-hospital mortality. Among the injured regions, the lung (odds ratio: 0.464, 95% CI: 0.309-0.697, $p = 0.0002$), pericardium (odds ratio: 0.305, 95% CI: 0.120-0.773, $p = 0.0123$), and rib cage (odds ratio: 0.417, 95% CI: 0.269-0.648, $p < 0.0001$) showed favorable results, although other regions were not significantly associated with in-hospital mortality.

CONCLUSIONS

This study showed the in-hospital mortality of patients with isolated chest trauma in Japan decreased during the study period, indicating an improvement in the care of isolated chest trauma. Additionally, injury to the lung, pericardium, or rib cage has a better prognosis in isolated chest trauma.

Disclosure: No significant relationships.
Keywords: Chest Trauma, Japan Trauma Data Bank.

Period	Results	Odds ratio	95% CI	p-value
2004-2008 vs. 2009-2013 (Dead, %)	184 (18.8) vs. 502 (15)	2009-2013, 0.767	0.636-0.924	**0.0052**
2004-2008 vs. 2014-2019 (Dead, %)	184 (18.8) vs. 523 (10.1)	2014-2019, 0.489	0.407-0.588	**<0.0001**
2009-2013 vs. 2014-2019 (Dead, %)	502 (15) vs. 523 (10.1)	2014-2019, 0.638	0.559-0.727	**<0.0001**



O-079

EVOLUTION OF DIAPHRAGM PLICATION SURGERY FOR UNILATERAL DIAPHRAGMATIC PARALYSIS - FROM THORACOTOMY TO VIDEO-ASSISTED THORACOSCOPY, A SINGLE CENTRE RETROSPECTIVE STUDY

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OBJECTIVES
Unilateral paralysis of the diaphragm (UPD) heavily influences the quality of life of the affected patients. Often underdiagnosed, only a fraction of patients receives the highly effective approach of surgical therapy, even though there is no evidence for conservative therapy. To date, there is only little data to form a consensus on how to perform the surgical approach.

METHODS
Patients with a documented duration of UPD of at least one year were operated on by diaphragm plication with augmentation by a polypropylene mesh. Preoperatively as well as 3 months postoperatively patients underwent lung function upright and supine, diaphragm tests, blood gas analysis and six-minute walk tests (6MWT) as part of our routine protocol. We retrospectively analysed the data in regards to the two different surgical approaches.

RESULTS
Between 2005 and 2023, a total of 130 patients received diaphragm plication surgery, 86 of which with open approach, 34 using VATS. There was no difference between the groups regarding general patient criteria (age, BMI, gender, cause of UDP) as well as FEV1 sitting and supine, blood gas analysis and 6MWT preoperatively or postoperatively.
The outcome (e.g., increase of FEV1 in the supine position, 12,5% vs. 13,7%, improvement of 6MWT distance) as well as drainage time (5,4 d [±3,6] vs. 5,7 d [±4,5]) remain the same, independent of the surgical approach. Surgical time was significantly shorter in the open surgery group (80,8 min [75,9 – 85,7]) compared to the VATS group (109,1 min [87,5 – 130,7]) (p=0,001) whereas the length of hospitalization (8,1 d [±3,8] vs. 6,5 d [±3,2]) is significantly shorter in the VATS group.

CONCLUSIONS
VATS diaphragm plication is a viable alternative to the open approach. Overall, diaphragm plication is highly effective and independent to the approach used. Further studies, also including RATS, should be conducted to determine the optimal surgical method.

Disclosure: No significant relationships.
Keywords: Diaphragm, Video-Assisted Thoracoscopy, Thoracotomy, Diaphragm Paralysis, Retrospective.

O-080

POSTOPERATIVE ANALGESIA AFTER MINIMALLY INVASIVE REPAIR OF PECTUS EXCAVATUM; A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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OBJECTIVES
The Nuss procedure is considered the accepted standard approach for surgical correction of pectus excavatum. This procedure is associated with significant postoperative pain, which is proven to be the dominant factor affecting the duration of hospitalization. To date, numerous analgesic modalities are available, however, the most efficient is yet to be corroborated. The objective is to systematically evaluate and compare all available analgesic modalities for pain management after the Nuss procedure through a network meta-analysis.

METHODS
A systematic search was applied to the electronic scientific databases. Articles were eligible for inclusion if they were designed as a comparative study which evaluated any form of postoperative pain management for pectus excavatum repair through Nuss procedure and where length of hospital stay was reported as an outcome measure. Data concerning length of hospital stay were extracted. If possible, data were submitted for network meta-analysis.

RESULTS
Thirty-seven unique studies were included, enrolling a total of 3,327 patients. Through network meta-analysis, combining direct and indirect evidence, intercostal nerve cryoablation revealed to be superior to all other analgesic modalities. In comparison to locoregional anesthesia, thoracic epidural analgesia and patient-controlled analgesia, cryoablation was associated with a statistically significant weighted reduction in the length of hospitalization of respectively 1.1 days (95% confidence interval [CI]: 0.6-1.6), 2.1 days (95% CI: 1.5-2.6) and 1.5 days (95% CI 1.1-1.9).

CONCLUSIONS
Regarding postoperative pain management after the Nuss procedure, intercostal nerve cryoablation is superior to other forms of analgesia with regard to the length of hospitalization as primary determinant of pain.

Disclosure: No significant relationships.
Keywords: Chest Wall, Pectus Excavatum, Postoperative Analgesia, Systematic Review, Network Meta-Analysis.

O-081

PREDICTION OF PROGNOSIS AND CLINICAL DECISION-MAKING IN PATIENTS WITH MALIGNANT PLEURAL EFFUSION WITH THE LENT SCORING SYSTEM

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OBJECTIVES
Malignant pleural effusion (MPE) occurs in 15% of patients with tumor disease and leads to a significant impairment of their quality of life. The aim of this study was to define prognostic factors in MPE and to validate the LENT scoring system based on our clinical data.

METHODS
A cohort of 102 patients with MPE was used to evaluate survival according to patient-related factors, disease-related factors, tumor-to-host interaction (serum lactate dehydrogenase [LDH], neutrophil-to-lymphocyte ratio [NLR]) and type of treatment. Descriptive statistics, univariate and multivariate analysis, and survival analysis were performed using IBM SPSS Statistics 29.0.0.0 software.

RESULTS
The median age of the cohort was 72 years (41-90 years) with a median follow-up of 13 months. Depending on clinical factors (age, comorbidity, ability to expand the affected lung), the patients underwent either VATS pleurodesis (59.8%), the placement of a IPC (19.6%) or a hybrid procedure (VATS pleurodesis plus IPC: 20.6%). Risk stratification of patients using the LENT score into low-risk, intermediate-risk, or high-risk group resulted in median survival times of 399 days (141–737; n = 7), 307 days (15–884; n = 66) and 87 days (6– 943; n = 29), respectively (P=.014). The corresponding 1- and 2-year survival rates were 100% and 100% versus 65% and 44% versus 30% and 1%, respectively (log rank test: P<.001). Survival analysis also confirmed the prognostic value of individual LENT factors (LDH: P=.207; ECOG-PS: P<.001; NLR: P<.001; tumor type: P=.018). There was also a strict correlation between risk group and treatment procedure, with a significantly increasing number of IPC installations in the higher risk groups: 0% versus 15% versus 35%, respectively (P<.001).

CONCLUSIONS
The LENT score system is a validated prognostic score in patienzts with MPE, that predicts survival with significantly better accuracy than individual clinical factors.

Disclosure: No significant relationships.
Keywords: Malignant Pleural Effusion, LENT Score.

TUESDAY 28 MAY 2024
MEDIASTINUM SESSION XIII
13:00 – 14:00

O-082

THYMECTOMY DOES NOT ELEVATE THE INCIDENCE OF MALIGNANT LESIONS IN PATIENTS WITH MYASTHENIA GRAVIS

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OBJECTIVES
A paper published in August 2023 found that the risk of malignancy is elevated after thymectomy in patients who underwent open-heart surgery. In this study the incidence of malignancy was analysed between patients with myasthenia gravis (MG) who underwent thymectomy or received only pharmaceutical treatment.

METHODS
From 231 MG patients treated between 1995 and 2023, 128 underwent thymectomy (thymectomy group-TG) (males 40 (31,3%), females 88 (68.8%); mean age: 36.9 (18-83) years) and 103 (males 53 (51.5%), females 50 (48.5%); mean age: 62.5 (22-88) years) patients were treated pharmaceutically (non-thymectomy group-non-TG). Median follow-up was 6 years. Imuran and/or steroid were used in 34.2% (27/79 completely documented cases) and 64.1% (66/103 completely documented cases) of the patients in the TG and non-TG group, respectively. As a subgroup-analysis, the incidence of malignancy was calculated in patients over 50 years: 29 TG (mean age:63.5 years) and 83 (mean age:68.1 years) non-TG.

RESULTS
Among all the 231 patients, there were 4 (3.1%) and 8 (7.8%) (p=0,141) patients with malignant lesions during the follow-up period in the TG and non-TG group, respectively. Among patients over 50 years, there were 1 (3.4%) and 7 (8.4%) (p=0.455) patients with diagnosed malignancies in the TG and non-TG group, respectively. Types of the malignant lesions were the following: 1 lung, 1 breast, 1 testicular cancer and 1 lymphoma in the TG group and 2 lung, 1 colon, 1 gastric, 1 kidney, 1 breast cancer, 1 skin basalioma and 1 hypophysis tumor in the non-TG group. There was no significant correlation between the incidence of the diagnosed malignant lesion and the Imuran/Steroid treatment (p=0.498).

CONCLUSIONS
The incidence of malignant lesions among patients who underwent thymectomy for MG was less than half compared to the non-operated MG group. In MG, thymectomy does not lead to elevated risk for newly developed malignancy after surgery.

Disclosure: No significant relationships.
Keywords: Thymectomy, Malignancy, Myasthenia Gravis, Follow-Up.

O-083

CLINICAL SIGNIFICANCE OF POSITRON EMISSION TOMOGRAPHY/ COMPUTED TOMOGRAPHY (PET-CT) SUVMAX IN THE CLASSIFICATION OF THYMIC TUMORS

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OBJECTIVES
This study aimed to explore the possibility of PET-CT in identifying the histological classification of thymic tumors.

METHODS
Patients diagnosed as thymic tumors and accepted positron emission tomography/computed tomography scans were included in this study. Thymic tumors were classified into three subgroups: low risk thymoma (A, AB and B1), high risk thymoma (B2, B3) and thymic carcinoma (TC). Logistic regression analysis was performed to identify potential factors differentiating the classification of thymic tumors. The Receiver Operating Curve and Youden index was applied to assess the diagnosis efficiency and the cut-off value.

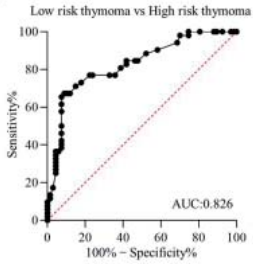
RESULTS
From 2015 to 2023, a total of 156 patients including 67 cases of low risk thymomas, 52 cases of high risk thymomas and 37 cases of TC were included. The multisteps regression models in low risk thymoma vs high risk thymoma, low risk thymoma vs TC and high risk thymoma vs TC suggested SUVmax as a potential factor differentiating the three subgroups. Moreover, the Receiver operating curve identified that SUVmax of 4.85 (AUC: 0.826, Specificity: 0.851, Sensitivity: 0.711) 5.07 (AUC: 0.973, Specificity: 0.91, Sensitivity: 0.973) and 7.7 (AUC: 0.845, Specificity: 0.865, Sensitivity: 0.702) as the cut-off of low risk thymoma vs high risk thymoma, low risk thymoma vs TC and high risk thymoma vs TC, respectively.

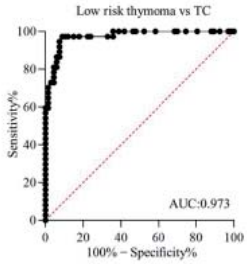
CONCLUSIONS
SUVmax is a reliable factor in differentiating the classification of thymic tumors.

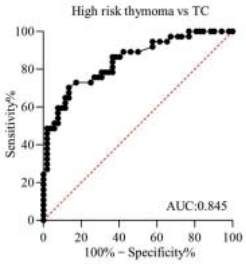
Disclosure: No significant relationships.
Keywords: Thymic Tumors, PET-CT, SUVmax.

Variables	OR (95%CI)	P
Model 1: low risk thymoma vs high risk thymoma		
Univariate analysis		
Gender (male vs female)	0.526 (0.253-1.097)	0.087
Age	0.989 (0.961-1.019)	0.472
Tumor size	1.073 (0.928-1.241)	0.341
Local Invasion (Yes vs No)	1.393(0.672-2.887)	0.373
MG symptom (Yes vs No)	2.27 (0.517-9.97)	0.278
CT value	0.99 (0.951-1.031)	0.822
SUVmax	2.247 (1.609-3.138)	<0.001
Multivariate analysis		
SUVmax	2.247 (1.609-3.138)	<0.001
Model 2: low risk thymoma vs thymic carcinoma		
Univariate analysis		
Gender (male vs female)	0.437 (0.192-0.995)	0.049
Age	1.049 (1.008-1.092)	0.018
Tumor size	0.958 (0.805-1.14)	0.629
Local Invasion (Yes vs No)	1.828 (0.812-4.116)	0.145
CT value	0.991 (0.95-1.035)	0.694
SUVmax	3.159 (1.933-5.155)	<0.001
Multivariate analysis		
SUVmax	3.156 (1.933-5.155)	<0.001
Model 3: high risk thymoma vs thymic carcinoma		
Univariate analysis		
Gender (male vs female)	0.83 (0.35-1.967)	0.672
Age	1.054 (1.013-1.096)	0.011
Tumor size	0.886 (0.735-1.068)	0.206
Local Invasion (Yes vs No)	1.312(0.562-3.064)	0.529
CT value	1 (0.953-1.05)	0.996
SUVmax	1.538 (1.259-1.879)	<0.001
Multivariate analysis		
SUVmax	1.53 (1.245-1.879)	<0.001

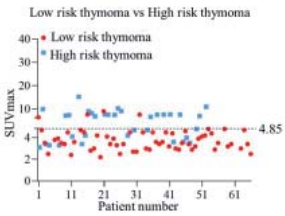
A

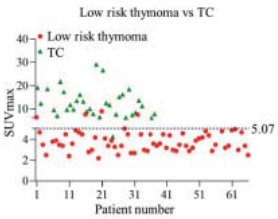

Low risk thymoma vs High risk thymoma
Sensitivity%
100% – Specificity%
AUC:0.826

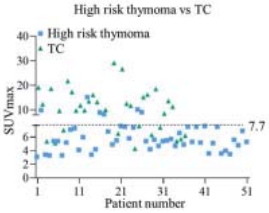

Low risk thymoma vs TC
Sensitivity%
100% – Specificity%
AUC:0.973


High risk thymoma vs TC
Sensitivity%
100% – Specificity%
AUC:0.845

B


Low risk thymoma vs High risk thymoma
Low risk thymoma
High risk thymoma
SUVmax
Patient number
4.85


Low risk thymoma vs TC
Low risk thymoma
TC
SUVmax
Patient number
5.07


High risk thymoma vs TC
High risk thymoma
TC
SUVmax
Patient number
7.7

O-084

LONG-TERM ARTIFICIAL VESSEL PATENCY AND COLLATERAL VESSEL DISTRIBUTION AFTER SUPERIOR VENA CAVA RECONSTRUCTION COMBINED WITH RESECTION OF THYMIC TUMORS

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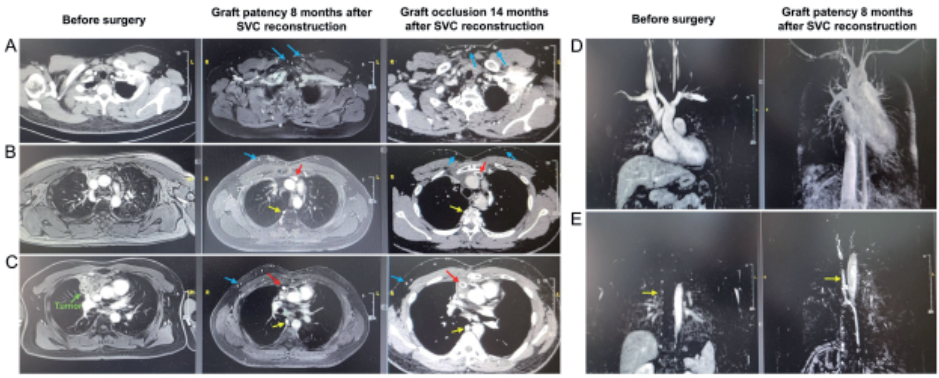
OBJECTIVES
To investigate long-term patency of artificial vessels and distribution of collateral vessels after superior vena cava reconstruction combined with resection of thymic tumors invading superior vena cava.

METHODS
We retrospectively analyzed 41 patients who were diagnosed with thymic tumors invading superior vena cava and underwent extended resection of thymic tumors and superior vena cava with concomitant artificial vessel reconstruction between March 2017 and May 2023. Artificial vessel patency and collateral vessels were verified by contrast enhanced CT or MRI at postoperative time points 3 to 72 months.

RESULTS
Among 41 patients, 29 patients underwent a left brachiocephalic vein - right atrial appendage single artificial vessel reconstruction, 9 patients underwent a right brachiocephalic vein - right atrial appendage single artificial vessel reconstruction, and 3 patients underwent bilateral brachiocephalic veins - right atrial appendage artificial vessel reconstruction. All patients received long-term anticoagulation therapy. Artificial vessels were occluded in 4 patients. Long-term patency rate of artificial vessels was 90.2%. Artificial vessel occlusion occurred in 4 patients at 12, 13, 14, and 20 months after surgery respectively. Although these 4 patients had artificial vessel occlusion, they were asymptomatic. CT or MRI showed that after artificial vessel occlusion (Figure 1B, C, red arrows), extensive collateral vessels (Figure 1) were formed, including azygos vein (Figure 1B, C, E, yellow arrows), chest wall veins (Figure 1A, B, C, blue arrows), intercostal veins, etc. These collateral vessels played an important role in replacing superior vena cava blood return. This might be the reason why patients remained asymptomatic despite the occlusion of artificial vessels.

CONCLUSIONS
Artificial vessels can maintain long-term patency after superior vena cava reconstruction. Artificial vessels and collateral vessels may interact with each other. Artificial vessels provide time for the formation of collateral vessels, and collateral vessels divert venous blood return, which may lead to occlusion of artificial vessels.

Disclosure: No significant relationships.
Keywords: Artificial Vessel Patency, Collateral Vessel, Thymic Tumors.



O-085

ROBOT-ASSISTED THYMECTOMY FOR LARGE THYMOMAS: SURGICAL AND LONG-TERM ONCOLOGICAL OUTCOMES FROM A MULTICENTER STUDY

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OBJECTIVES

This study aimed to evaluate surgical and oncological outcomes of Robot-assisted (RATS) thymectomy in the treatment of large (diameter >5 cm) thymomas.

METHODS

Clinical data of 318 thymectomies for thymoma [117 (36.8%) for concomitant Myasthenia Gravis (MG)], performed in 7 high volume centers from 2010 to 2023, were retrospectively reviewed. Surgical outcomes were evaluated: 1.in the RATS group per thymoma size (<5 vs >5 cm); 2.in large thymomas per surgical approach (RATS vs open/RATS vs VATS). Kaplan-Meier and Cox-regression analyses were used to identify prognostic factors for oncological outcomes. To reduce any selection bias, a 1:1 propensity score match (PSM) analysis was performed for large thymomas.

RESULTS

132 RATS thymectomies were performed: 59 (44.7%) for small [MG: 34 (57.6%)] and 73 (55.3%) for large [MG: 22 (30.1%)] thymomas. Conversion (p=0.48), significant complications (p=0.26) and hospital stay (p=0.79) were similar in both groups.

Overall, 208 large thymomas were operated on: 73 (35.1%) RATS [MG: 22 (30.1%)], 118 (56.7%) open [MG: 38 (32.2%)] and 17 (8.2%) VATS (MG: 0%). More post-operative complications (p<0.001) but similar major complications (p=0.11) and a longer in-hospital

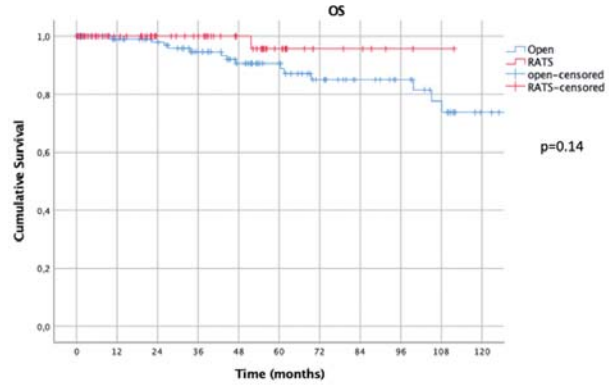
stay (p<0.001) were recorded in an open group compared to RATS for large thymomas without differences in the MG population (p=0.77). While comparing RATS to the VATS group (with a significant difference in MG between groups, p<0.001), no difference was recorded in conversion (p=0.52), complications (p=0.75) and hospitalization (p=0.08). Five-year OS (95% vs 85%, p=0.14) and DFS (86% vs 93%, p=0.18) of large thymomas were comparable between RATS and the open group. Prognostic factors for oncological outcomes for large thymomas were confirmed after PSM. Adjuvant radiotherapy was the only prognostic factor (HR=6.11, 95%CI:1.27-29.40, p=0.02) affecting DFI, while no factor was confirmed for OS at multivariable analysis.

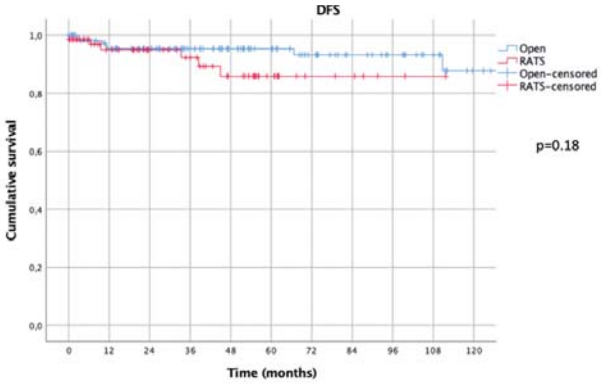
CONCLUSIONS

RATS is a safe and effective approach for treating large thymomas.

Disclosure: No significant relationships.

Keywords: RATS, Large Thymomas, Thymectomy, VATS, Oncological Outcomes.





O-086

SURGICAL OUTCOMES AND PROGNOSTIC FACTORS ASSOCIATED WITH ADVANCED THYMIC EPITHELIAL TUMOURS REQUIRING A COMBINED RESECTION OF ADJACENT ORGANS AND DISSEMINATION: A MULTI-INSTITUTIONAL RETROSPECTIVE STUDY

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OBJECTIVES
Due to rarity and heterogeneity, optimal treatment strategies for advanced thymic epithelial tumors (TETs) have not been determined. This study clarified surgical outcomes and prognostic factors associated with advanced TETs.

METHODS
A multi-institutional retrospective study was conducted, comprising 94 patients with TETs, requiring combined resections of adjacent organs or pleural dissemination, from 2000 to 2023. Patients with distant metastases were excluded. Survival and prognostic factors were analysed with Kaplan-Meier Curve and Cox Hazard Regression Model.

RESULTS
Fifty-seven thymomas and 37 thymic carcinomas or thymic neuroendocrine tumors were analysed. The median tumor diameter was 5.5 cm (interquartile range: 4.5-7.7cm). Nineteen patients had

myasthenia gravis. Pre- and post-operative treatment was performed in 17 and 31 patients. The median operative time was 293 min. The median blood loss was 235g. Complete resections were accomplished in 68 (72%) patients. Pathological Masaoka stages I, II, III, and IV were 4, 21, 48, and 21. During a median 45-month observation, 21 deaths and 30 progressions/relapses were recorded. Five- and 10-year overall survival rates were 81.9% and 61.1%, and relapse-free survival (RFS) rates were 66.5% and 66.5%. Multivariable analysis demonstrated that advanced Masaoka stages (III/IV) and a large tumor diameter (>5 cm) were independent, poor prognosticators for RFS. Tumor size was not associated with prognosis in stage IV but was associated with prognosis in stage III (p=0.048). When stage III Small (≤5 cm) and III Large (>5 cm) were defined, RFS in stages III Small, III Large, and the IV group was 90.9%, 55.1%, and 17.3% (p=0.047). In the III Large group, RFS was significantly better in patients who received adjuvant chemotherapy (p=0.026).

CONCLUSIONS

Pathological stage and tumor size were poor prognosticators in surgically resected advanced TETs. Tumor size was a poor prognosticator only in stage III disease, indicating the need for multidisciplinary treatment of the III Large group.

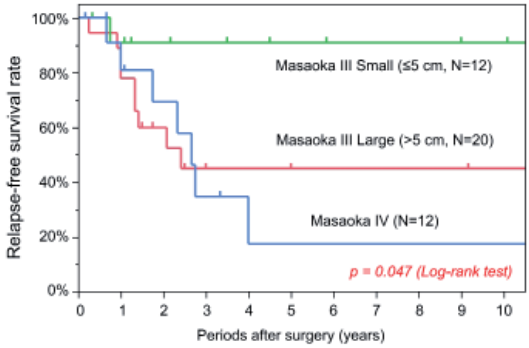
Disclosure: No significant relationships.

Keywords: Thymic Epithelial Tumor, Advanced Stage, Surgery, Prognosis, Tumor Size.

Cox Hazard Regression Model for Relapse-free survival in R0 cases

Variable	Univariable analysis		Multivariable analysis	
	HR (95% CI)	*P*	HR (95% CI)	*P*
Age (>65 years)	0.93 (0.35–2.35)	0.873		
Male sex	0.53 (0.20–1.34)	0.171		
MG (yes)	0.51 (0.08–1.81)	0.335		
Any induction therapy	3.55 (1.23–9.24)	**0.022**	1.96 (0.67–5.16)	0.204
Adjuvant chemotherapy	1.38 (0.39–3.86)	0.579		
Postoperative radiation therapy	1.21 (0.34–3.39)	0.739		
Histology (TC/TNET)	1.61 (0.63–4.12)	0.316		
Great vessel invasion*	2.57 (0.73–7.18)	0.130		
Number of involved organs (≥2)	1.98 (0.69–5.12)	0.191		
Tumour size (>5 cm)	7.88 (2.23–50.0)	**<.001**	4.98 (1.37–32.1)	**0.012**
Pathological Masaoka stage (III, IV)	10.4 (2.12–187)	**0.001**	6.05 (1.19–111)	**0.026**

*Brachiocephalic vein, Superior vena cava, Aorta, Brachiocephalic artery, and Pulmonary artery/vein were included.
CI, confidence interval; HR, hazard ratio; MG, myasthenia gravis; TC, thymic carcinoma; TNET, thymic neuroendocrine tumour.



TUESDAY 28 MAY 2024
PULMONARY NEOPLASTIC III SESSION XV
14:30 - 15:30

O-087

LUNG ADENOCARCINOMA ASSOCIATED WITH PULMONARY NEUROENDOCRINE PROLIFERATION: CLINICAL, PATHOLOGICAL AND ONCOLOGICAL OUTCOMES FROM A MULTICENTER ANALYSIS

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OBJECTIVES
Pulmonary Neuro-Endocrine Cell Hyperplasia (PNECH) and tumorlets are considered precursors of carcinoids, but only anecdotal single reports described the association between PNECH/DIPNECH and adenocarcinoma till now. Therefore, the clinical and oncological implications of this association remain totally unexplored.

METHODS
We retrospectively analyzed patients with adenocarcinoma and an incidental diagnosis of neuroendocrine proliferation in the lung specimens from three European high-volume oncological centers.
A 1:1 propensity score matching analysis based on sex, age, history of cancer, respiratory comorbidity, neoadjuvant therapy, surgical approach (VATS vs open), surgical resection (lobectomy vs sublobar) and pStage (I stage vs others) to reduce potential biases between the two groups.

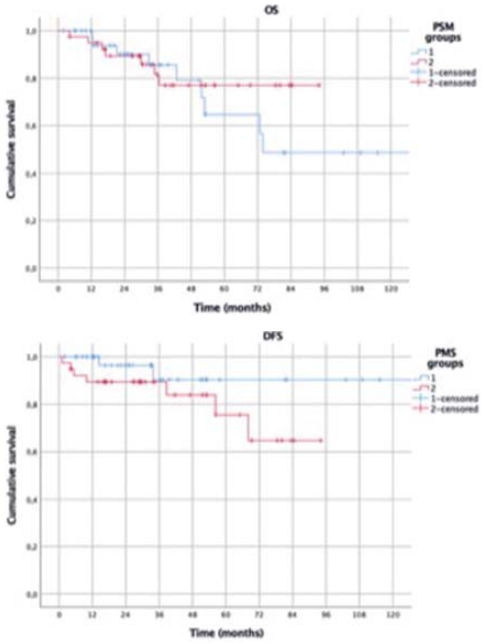
RESULTS
Among 849 surgically treated lung adenocarcinoma patients, 53(6.2%) were associated with (DI)PNECH.
Among 53 PNECH + adenocarcinoma patients, median age was 68.03+8.43; 37(82.2%) were female; 7(1.5%) patients were current smokers. Thirty-eight (84,4%) had pStage I.

In 10(22.2%) cases adenocarcinoma was associated with carcinoid tumor, in 17(37,8%) cases with DIPNECH only.
Twenty-one(46,7%) patients were symptomatic, in 15(33,3%) cases they had cough and dyspnea, probably due to DIPNECH symptoms as suggested by an obstructive pattern at spirometry.
When analysing 45 pairs of patients selected by propensity score analysis, we observed a significantly higher number of recurrence in adenocarcinoma alone (13(28,9 %)) vs PNECH +adenocarcinoma (4(8%), p=0,02).
About lung adenocarcinoma morphology, a higher incidence of solid or micropapillary IASLC subtype, compared to others (lepidic, acinar and papillary subtypes), was recorded in group adenocarcinoma alone (12(26.7%)) compared to PNECH+ adenocarcinoma (5(11.1%),p=0.05).
One-y, 3-y and 5-y OS and DFS of the two groups in Figure 1.

CONCLUSIONS

Adenocarcinoma associated with neuroendocrine proliferation seems to be present in more differentiated subtypes of adenocarcinoma, with a lower number of recurrences than adenocarcinoma alone.
A longer follow-up and larger studies are necessary to confirm the hypothesis that PNECH could be a predictive factor, in particular in symptomatic patients.

Disclosure: No significant relationships.
Keywords: Neuroendocrine Hyperplasia, Lung Adenocarcinoma, DIPNECH.



O-088

BEYOND THE ODDS: EXPLORING FEMALE ADVANTAGE IN EARLY-STAGE NON SMALL CELL LUNG CANCER (NSCLC) SURVIVAL

Fabian Doerr[1], Konstantinos Grapatsas[1], Natalie Baldes[1], Kaid Darwiche[2], Dirk Theegarten[3], Markus Kamler[4], Christian Taube[5], Martin Schuler[6], Servet Bölükbas[1]

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OBJECTIVES

The 9thTNM-classification was recently unveiled by IASLC without analyzing gender-specific survival. We assessed the significance of gender and examined its influence on long-term survival in a large cohort of NSCLC patients.

METHODS

After applying exclusion criteria (stage >IIIA, neoadjuvant therapy, positive resection margin, survival <90days) we analyzed all consecutive adult patients who were anatomically resected for NSCLC at our institute between 2010 and 2022. Patients received adjuvant radio-/chemotherapy in accordance with current guidelines. We compared female (group F) to male patients (group M) according to NSCLC stage and calculated median-survival, 3- and 5-year survival rates. For stage IA patients we performed a propensity score matching (PSM) and excluded cases with histology different to adenocarcinoma and squamous cell carcinoma.

RESULTS

3,588 patients were included with a mean age of 65.6±9.7years. Group F consisted of 1,557 (43.4%) female and group M of 2,031 (56.6%) male patients. While median survival in months was similar for both groups in stages IIB (F:64.2±8.3; M:53.6±5.3; p-value:0.241) and IIIA (F:47.1±4.6; M:39.3±2.8; p-value:0.072), it was significantly longer for female patients in stage IB (F:107.6±8.3; M:68.4±5.8; p-value:0.011) and IIA (F:96.7±9.1; M:72.4±12.9; p-value:0.020).

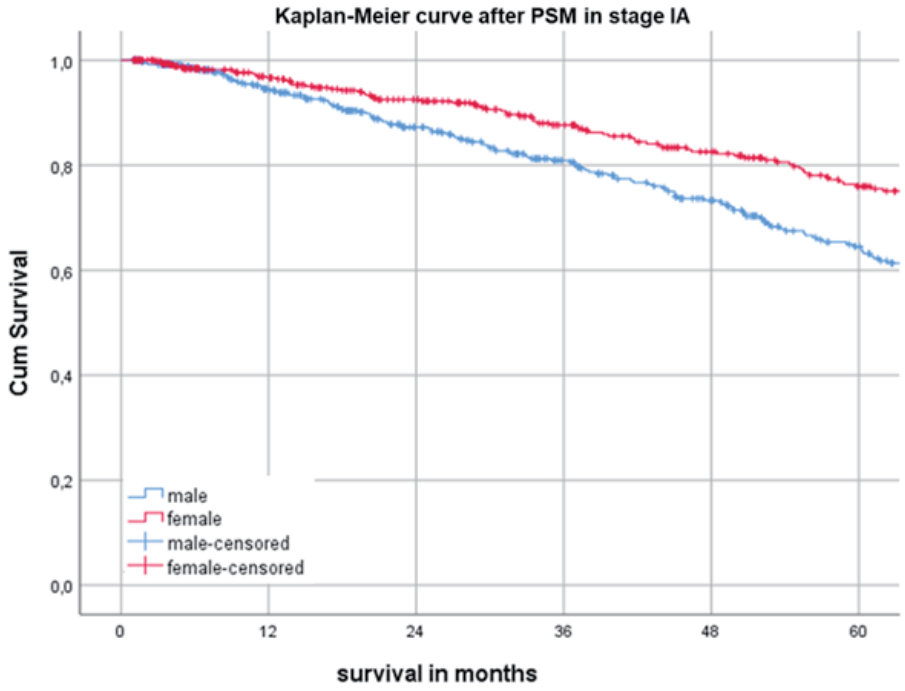
After PSM and histological adjustment for patients in stage IA, there were no significant differences between both groups (p-value>0.05) regarding age, comorbidities, smoking-status, surgical access, and patients' fitness. The median survival was significantly longer for female (n=469) compared to male (n=469) patients (F:108.3±2.4 [95%-CI:103.6-113.0]; M:76.9±6.0 [65.2-88.6]; p-value<0.0001). 3-year (F:85.3%; M:77.2%; p-value<0.0001) and 5-year survival rates (F:70.9%; M:54.7%; p-value<0.0001) were significantly higher for female patients. The hazard ratio was 2.17 [1.16-4.92] for male versus female gender.

CONCLUSIONS

In this large study, we demonstrate a significant negative impact of male gender on long-term survival in early-stage NSCLC. Our single center results are not generalizable, but might be one cornerstone to add gender to the risk stratification for NSCLC therapy planning.

Disclosure: No significant relationships.

Keywords: Non-Small Cell Lung Cancer, Surgery, Long-Term Survival, Gender.



O-089

UNDERUTILIZATION OF ADJUVANT THERAPY IN RESECTED IB-III NON-SMALL-CELL LUNG CANCER RISK MODEL - ANALYSIS FROM THE BRAZILIAN REGISTRY OF LUNG CANCER

Paula Duarte D'Ambrosio[1], Fabio Eiti Minamoto[1], Leticia Leone Lauricella[2], Pedro Henrique Xavier Nabuco[1], Flavia Alves Correia Queiroz[2], Federico Enrique Garcia Cipriano[3], Fabio May Da Silva[4], Jefferson Luiz Gross[5], Paulo Manuel Pêgo-Fernandes[2], Ricardo Mingarini Terra[2]
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OBJECTIVES
Despite survival benefits of adjuvant systemic therapy (AT) in resected non-small-cell lung cancer (NSCLC), its underutilization remains a concern. This study aims to explore the extent to which socioeconomic disparities influence AT underutilization.

METHODS
Data from the Brazilian Registry of Lung Cancer (2009-2023), was queried for patients with complete surgical resected stage Ib-III and stratified based on AT delivery. Demographic, clinical, and pathological variables were evaluated. Logistic regression model was performed. The model's performance was assessed through detailed analyses of sensitivity, specificity, and the Area under the Receiver Operating Characteristic (AUC-ROC) curve, complemented by the Hosmer–Lemeshow test for evaluating its fit and accuracy.

RESULTS
Among 427 patients with resected stage IB–III NSCLC eligible for AT, only 38.4% received it. Higher AT delivery rates were observed in stages III/II compared to IB ($p<0.001$). Factors such as age, insurance, histology, lymphovascular invasion, TNM pathological stage, and pathological node (pN) status were independently associated with AT delivery in univariable analysis ($p<0.005$). Multivariable logistic regression model revealed that older age, public healthcare system, specific histological types, pneumonectomy, and stage IB were associated with non-receipt of AT ($p<0.05$),Table1. The final model presents an equation to estimate the likelihood of a patient undergoing solely surgical treatment. This equation is formulated as: -5.703 + 0.058×Age + 0.974×PublicHealthSystem + 0.241×Squamouscell + 3.059×LargeCellsandOthers + 0.868×Pneumonectomy + 0.657×Sublobar + 2.089×StageIB + 0.867×StageIIA + 0.386×StageIIB - 0.251×StageIIIA + 1.207×pNNegative. A calculated probability> 42.5% categorizes a patient for exclusive surgical intervention. The model demonstrates robust discriminative ability, evidenced by an AUC of 0.833, high sensitivity at 90.2%, and moderate specificity of 60.0%. The model's fit was confirmed through the Hosmer-Lemeshow test ($p\geq0.05$).

CONCLUSIONS

AT underuse in resected IB-III (NSCLC) is linked to patient, institutional, and pathological factors. Addressing disparities is crucial, particularly with the advent of new adjuvant therapy options that promise improved survival.

Disclosure: No significant relationships.

Keywords: Adjuvant Therapy, Socioeconomic Disparities, Immunotherapy, Non-Small-Cell Lung Cancer, Systemic Therapy.

- Final model -					
Risk Factors	**β**	**Wald Chi-Squared test**			**O.R (C.I 95%)**
Intercept (β0)	-5,703	24,689	< 0,001	-	-
Age at surgery	**0,058**	**16,669**	**< 0,001**	**1,06**	**(1,03; 1,09)**
Health care system					
Public	0,974	7,58	**0,006**	**2,65**	**(1,32; 5,30)**
Private	0				
Type of histology					
Adenocarcinoma	0				
Squamous	0,241	0,73	0,393	1,27	(0,73; 2,21)
Large cells and others	3,059	16,486	**< 0,001**	**21,3**	**(4,9; 93,3)**
Type of ressection					
Lobectomy	0				
Pneumonectomy	0,868	3,652	0,056	2,38	(0,98; 5,80)
Sublobar	0,657	0,361	0,548	1,93	(0,23; 16,47)
Pathological stage (TNM 8th)					
I-B	2,089	9,768	**0,002**	**8,1**	**(2,2; 29,9)**
II-A	0,867	1,597	0,206	2,38	(0,62; 9,13)
II-B	0,386	0,51	0,475	1,47	(0,51; 4,25)
III-A	-0,251	0,222	0,637	0,78	(0,27; 2,21)
III-B	0				
Pathological node status (pN)					
positive	0				
negative	1,207	15,766	**< 0,001**	**3,34**	**(1,84; 6,07)**

Note: Pseudo R2 (Cox & Snell) = 0,300 // Pseudo R2 (Nagelkerke) = 0,408
The p-value refers to the probability of significance for the Wald Chi-Squared test.
Hosmer-Lemeshow Test p = 0.234
ß = Regression Coefficient
95% Confidence Interval for the Odds Ratio = 95% C.I for O.R.

O-090

MULTIFACTORIAL IMPACT OF AGE, RACE AND FEMALE SEX ON MANAGEMENT OF NON SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES
Younger female patients are increasingly diagnosed with lung cancer. We sought to evaluate the impact of age, race, and sex on surgical management of NSCLC.

METHODS
We retrospectively analyzed female patients diagnosed with NSCLC from 2004-2018 in the Southern Community Cohort Study (SCCS) database, which encompasses one of the largest percentages of minority patients (~70%). Patients were stratified into Black vs. White and <55 (A) and >55 years (B). Treatment variables were tabulated, and Kaplan-Meier curves estimated overall survival.

RESULTS
In total, 1474 patients were included: 924 (63%) Black and 705 (48%) females. Encompassing all ages, fewer Black females (16%) were diagnosed with stage I disease compared to White females (23%) (P=0.02). Black females underwent surgery less often than White females (80% vs. 65%, P=0.002), and even when they did, Black females more often received inadequate lymphadenectomy (75% vs. 65%, P=0.02). Stratifying by age, fewer younger Black females (A) compared to older Black females (B) were stage I (11% vs. 18%, P=0.721), more underwent inadequate lymphadenectomy (81% vs. 74%, P=0.08), and more didn't receive surgery (84% vs. 80%, P=0.649). When comparing younger (A) and older (B) White females, the former were diagnosed more often diagnosed with stage I (27% vs. 25%, P=0.253), received inadequate lymphadenectomy (63% vs. 65%, P=0.367), and underwent surgery less often (52% vs. 68%, P=0.114). Survival among females who did undergo surgical resection did not differ based on race or age (Figure 1).

CONCLUSIONS
There is limited data on the complex interactions between race, age, and female sex on management of NSCLC. Our data highlights persistent disparities between Black and White females. Additionally, although not statistically significant, there is a trend towards younger female patients more often receiving inadequate management of their cancer, particularly among young Black females. However, when patients did receive appropriate management, survival was comparable.

Disclosure: No significant relationships.
Keywords: Disparities, NSCLC, Lung Cancer, Female Sex

Figure 1A

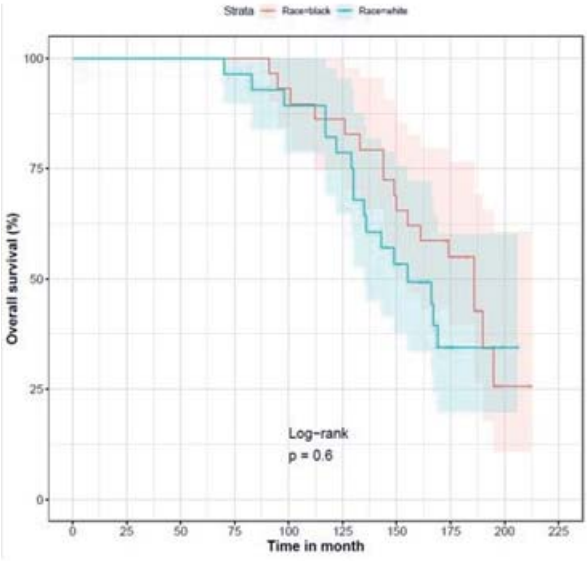
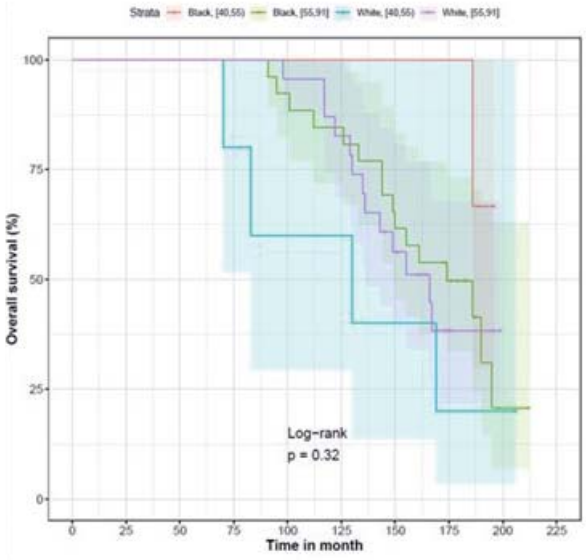


Figure 1B



O-091

CLINICAL RELEVANCE OF ADJUVANT PLATINUM-DOUBLET IN LUNG ADENOCARCINOMA PATIENTS WITH/WITHOUT EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) MUTATION: A MULTI-INSTITUTIONAL REAL-WORLD REGISTRATION STUDY

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OBJECTIVES

Adjuvant osimertinib is now standard of care after pulmonary resection in NSCLC patients with EGFR mutation. Adjuvant platinum-doublet, before the initiation of adjuvant osimertinib, is recommended in several guidelines including ESMO expert consensus statements, however it is not clear if adjuvant platinum-doublet also prolongs overall survival (OS) in NSCLC patients with EGFR mutation as it does in unselected NSCLC cohort.

METHODS

A multicenter retrospective observational study was conducted at 21 centers in Japan enrolling 4,181 lung adenocarcinoma patients who received pulmonary resection between 2015 through 2018. In this study, we evaluated clinical relevance of adjuvant platinum-doublet on OS focusing on 706 patients with pathological stage II-III disease after applying following exclusion criteria; PS2/PS unknown, R1/2 resection, EGFR testing after disease recurrence, interstitial pneumonia, adjuvant treatment other than platinum-doublet. Propensity score

matching was used to balance the distribution proportions of patients' characteristics (age, sex, smoking, preoperative PS, pathological stage, and EGFR status) between patients who received adjuvant treatment and those who did not.

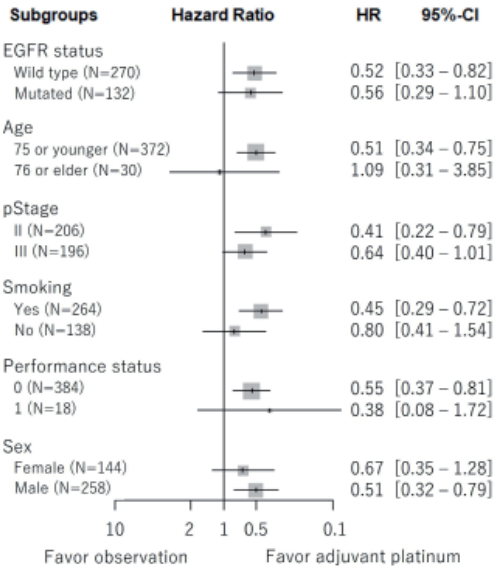
RESULTS

Among 706 patients, 391 received adjuvant platinum-doublet. After 1:1 propensity score matching, patients' characteristics were well balanced in each 201 patients with or without adjuvant platinum-doublet. OS was significantly better in patients who received adjuvant platinum-doublet (P=0.001). In subgroup analysis, patients who received adjuvant platinum-doublet had better OS irrespective of the EGFR mutation status (Figure 1). In a further analysis that excluded 106 patients who were unable to complete 4 cycles of platinum-doublet, the hazard ratios became further lower, suggesting that the effectiveness of adjuvant platinum-doublet was enhanced with completion of 4 cycles, in both EGFR-mutated (0.42, 95% CI 0.20-0.87) and in EGFR wild-type (0.47, 95% CI 0.29-0.76) subgroups.

CONCLUSIONS

Results of this study indicate that clinical relevance of adjuvant platinum-doublet in lung adenocarcinoma patients with EGFR mutation was comparable to that in those without EGFR mutation.

Disclosure: AstraZeneca, a research grant through my institution and honoraria.
Keywords: EGFR Mutation, Adjuvant Treatment, Propensity Score Matching, Real World Data, Overall Survival.



O-092

PROGNOSTIC IMPACT AND RECURRENCE PATTERN OF KRAS G12C MUTATION IN SURGICALLY RESECTED NON-SMALL CELL LUNG CANCER

Jialiang Wen, Tao Chen, Junqi Wu, Yifan Zhong, Long Xu, Haojie Si, Shenghao Huang, Likun Hou, Yunlang She, Dong Xie, Chang Chen
Shanghai Pulmonary Hospital, School of Medicine, Tongji University, Shanghai, China

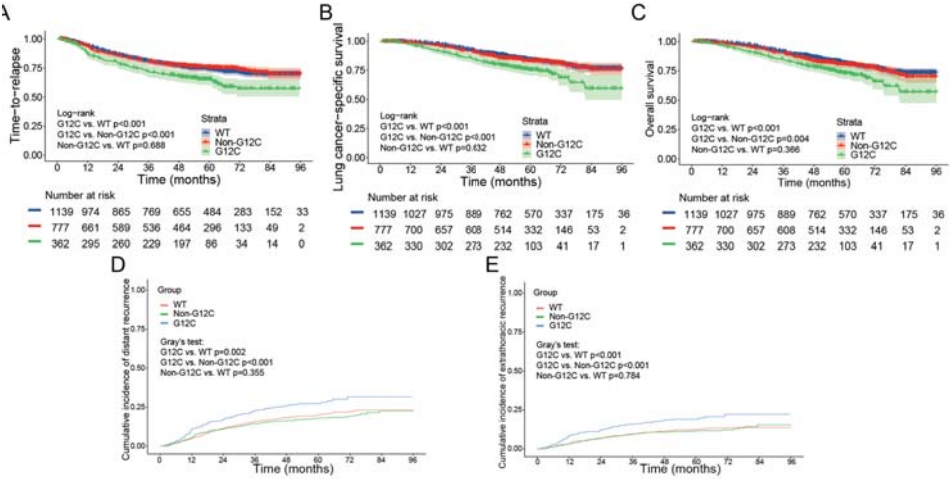
OBJECTIVES
The effect of specific KRAS mutant subtype on clinical outcome and recurrence pattern of patients with non-advanced lung cancer remains controversial. This study aimed to broadly elucidate the oncologic characteristics of surgically resected KRAS G12C mutation non-small cell lung cancer (NSCLC).

METHODS
Of 18,509 stage I-III NSCLC patients who received surgical resection and driver gene mutation detection between 2015 to 2019 at our institution were retrospectively enrolled. Paired KRAS mutation and wildtype cases were formed by propensity score matching for further analyses. The Kaplan-Meier and Fine-Gray methods were used to describe the survival and recurrent differences. Multivariate regression models were used to control for confounders.

RESULTS
KRAS mutation was detected in 1139 patients (6.2%), including 362 G12C and 777 non-G12C mutations. G12C group showed a higher proportion of males (88.7%), smokers (70.4%), and high-grade dominated adenocarcinoma (32.0%) than KRAS wildtype and non-G12C groups. In the matched cohort, with a median follow-up of 56.2 months, the G12C group had a worse prognosis compared to the wildtype and non-G12C groups. Multivariate COX analyses revealed that G12C mutation was a high-risk factor for time-to-relapse (Hazard Ratio [HR] versus KRAS wildtype=1.30, p=0.018; HR versus non-G12C=1.45, p=0.002), lung cancer-specific survival (HR versus KRAS wildtype=1.49, p=0.004; HR versus non-G12C=1.45, p=0.009), and overall survival (HR versus KRAS wildtype=1.39, p=0.009; HR versus non-G12C=1.30, p=0.048) independent of clinicopathologic characteristics. G12C mutation tumors are more likely to relapse rapidly, as well as to develop distant and extrathoracic metastatic recurrences. In addition, both G12C (HR=1.39, p=0.006) and non-G12C mutations (HR=1.50, p=0.003) resulted in shorter post-recurrence survival in recurrent patients.

CONCLUSIONS
Based on this large Asian cohort, patients with KRAS G12C mutation are associated with adverse outcomes and aggressive recurrence patterns after resection of early-stage NSCLC. Effective perioperative therapies and close postoperative monitoring strategies might be implemented in this population.

Disclosure: No significant relationships.
Keywords: NSCLC, Early Stage, KRAS G12C, Prognosis, Recurrence Pattern.



TUESDAY 28 MAY 2024
INFECTIOUS DISEASE SESSION XVI
15:30 – 16:30

O-093

MORBIDITY RISK FACTORS FOR LUNG HYDATIDOSIS SURGERY IN CHILDREN: A BI-CENTRIC EXPERIENCE

Zied Chaari[1], Aymen Ben Ayed[1], Saloua Mseddi Ammar[2], Emna Chaabouni Krichen[2], Abdessalem Hentati[1], Riadh Mhiri[21]
[1]*University Of Sfax - Habib Bourguiba University Hospital, Sfax, Tunisia*
[2]*University Of Sfax - Hedi Chaker University Hospital, Sfax, Tunisia*

OBJECTIVES
The aim of our study was to establish the possible associated morbidity risk factors.for lung hydatidosis (LH) surgery in children.

METHODS
This was a bi-centric retrospective, and analytical study carried out in the departments of thoracic and cardiovascular surgery (Habib Bourguiba University Hospital) and pediatric surgery (Hédi Chaker University Hospital) in Sfax-Tunisia since their respective creations until December 2021. We included all children under the age of 17, and operated on for LH. We did not include patients aged over 17, non-operated children, those operated on for cystic pathology other than LH, and those with extra thoracic hydatid lesions.

RESULTS
We included 496 children, with a total number of 544 performed operations. The mean age was 10.1+/-3.8 years (2 – 16 years). The cysts were unilateral (88.8%), bilateral (11.2%), simple (64.1%), complicated (35.9%), single (79.6%) and multiple in 20.4% of cases. The total number of cysts was 704 with an average size of 71.06+/-31mm (10–200mm). Bronchial fistulas were observed in 486 cases (89.3%) with an average number of 2.5 fistulas (0–9 fistulas). Eight anatomical lung resections were performed (1.4%). Residual cavity padding was performed in 96.3% of cases. We reported only 1 death (0.2%). Postoperative complications were reported for 24.4% of children with 202 various complications dominated by pulmonary infection (10.7%) and prolonged air leak (10.3%). After multivariate study, the independent factors associated with an increase in morbidity were: performing anatomical lung resection, intensive care unit hospitalization, a cystic size ≥60mm, fistulas number ≥3, complicated appearance on chest radiography, and per operative empyema.

CONCLUSIONS
LH surgery for children is associated with several morbidity risk factors which knowledge would improve its prognosis and provide better care for them. Conservative treatment is the

most frequently performed strategy and anatomical lung resections should be reserved for certain special cases and based on a case-by-case evaluation.

Disclosure: No significant relationships.
Keywords: Lung Hydatidosis, Surgery, Results, Morbidity, Risk Factors.

O-094

SURGICAL MANAGEMENT OF BILATERAL INFECTIVE CAVITATORY LESIONS OF LUNGS

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[1]*BLK-Max Super Speciality Hospital, New Delhi, India*
[2]*Max Super Speciality Hospital Patparganj, New Delhi, India*

OBJECTIVES
To assess feasibility of surgical resections in bilateral infective cavitatory lesions of lungs.

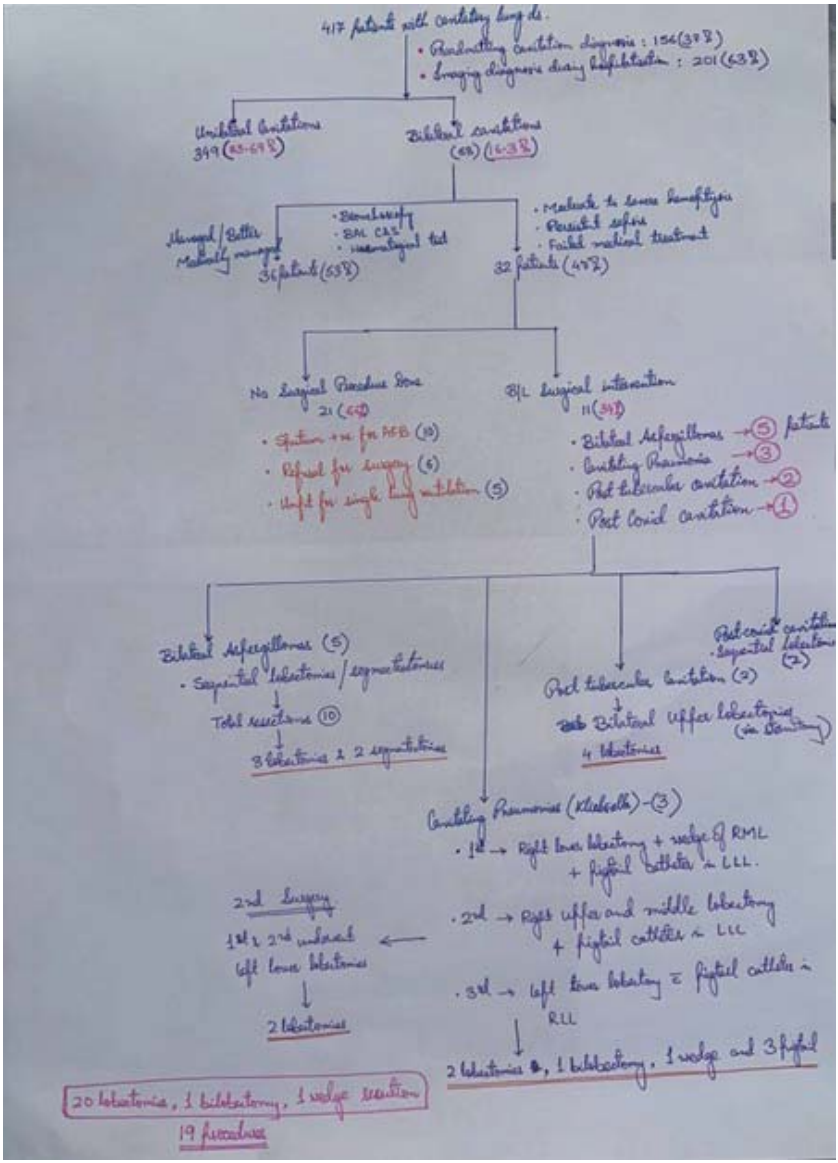
METHODS
This is a retrospective analysis of patients admitted with cavitatory lesion of lung in our institute between January 2019 and December 2022. All patient admitted with the diagnosis of cavitatory lung disease or cavitation in imaging during admission were collected for descriptive analysis of data.

RESULTS
Of 417 patients, 156 (37%) had a preadmitting cavitatory diagnosis, 201(63%) were diagnosed during hospital stay. Bilateral cavitations were in 68 (16%). 32(47%) had major hemoptysis, continuing sepsis or failed medical management needing surgical interventions. 11 (34%) underwent bilateral surgical interventions and 21(66%) didn't due to multiple reasons (10 had AFB positive sputum, 6 refused surgeries, 5 deemed unfit). The etiologies in surgical group were bilateral aspergillomas in 5, bilateral cavitating pneumonias in 3, post-tubercular cavitation in 2 and one post-covid cavitation. Post-tubercular cavitations underwent bilateral upper lobectomy via midline sternotomy. Bilateral aspergillomas had sequential surgeries with a gap of 1-6 weeks. Cavitating pneumonia patients had surgical resection on major affected side and pig-tail catheter insertion in contralateral cavity. The less affected side was surgically managed later in two cases, the third didn't require any surgical intervention. Post-covid cavitation underwent lobectomy and segmentectomy on one side followed by segmentectomy on another side after 8 weeks. Complications included prolonged air-leak in 3 (27%) patients with no mortality overall.

CONCLUSIONS
Cavitations results from ongoing /chronic sequelae of a disease process. Bilateral cavitation is not uncommon (16%). It is tough to diagnose the etiology, but much tougher to manage surgically. Difficult to find any such series, our also being a small one. The decision to pursue surgical management depends upon extent/severity of lung lesions and overall fitness for surgery. Every case must be individualized with carefully planned surgical approach and it's timing.

Disclosure: No significant relationships.

Keywords: Bilateral Infective Cavitatory Lung Lesions, Bilateral Aspergilloma, Surgical Resection in Cavitations, Infective Lung Diseases.



O-095

SURGICAL OUTCOMES FOR CHRONIC PULMONARY ASPERGILLOSIS AFTER LUNG CANCER RESECTION

Takafumi Kabuto[1], Kaito Kitahori[1], Masaki Ikeda[1], Naohisa Chiba[1], Tatsuyoshi Ikeue[2], Masashi Ishikawa[1]
[1]*Department of Thoracic Surgery, Japanese Red Cross Wakayama Medical Center, Wakayama, Japan*
[2]*Department of Respiratory Medicine, Japanese Red Cross Wakayama Medical Center, Wakayama, Japan*

OBJECTIVES
Chronic pulmonary aspergillosis (CPA) is one of the most severe late complications of lung cancer resection. It is likely to increase as the prognosis of surgically resected lung cancer improves. We aimed to reveal the mid- to long-term postoperative outcomes of CPA after lung cancer resection.

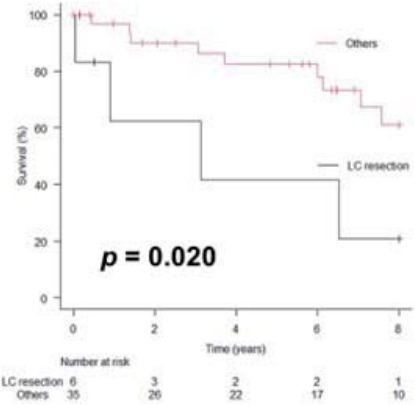
METHODS
We retrospectively reviewed the patients who underwent surgery for CPA in our institution from 2006 to 2023. The patients with a history of lung cancer resection (the LC resection group) were compared with those without (the Others group). Perioperative results and postoperative survival were analyzed.

RESULTS
Forty-one cases were included. Six cases (1 case: after right upper lobectomy, 5 cases: after right lower lobectomy) were classified as the LC resection group, all of whom had no recurrence at the time of CPA surgery. There were no significant differences in preoperative antifungal drug administration (LC resection group: 6 [100%] vs. Others group: 24 cases [68.6%], $p = 0.167$) and duration (1.67 vs. 2.43 months, $p = 0.762$). Surgical procedures differed significantly: completion pneumonectomy in the LC resection group, and sublobar resection in 15 cases (42.9%) and lobectomy in 20 cases (57.1%) in the Others group ($p < 0.001$). In the LC resection group, the 30-day mortality rate was 16.7% (1 case, acute respiratory distress syndrome); however, the other 5 patients survived more than 6 months. Five-year survival rate was significantly worse in the LC resection group than in the Others group (41.7% vs. 82.6%, $p = 0.020$). There were significant differences in the mean operative time (536.3 vs. 324.0 minutes, $p = 0.004$) and the bleeding volume (5,123.6 vs. 400.3 mL, $p < 0.001$).

CONCLUSIONS
Surgical treatment of CPA after lung cancer resection may be extremely challenging. The mid- to long-term prognosis was acceptable, but patient selection, surgical technique, and perioperative management should be carefully considered.

Disclosure: No significant relationships.

Keywords: Chronic Pulmonary Aspergillosis, Lung Cancer Resection, Completion Pneumonectomy, Survival.



Patient characteristics		LK resection group (n = 6)	Others (n = 35)	p value
Age (years)	median	69.5 (57-76)	66 (39-82)	0.726
Sex	Male	6 (100%)	30 (85.7%)	1.000
	Female	0 (0%)	5 (14.3%)	
Risk of chronic pulmonary aspergillosis	Mycobacterial infection	2 (33.3%)	16 (45.7%)	0.679
	ILD	0 (0%)	3 (8.6%)	1.000
	COPD	0 (0%)	11 (31.4%)	0.167
	Bronchiectasis	0 (0%)	1 (2.9%)	1.000
	Thoracic surgery	6 (100%)	5 (14.3%)	**< 0.001**
	Immunodeficiency	3 (50.0%)	6 (17.1%)	0.108
Preoperative respiratory function	**VC (L)**	2.10 (n = 4, 95% CI: 1.23-2.97)	3.05 (n = 31, 95% CI: 2.74-3.37)	**0.036**
	FVC (L)	2.21 (n = 6, 95% CI: 1.57-2.85)	2.89 (n = 34, 95% CI: 2.72-3.26)	**0.029**
	FEV1 (L)	1.64 (n = 6, 95% CI: 1.19-2.09)	2.27 (n = 34, 95% CI: 2.09-2.46)	**0.007**
	FEV1% (%)	76.82 (n = 6, 95% CI: 66.73-86.91)	77.27 (n = 35, 95% CI: 73.09-81.45)	0.956
	%DLCO (%)	66.80 (n = 3, 95% CI: 39.82-91.78)	81.98 (n = 25, 95% CI: 72.96-90.98)	0.504
Preoperative antifungal drug	Administration	6 (100%)	24 (68.6%)	0.167
	Duration (months)	1.57 (95% CI: -0.73-4.87)	2.43 (95% CI: 1.44-3.42)	0.782
Approach	Open	6 (100%)	21 (60.0%)	0.079
	VATS	0 (0%)	14 (40.0%)	
Operative time (mean, min)		536.3 (95% CI: 421.7-650.9)	324.0 (95% CI: 276.6-371.5)	**0.004**
Bleeding volume (mean, mL)		5123.6 (95% CI: 4003.0-6244.0)	490.3 (95% CI: -23-823.6)	**< 0.001**
Intraoperative transfusion (unit)	**Red blood cell**	18.3 (95% CI: 14.5-24.1)	1.4 (95% CI: -0.6-3.3)	**< 0.001**
	Platelet	6.7 (95% CI: 3.6-9.7)	0.0 (95% CI: -1.3-1.3)	**< 0.001**
	Plasma	19.3 (95% CI: 12.9-25.7)	0.6 (95% CI: -2.02-3.3)	**< 0.001**
Aspergillus detection	Yes	5 (83.3%)	16 (45.7%)	0.184
Resection	Sublobar resection	0 (0%)	15 (42.9%)	
	Lobectomy	0 (0%)	20 (57.1%)	**< 0.001**
	Pneumonectomy	6 (100%)	0 (0%)	

O-096

WHAT WILL HAPPEN AFTER CAPITONNAGE OF PULMONARY HYDATID CYSTS?!

Fahmi Kakamad, Berun A Abdalla, Shvan H Mohammed
Smart Health Tower, Sulaimani, Iraq

OBJECTIVES
To assess the lung parenchyma by computed tomography (CT) scan 48 hours after capitonnage of pulmonary hydatid cysts through video-assisted thoracoscopic surgery (VATS).

METHODS
The study enrolled those patients diagnosed with pulmonary hydatid cysts for two years (2021-2023). Patients with other organ involvement, those presenting with emergencies (like pneumothorax), those with ages less than 12 years, and those with uncertain diagnoses were excluded from the study. Under general anesthesia, the patients underwent bi-port VATS capitonnage. Forty-eight hours after the procedure, a native chest CT scan was requested and examined.

RESULTS
The total number of patients was 56; 32 (57%) were male, and the age range was 12 to 60 years, with a mean of 35 years. Thirty-seven patients (66%) were asymptomatic. The right lower lobe was the most involved lobe (14, 25%, table 1). The size of the cyst ranged from 3 to 16 cm, with an average of 7 cm. The cysts were intact in 39 patients (70%). Eight patients (14%) developed air leaks. CT scan showed cavities in all patients; the size ranged from 2 to 12 cm with an average of 5 cm. There was collapse consolidation involving the affected lobe in all cases, with different sizes ranging from 1 to 5 cm with an average of 3 cm. There was no significant difference in cavity size between patients who developed prolonged air leaks and those without (P-value: 0.07). In contrast, patients with large areas of consolidation tended to have prolonged air leaks (P-value 0.001).

CONCLUSIONS
The cavity closed by capitonnage may re-open 48 hours after the intervention without an increased risk of air leak. While consolidation associated with the cavity will increase the risk of prolonged air leaks.

Disclosure: No significant relationships.
Keywords: Hydatid Cyst, Giant, Capitonnage, Bilateral, CT Scan.

Lobes	Frequency	Percentage
Right lower lobe	14	25
Left lower lobe	10	18
Right upper lobe	9	16
Left upper lobe	8	14
Middle lobe	2	4
More than one lobe	13	23

O-097

POPULATION AND RESULTS OF SEGMENTECTOMY VERSUS LOBECTOMY FOR CHRONIC INFECTIOUS/INFLAMMATORY LUNG DISEASES

José De Sá Moraes Neto, Isabele Alves Chirichela, Alessandro Wasum Mariani, Ricardo Mingarini Terra, Paulo Manuel Pego Fernandes
HCFMUSP, São Paulo, Brazil

OBJECTIVES
Compare population characteristics and disease-free survival in patients undergoing segmentectomy versus lobectomy for cases of chronic infectious/inflammatory lung diseases.

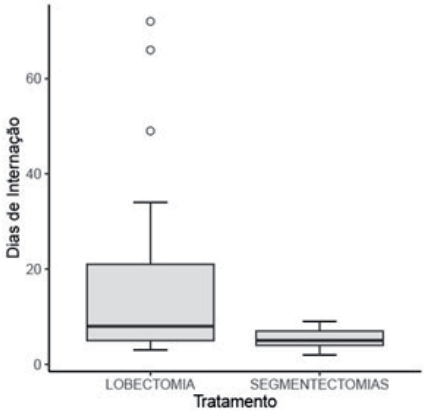
METHODS
Retrospective study in a single center based on prospectively collected data referring to patients between 2018 and 2023 undergoing lobectomy or segmentectomy to treat chronic infectious inflammatory lung diseases.

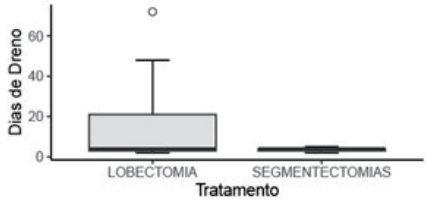
RESULTS
38 patients were studied, 25 in the lobectomy group and 13 in the segmentectomy group, median age of 44,77 years (+- 13,79y). Most were women (23 patients, 61%). The average surgical time was 304 minutes for the lobectomy group and 270 minutes for the segmentectomy group (p= 0,281). Of patients undergoing lobectomy, 52% (13) had tuberculosis as the cause of bronchiectasis, 3 patients (12%) had aspergillosis, and 9 patients (24%) had recurrent infection. In the segmentectomy group, 4 patients (31%) had aspergillosis, 2 patients (15%) had a recurrent infection 5 patients (38%) had tuberculosis, 1 patient (7.7%) had histiocytosis and another patient (7, 7%) was operated by galvanizing. Regarding disease recurrence, 1 patient in the lobectomy group and 2 in the segmentectomy group presented recurrence (p=0,541). Patients who underwent lobectomy spent, on average, longer hospital stays (16 days vs 5 days; p = 0.027); and spent more days in the ICU (7 days vs 1 day; p = 0.006). And they marginally spent more days with the drain (14 days vs 4 days; p = 0.055).

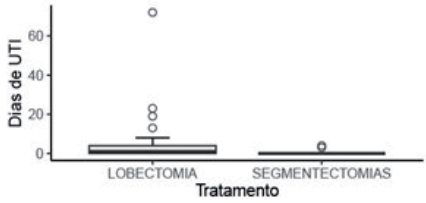
CONCLUSIONS
We concluded that there was no statistical difference in disease recurrence between patients undergoing lobectomy and segmentectomy. However, the segmentectomy group had a shorter length of stay and time in the ICU.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Lobectomy, Chronic Infectious.

		Tratamento		
	Total, N = 38	**Lobectomia,** N = 25	**Segmentectomia,** N =13	**Valor-p**
Idade, anos	47.77 ± 13.78	47.85 ± 14.06	47.62 ± 13.78	0.951
PFP	73.32 ± 23.17	65.32 ± 23.71	88.69 ± 11.89	0.003
Tempo Cirúrgico	292.89 ± 87.96	304.60 ± 91.90	270.38 ± 78.30	0.281
Sexo				0.136
Feminino	23 (61%)	13 (52%)	10 (77%)	
Masculino	15 (39%)	12 (48%)	3 (23%)	
Raça				0.793
Asiático	1 (2.6%)	1 (4.0%)	0 (0%)	
Branco	29 (76%)	18 (72%)	11 (85%)	
Pardo / Preto	8 (21%)	6 (24%)	2 (15%)	
Causa Bronquiectasia				0.185
Aspergilose	7 (18%)	3 (12%)	4 (31%)	
Galvanização	1 (2.6%)	0 (0%)	1 (7.7%)	
Histiciotose	1 (2.6%)	0 (0%)	1 (7.7%)	
Infecção Repetição	9 (24%)	7 (28%)	2 (15%)	
Tuberculose	18 (47%)	13 (52%)	5 (38%)	
Tuberculose/Aspergilose	2 (5.3%)	2 (8.0%)	0 (0%)	
Indicação				0.857
Bola Fungica	3 (7.9%)	1 (4.0%)	2 (15%)	
Hemoptise + Bola Fúngica	1 (2.6%)	1 (4.0%)	0 (0%)	
Hemoptise + Supuração	1 (2.6%)	1 (4.0%)	0 (0%)	
Hemoptise	21 (55%)	14 (56%)	7 (54%)	
Supuração	12 (32%)	8 (32%)	4 (31%)	







O-098

UNIPORTAL VIDEO ASSISTED THORACIC SURGERY (VATS)RESECTION FOR PULMONARY ASPERGILLOMA: EVALUATION OF PROGNOSTIC FACTORS IN A SINGLE CENTER EXPERIENCE

Sara Waguaf, Souheil Boubia, Abdellah Fatene, Mohamed Ridai
CHU Ibn Rochd, University Hassan II, Casablanca, Morocco

OBJECTIVES

Surgical resection is the treatment of choice for pulmonary aspergilloma. However, the uniportal VATS (U-VATS) remains associated with many technical difficulties and high incidence of morbidity and mortality.
This study was conducted to evaluate prognostic factors for surgical resection in patients with pulmonary aspergilloma by U-VATS.

METHODS

We reviewed retrospectively the medical records of patients underwent surgical resection for PA by U-VATS between 2017 and 2020 at our department.

RESULTS

Fifty-one patients, including 9 patients with simple aspergilloma (SA) and 42 patients with complexe aspergilloma (CA) were enrolled in the study.
The patients included 31 (60.8%) men with a median age of 43.5 years.
Hemoptysis represented the most common symptoms and the upper lobes were the main location of aspergilloma.
Tuberculosis was the most common underlying lung disease, and was significantly more prevalent among patients with CA than among patients with SA (p=0.015).
U-VATS resection was attempted in all patients. The most frequent surgical procedure in both group was lobectomy (n=38; 74.5%), while wedge resection and pneumonectomy were performed in group SA and CA respectively (n=1; 11.1% and n=8; 19%).
In 15 (29.4%) cases, the U-VATS procedure was converted to thoracotomy.
Ten patients (19.6%) had postoperative complications in complex aspergilloma.
After multivariable analysis, hemoptysis, tuberculosis, CA, lobectomy and presence of complete adherence remained as significant risk factors for postoperative morbidity .
Hemoptysis, tuberculosis, CA, location in the upper lobe and the presence of complete adherence were the risk factors for conversion in multivariable analysis.
There were two mortalities (3.9%) in the CA group. One of these occurred after lobectomy and one after pneumonectomy.
During the follow-up period, there were no recurrence after surgery.

CONCLUSIONS

In our study, hemoptysis, tuberculosis, complex aspergilloma and presence of complete adherence are unfavorable prognostic factors that increase the morbidity and the rate of conversion in PA patients.

Disclosure: No significant relationships.
Keywords: Pulmonary Aspergilloma (PA). Uniportal VATS (U-VATS). Conversion. Morbidity.

Table 1. Cox multivariable logistic regression analysis of risk factors for postoperative morbidity in the surgical treatment of pulmonary aspergilloma CI = confidence interval; OR= Odds ratio

Variable	Odds Ratio	95% CI	P value
Gender (male versus female)	1.5682	0.6119 to 4.0191	0.3488
Hemoptysis (yes versus no)	4.5714	1.4706 to 14.2101	0.0086
Tuberculosis (yes versus no)	10.75	2.4240 to 47.7286	0.0018
Type of aspergilloma (complex versus simple)	51.1863	3.0488 to 859.3763	0.0062
FEV1 (less 80 versus more 80)	2.5504	0.9381 to 6.9334	0.0665
Location (upper lobe versus mild and lower lobe)	3.7241	0.4240 to 32.7084	0.2356
Adherence (complete versus partiel)	10.7561	2.4240 to 47.7286	0.0018
Surgical procedure (lobectomy versus others)	10.7561	2.4240 to 47.7286	0.0018

Table 2. Multivariable analysis of risk factors for conversion in the surgical treatment of pulmonary aspergilloma

Variable	Odds Ratio	95% Confidence interval	P value
Gender (male versus female)	1.6098	0.7306 to 3.5468	0.2375
Hemoptysis (yes versus no)	4.9474	1.9242 to 12.7201	0.0009
Tuberculosis (yes versus no)	18.1233	4.1755 to 78.6618	0.0001
Type of aspergilloma (complex versus simple)	82.9301	4.9846 to 1379.7367	0.0021
FEV1 (less 80 versus more 80)	1.6098	0.7306 to 3.5468	0.2375
Location (upper lobe versus mild and lower lobe)	3.2436	1.3676 to 7.6929	0.0076
Adherence (complete versus partiel)	5.2222	2.0373 to 13.3860	0.0006
Surgical procedure (lobectomy versus others)	2.2500	0.9943 to 5.0916	0.0516

TUESDAY 28 MAY 2024
VIDEO II SESSION XVII
16:30 – 17:30

V-099

PULMONARY SEQUESTRATION APPROACH IN A CHILD USING ROBOTIC PLATFORM: A CASE REPORT AND THERAPEUTIC STRATEGIES

Hyroan Correa Brandell[1], Ismar Gobira Chagas[1], Jaqueline Schaparini Fonini[2], Eserval Rocha Junior[1,2], Alessandro Wasum Mariani[1,2], Jose Ribas Milanez De Campos[1,2], Ricardo Mingarini Terra[1,2]
[1]*Hospital Israelita Albert Einstein, São Paulo, Brazil*
[2]*University of São Paulo, São Paulo, Brazil*

OBJECTIVES
Pulmonary sequestration is a rare congenital anomaly characterized by an abnormal mass of lung tissue with an anomalous vascular supply. While uncommon, it presents distinctive challenges, especially when diagnosed in pediatric patients. This case report discusses the innovative treatment using robotic surgery for a 9-year-old child with pulmonary sequestration.

VIDEO DESCRIPTION
A 9 year, 19 kg female with a history of recurrent pneumonia was diagnosed with intralobar pulmonary sequestration. Angiotomography confirmed the anomaly, with an anomalous artery arising from the abdominal aorta. Robotic surgery using the DaVinci Xi platform was chosen. During the procedure, orotracheal intubation and bronchial blocking enabled selective ventilation. The patient was placed in a left lateral decubitus position, and intercostal blocks were administered for anesthesia. Trocars were inserted in intercostal spaces 8-10-8 and 8, and carbon dioxide was used for insufflation. The surgery began with the dissection and identification of the anomalous arterial branch. Afterward, the vessel was ligated using an endoscopic stapler, aided by indocyanine green to identify the lung parenchyma irrigated by the anomalous vessel. This approach preserved healthy tissue, avoiding the need for lobectomy. Lung parenchyma was stapled using an endoscopic stapler, and the specimen was removed. The procedure concluded with cavity drainage using a pigtail drain. The patient's recovery has been favorable, leading to an early discharge.

CONCLUSIONS
Robotic-assisted surgery for pediatric pulmonary sequestration offers a promising and innovative approach, providing enhanced precision and reduced invasiveness. This case report illustrates its successful application, emphasizing improved patient outcomes and tissue preservation. Postoperative results demonstrate the safety and effectiveness of this approach, highlighting its feasibility when combined with advanced imaging and fluorescence techniques.

The detailed preoperative planning with 3D reconstruction underscores the potential of this method in optimizing patient care and underscores its growing importance in managing complex thoracic conditions in children.

Disclosure: No significant relationships.
Keywords: Pulmonary Sequestration, Robotic Platforn, Case Report.

V-100

ROBOTIC RIGHT DIAPHRAGM PLICATION USING BARBED SUTURE

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Mayo Clinic, Jacksonville, United States

OBJECTIVES
Diaphragm plication improves short-of-breath in patients with a paralyzed diaphragm. We describe a new technique using barbed sutures that simplifies the procedure and may result in a tighter, more robust repair.

VIDEO DESCRIPTION
In this video, we showcase a 3-arm robotic diaphragmatic plication using a running, horizontal mattress, barbed-suture technique. The patient is a 70-year-old male who experienced increasing shortness of breath and was diagnosed with a paralyzed right diaphragm. The patient successfully underwent robotic diaphragmatic plication and was discharged on postoperative day 2. On follow-up visits he described an improvement in his sob and exercise capacity. CXR revealed a stable right diaphragm plication.

CONCLUSIONS
A barbed-suture technique streamlines the operation by holding and evenly dispersing the tension across the diaphragm.

Disclosure: No significant relationships.
Keywords: Diaphragm Paralysis, Minimally Invasive Surgery, Robotic, Plication.

V-101

MINIMALLY INVASIVE APPROACH FOR EN-BLOC ANATOMICAL LUNG AND VERTEBRAE RESECTION

Hüseyin Melek[1], Gizem Gedikoglu Pirim[1], Elchin Suleymanov[1], Cengiz Gebitekin[1], Burak Akesen[2]
[1]*Uludag University, Faculty of Medicine, Thoracic Surgery Department, Bursa, Turkey*
[2]*Uludag University, Faculty of Medicine, Department of Orthopedics and Traumatology Department, Bursa, Turkey*

OBJECTIVES
Vertebral involvement of lung cancer has long been considered a limitation of minimally invasive surgical treatment, and rightly so, due to both the complexity of resection and the poor prognosis. In this case study, we aimed to evaluate the feasibility and results of en bloc lobectomy, chest wall and spine resection with the hybrid VATS approach in locally advanced NSCLC with chest wall invasion.

VIDEO DESCRIPTION
A 60-year-old male patient was admitted to our hospital with back pain. Thorax CT revealed a mass of 55 mm in size, located in the posterior segment of the right lung upper lobe, paravertebral, and invading the 4th thoracic vertebra and the posterior arm of the right 4th rib. When evaluated by PET-CT, The SUVmax value of the mass was 20,40. There was no mediastinal lymph node or distant metastasis. He was diagnosed with NSCLC by trans thoracic trucut biopsy (cT4N0M0). He received three cycles of carboplatin/paclitaxel treatment. In the re-evaluation of PET-CT, while mass size increased slightly, it was determined that the SUVmax value decreased (SUVmax=9). A slightly lobulated contoured soft tissue mass was reported, located in the para mediastinal area, along the T3 and T5 thoracic vertebrae on the right, extending towards the neural foramen and posterior paraspinal area on the right at thoracic MRI. First, it was started with the two-port VATS technique in the lateral decubitus position. Right upper lobectomy and 3rd-5th ribs separation and lymph node dissection were performed with VATS. The vertebra-invasive specimen was left in the thorax and placed in the prone position. T3 and T4 vertebra wedge resections were performed, and T3-4 nerve roots were excised. The specimen was removed en bloc from the thorax. The postoperative process was uneventful.

CONCLUSIONS
Minimally invasive surgery with lobectomy and vertebral resection is safe, feasible and preferable in patients with NSCLC.

Disclosure: No significant relationships.
Keywords: Lobectomy, NSCLC, Spine, VATS.

V-102

VIDEO-ASSISTED THORACOSCOPIC SURGERY (VATS) LUNG-SPARING LEFT MAIN BRONCHUS SLEEVE RESECTION EN BLOC WITH SUBCARINAL LYMPH NODE

Mingyon Mun, Ayumi Suzuki, Junji Ichinose, Yosuke Matsuura, Masayuki Nakao
Cancer Institute Hospital of JFCR, Tokyo, Japan

OBJECTIVES
Video-assisted thoracoscopic surgery (VATS) sleeve resection is a challenging procedure. In particular, the left main bronchus sleeve resection, which preserves the lung parenchyma, requires a narrow surgical field and high suturing skills.

VIDEO DESCRIPTION
A 15-year-old female presented to her previous hospital with a cough and dyspnea on exertion. She was diagnosed with low-grade mucoepidermoid carcinoma of the left main bronchus (cT1aN0M0) by bronchoscopy. The tumor was cored out by rigid bronchoscope and then she was referred to out department for surgery. Bronchoscopy revealed the tumor was located in the left main bronchus, three to six rings from the carina. A chest CT scan showed that the tumor was draining the subcarinal lymph node, and since invasion could not be ruled out, it was decided to remove the tumor en bloc with subcarinal lymph nodes. Surgical manipulation was performed with a 4-port VATS. The subcarinal lymph nodes were exposed and the central and peripheral sides of the left main bronchus were secured. The left main bronchus was dissected in the order of central side and peripheral side with intraoperative bronchoscopy. subcarinal lymph nodes were lumped together and the tumor was removed. An additional one ring was resected from the central side due to the suspicion of a positive surgical resection margin. The central cut end was pulled caudally by a 3-0 Vicryl suture. The anastomosis was sutured by using a continuous 3-0 Proline suture. A leak test showed a minor leak, and one additional suture was made with a 4-0 Proline suture. The anastomosis was covered with a thymus and pericardial fat tissue.

CONCLUSIONS
VATS lung-sparing left main bronchus sleeve resection en bloc with subcarinal lymph node was safely performed via 4-port VATS with good visualization.

Disclosure: No significant relationships.
Keywords: VATS, Sleeve Resection.

V-103

BLEEDINGS RELATED TO THE INCORRECT USE OF SURGICAL TOOLS

Samuele Nicotra, Vincenzo Verzeletti, Alessandro Rebusso
Padua University Hospital, Padua, Italy

OBJECTIVES
To show how the use of the surgical tools can result in potentially catastrophic bleedings.

VIDEO DESCRIPTION
5 examples of incorrect use of different surgical tools (energy devices and metal suction tube) with associated bleedings are shown.
In 2/5 cases the bleeding was controlled through a VATS approach; in 3/5 cases an emergency thoracotomy was performed and the bleeding was, thus, stopped.

CONCLUSIONS
Sometimes bleeding can also be caused only by the incorrect use of surgical tools. Keep attention also on the proper use of surgical tools (even the suction tube) could avoid bleeding during minimally invasive surgery.

Disclosure: No significant relationships.
Keywords: Surgical Tools, Bleedings, VATS.

V-104

POST TRAUMATIC CHILOTHORAX TREATED WITH THORACIC DUCT CLOSURE INDOCYANINE GREEN (ICG) GUIDED IN U-VIDEO ASSISTED THORACIC SURGERY (VATS)

Carolia Sassorossi[1], Marco Chiappetta[1], Dania Nachira[1], Alberto Biondi[2], Stefano Margaritora[1]
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[2]*General Surgery Unit, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy*

OBJECTIVES
Thoracic duct closure, after trauma, with the ICG guided U-VATS approach.

VIDEO DESCRIPTION
A young patient was a victim of car accident, that caused him vertebral fractures and pleural effusion, that was firstly suspected for being empyema. The patient was operated and the pleural cavity cleaned. The pleural liquid was analysed and it came to be chilum. So the patient was operated again with the aim of closing the thoracic duct. Before surgery, indocyanine green (ICG) was injected bilaterally in the inguinal lymph-nodes, with the ultrasound guide. Then, in U-VATS approach, thanks to the ICG camera, the leaking from the thoracic duct was identified, in the costo phrenic posterior sinus. The duct was closed with titanium clips and the lesion was then sealed with glue. The ICG at the end showed no more leaking from the thoracic duct.

CONCLUSIONS
The ICG guided U-VATS approach was safe and effective in the treatment of a post traumatic break of the thoracic duct.

Disclosure: No significant relationships.
Keywords: Chilotorax, Thoracoscopy, Icg Guide, Trauma.

TUESDAY 28 MAY 2024
INTERESTING CASES SESSION XVIII
16:30 - 17:30

O-105

RESECTION OF CANCER IN THE RETROSTERNAL COLON CONDUIT FORTY YEARS AFTER INTERPOSITION

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[1]*Sirnak State Hospital, Department of Thoracic Surgery, Sirnak, Türkiye*
[2]*Marmara University School of Medicine, Department of Thoracic Surgery, Istanbul, Türkiye*
[3]*Marmara University School of Medicine, Department of General Surgery, Istanbul, Türkiye*
[4]*Biruni University School of Medicine, Department of Thoracic Surgery, Istanbul, Türkiye*

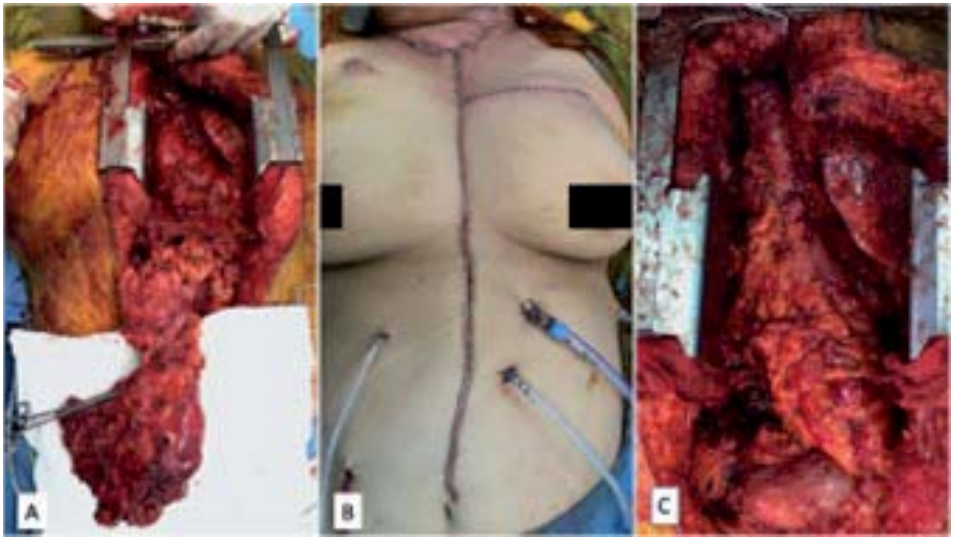
OBJECTIVES
Colon interposition is the preferred method in cases where a gastric conduit cannot be used for reconstruction after an esophageal resection. Patients with esophagectomy and colonic interposition for benign disease may have problems such as conduit redundancy and reflux disease in long-term follow-up, but cancer development is a rare condition. We present the uneventful surgical management of a patient with mucinous colonic adenocarcinoma at the retrosternal interposed colonic conduit.

CASE DESCRIPTION
A 62-year-old female patient with a history of esophagectomy and retrosternal colon interposition for corrosive-related esophagitis 42 years ago. A mass lesion was detected in the retrosternal interposed colon (Figure 1A). Biopsy was reported as mucinous colonic adenocarcinoma. The patient was evaluated in the tumor council and neoadjuvant radiotherapy and oral capecitabine were applied. In the control PET-CT 3 months after neoadjuvant therapy, significant regression was observed. The patient was evaluated as a local disease and the lesion was considered operable. Surgery started with left neck incision, partial sternotomy, and anterior thoracotomy (Figure 1B). There were tight adhesions due to the previous surgery and radiotherapy. The partial sternotomy was extended to the complete sternotomy. Considering the redundancy in the 42-year-old interposed colon, the remaining colon was found with sufficient segmental colon resection and anastomosis (Figure 1C). After an uneventful follow-up, oral feeding was started with clear fluids on the 7th postoperative day. Postoperative hoarseness and aspiration with fluids caused mild elevation of CRP levels after oral feeding. The patient was discharged on the postoperative 20th day. The patients' follow-up continues in the 3rd year uneventfully.

CONCLUSIONS

Carcinoma can develop with uncommon oncological mechanisms in the colon located in different anatomical positions and long-term follow-up should be kept in mind. Considering the tumor stage and operability, these rare patient groups can be managed without any problems in experienced clinics.

Disclosure: No significant relationships.
Keywords: Esophagectomy, Retrosternal Colon Interposition, Carcinoma.



O-106

FLOW CONTROLLED VENTILATION: A PROMISING VENTILATION STRATEGY DURING SINGLE LUNG TRANSPLANTATION

Sandra Guzzella, Rolf Schuepbach, Ilker Iskender, Gyoergy Lang, Martin Schlaepfer, Isabelle Opitz
University Hospital Zurich, Zurich, Switzerland

OBJECTIVES

Unilateral LTX remains considered in elderly patients with chronic obstructive pulmonary disease (COPD) or interstitial lung disease requiring a shorter, less stressful procedure. Routine ECMO utilisation during unilateral LTX remains controversial. Flow-controlled ventilation (FCV) with active expiration provided by the EVONE Ventilator has improved CO2 elimination, lung recruitment, and compliance during one-lung ventilation (OLV).

CASE DESCRIPTION

Herein, we report short-term outcomes of unilateral LTX using a novel intraoperative FCV strategy in 2023. Anesthesia was performed according to the institution's standardised protocol. Surgery started with bilateral PCV strategy followed by initiation of FCV strategy during OLV phase of LTX. After reperfusion, we continued OLV with FCV on the patient's own lung for an additional 20 min to enable slow adaptation of the recipient before switching to bilateral PCV for admission to ICU.

Four patients (all male, mean age 65+/-8 years) with COPD underwent unilateral LTX (3 right) via thoracotomy in ECMO stand-by. Blood gas analysis at the beginning, during implantation with FCV, and at the end of the surgery showed a steady state decrease in already elevated pCO2 values: 6.82+/-1.02, 6.12+/-0.38, 6.04+/-0.28 kPa, respectively.
Transplantations were performed in 192+/-54 min without ECMO support. One patient was extubated in the OR after LTX, which were accomplished within the first 24 hours for the remaining patients. After an average of 3 days of ICU stay, all patients were discharged on day 17+/-1.4 without any perioperative complications.

CONCLUSIONS

This is the first case series of FCV utilised during OLV for patients undergoing orthotopic unilateral LTX. FCV with the EVONE helped us to achieve maintenance of normal pH via adequate CO2 removal during OLV in these patients. We believe that unwanted effects of PCV, such as hypercapnia, concomitant acidosis, and increase in PVR could be overcome using FCV in selected patients.

Disclosure: No significant relationships.
Keywords: Single Lung Transplantation, ECMO, Flow Controlled Ventilation.

O-107

TECHNIQUES OF THORACIC CAVITY EXTENSION IN LIVING-DONOR LOBAR LUNG TRANSPLANTATION WITH OVERSIZED DONORS

Hsiao-Hung Lu[1], Xu-Heng Chiang[1,2,3], Shu-Chien Huang[1,3], Po-Ni Hsiao[4], Hsao-Hsun Hsu[1,3,5]
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[2]*Department of Medical Education, National Taiwan University Hospital, Taipei, Taiwan*
[3]*National Taiwan University College of Medicine, Taipei, Taiwan*
[4]*Department of Anesthesiology, National Taiwan University Hospital, Taipei, Taiwan*
[5]*Department of Surgery, National Taiwan University Cancer Center, Taipei, Taiwan*

OBJECTIVES

Rather than traditional lung volume reduction, thoracic cavity extension using titanium sternum plate fixation, bilateral rib removal, and bilateral diaphragm plication could effectively manage oversized donor lung grafts during living-donor lobar lung transplantation (LDLLT).

CASE DESCRIPTION

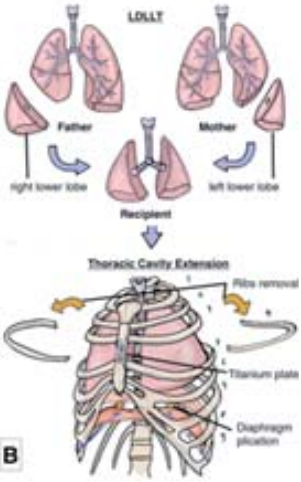
An 11-year-old girl suffering from bilateral pulmonary fibrosis (Figure 1A) relied on venous-venous (VV) extracorporeal membrane oxygen (ECMO) support for over three months before being referred for lung transplantation. Due to organ scarcity in Taiwan, living-donor lobar lung transplantation (LDLLT) was evaluated. The right lower lobe was donated by her father and the left lower lobe by her mother, with a predicted graft-to-recipient forced vital capacity (FVC) ratio of 71.9%. However, the predicted graft-to-recipient volume ratio (right: 431%; left: 445%) was significantly oversized, exceeding the 200% upper limit from previous studies. Bilateral LDLLT was performed with ischemic times of 140 and 159 minutes for the right and left lungs, respectively (Figure 1B, upper portion). The clam-shell incision remained open after the first stage of surgery. Following successful weaning from VV ECMO, a second-stage operation closed the clamshell incision. To preserve the entire donor lung volume, techniques of thoracic cavity extension were used instead of traditional lung volume reduction surgery. The bilateral 4th ribs were resected, and diaphragm plications were performed. Two titanium plates were applied to fix and extend the sternum by approximately 3 centimeters (Figure 1B, lower portion). A Gore-tex membrane covered the expanded intercostal space (Figure 1C), and a rotational flap covered the skin defect from the sternum extension. The patient was discharged on postoperative day 78 with good functional status and returned to school shortly thereafter. A chest X-ray one year later showed good expansion of both donor lungs (Figure 1D).

CONCLUSIONS

Our experience may provide an alternative technique for managing oversized donors in pediatric LDLLT.

Disclosure: No significant relationships.

Keywords: Thoracic Cavity Extension, Lung Transplantation, Living-Donor Lobar Lung Transplantation (LDLLT), Pediatric Lung Transplantation, Size Mismatching.



O-108

SUCCESSFUL LUNG TRANSPLANTATION FOR PULMONARY EPITHELIOID HEMANGIOENDOTHELIOMA WITH PLEURAL INFILTRATION: A CASE REPORT

Rene Novysedlak[1], Janis Tavandzis[1], Jan Havlin[1], Katerina Kopeckova[2], Monika Svorcova[1], Jan Simonek[1], Jan Berousek[3], Eliska Dvorackova[4], Jan Kolarik[1], Jiri Pozniak[1], Marketa Vaculova[1], Jiri Vachtenheim Jr[1], Zuzana Ozaniak Strizova[5], Tomas Buchler[2], Robert Lischke[1]

[1]*Prague Lung Transplant Program, 3rd Department of Surgery, First Faculty of Medicine, Charles University and Motol University Hospital, Prague, Czech Republic*

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OBJECTIVES

Pulmonary epithelioid hemangioendothelioma is an ultra-rare vascular neoplasm of borderline malignancy and an unpredictable prognosis. Lung transplantation, either preceded by or combined with liver transplantation, has been documented as treatment modality in only three cases of multifocal disease (including pleural dissemination) so far. This report presents first documented case of lung transplantation specifically for pulmonary disease with pleural dissemination.

CASE DESCRIPTION

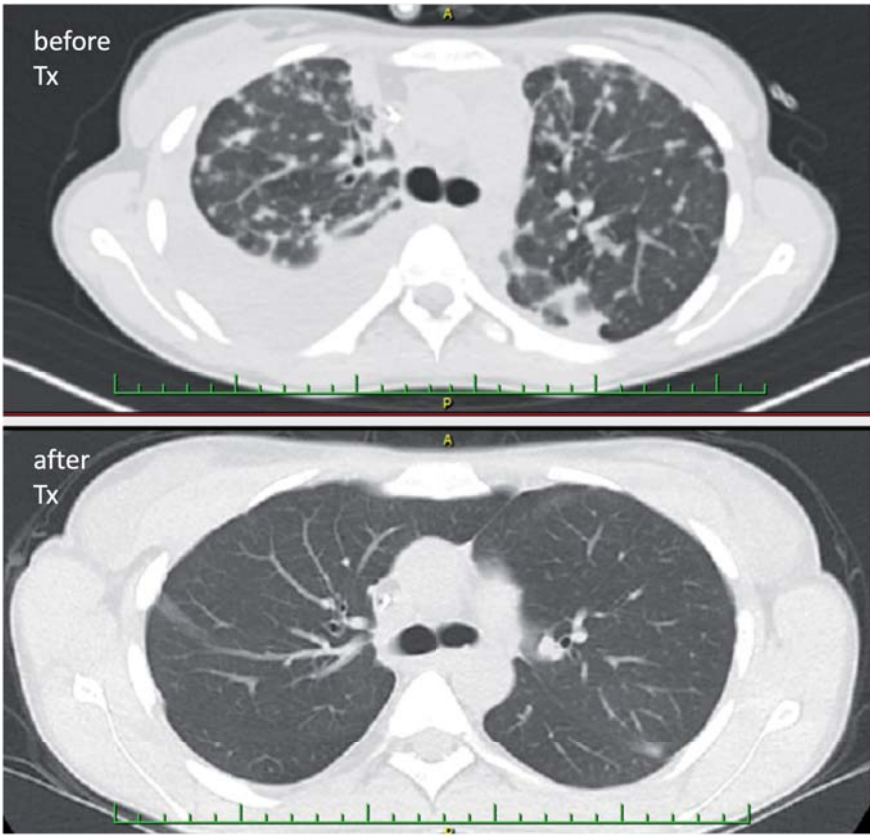
An 18-year-old female was diagnosed with epithelioid hemangioendothelioma with translocation (1;3) resulting in WWTR1/CAMTA1 fusion. At time of diagnosis, there was bilateral lung involvement and systemic treatment with pazopanib was initiated in 2019. Treatment was changed to paclitaxel in October,2022 due to disease progression. In December,2022, right-side pleural dissemination was histologically confirmed. Due to chronic respiratory failure requiring oxygen therapy, pleural effusion, and no alternative conservative treatment modalities, patient was waitlisted for lung transplantation. In February,2023, at age of 21, patient successfully underwent bilateral lung transplantation without extracorporeal membrane oxygenation support. Pneumonectomy of right lung proved extremely challenging due to previous videothoracoscopic biopsies and tumoral adhesions, resulting in almost 1liter of blood loss. Multiple tumor nodules were observed on both sides with maximum infiltration near left phrenic nerve. After implantation, the middle lobe, lingula and left segment 3 were resected due to size mismatch. Ischemic time was 3h27 for right and 5h15 for left lung. Total operative time reached 4h56. Maximum PGD-grade within 72h post-transplant was 2. The

patient was discharged 18days after transplantation in stable condition. Sirolimus was added to standard immunosuppression (tacrolimus, mycophenolate mofetil and prednisone) to prevent disease advancement. Currently, 11 months after transplantation, patient remains stable with no signs of disease progression.

CONCLUSIONS

In cases of life-threatening epithelioid hemangioendothelioma, lung transplantation should be considered as treatment modality. To best of our knowledge, presented patient is youngest reported individual to have successfully undergone lung transplantation for this indication.

Disclosure: No significant relationships.
Keywords: Pulmonary Epithelioid Hemangioendothelioma, Pleural Infiltration, Lung Transplantation.



O-109

LOW-COST PERSONALIZED THREE DIMENSIONAL (3D) PRINTED MODEL FOR PREOPERATIVE HYPER-REALISTIC SIMULATION ROBOTIC SEGMENTECTOMY

Eserval Rocha Junior, Ismar Newton Cestari, Gabriela Katherine Zurita Aguirre, Ana Carolina De Avila, Idagene Aparecida Cestari, Ricardo Mingarini Terra, Paulo Manuel Pêgo-Fernandes
University of São Paulo, São Paulo, Brazil

OBJECTIVES

To document the innovative application and development of an economical, custom-made 3D-printed model, utilized in a preparatory simulation conducted a day before an S6 segmentectomy.

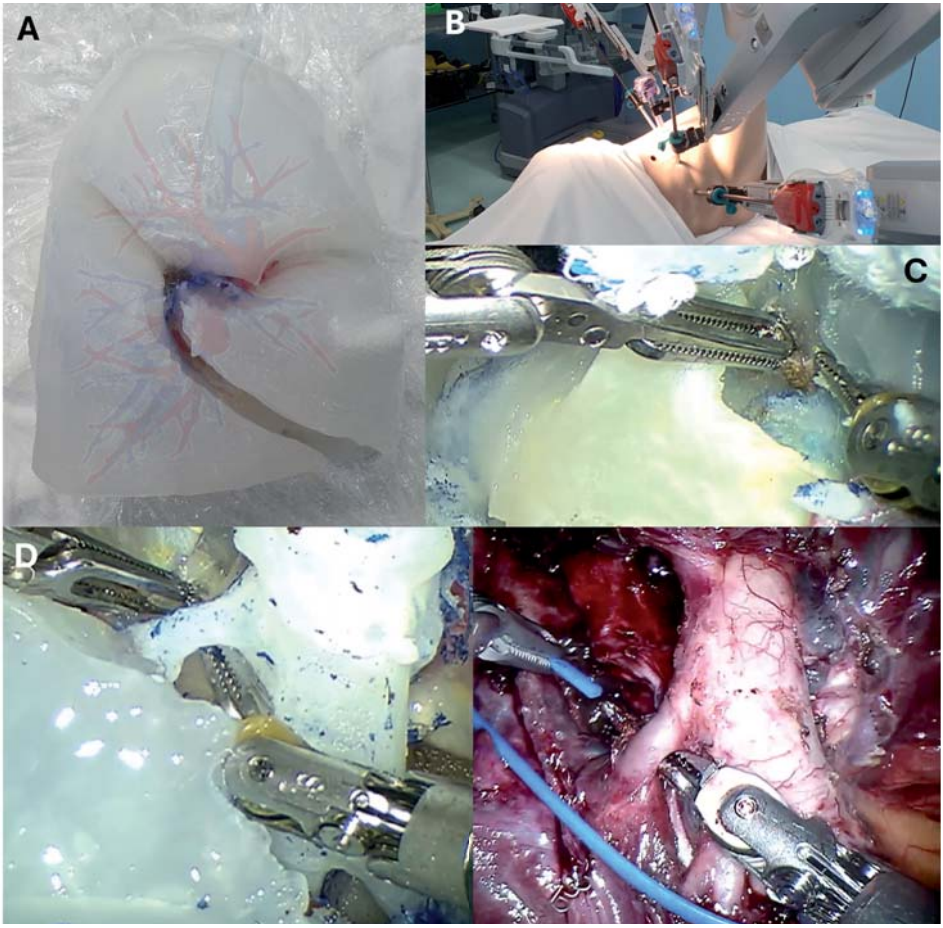
CASE DESCRIPTION

A 67-year-old female patient with right lower lobe adenocarcinoma (1.4 cm semisolid lesion) underwent preoperative evaluation, indicating adequate lung function (FEV1: 75%, FVC: 81%, DLCO: 80%) and no comorbidities. An anatomic 3D CT-scan study, using 3D Slicer®, revealed a peripheral nodule near segment S10, a separate V6 vein, and two arterial branches to segment A6, an anatomic variation in 20% of cases. Segmentectomy was chosen as the surgical strategy, with a preoperative simulation using a 3D model created in 3D Slicer and printed using Stratasys J750® Digital Anatomy printer. The model, designed for affordability, included the airway, vessels, tumor, and lymph nodes in soft material, while the azygos vein, pericardium, and vena cava were represented using a permanent, reusable base. Parenchyma, mediastinal fat, and connective tissue were created with polyvinyl alcohol (PVA) material (Figure A), enabling the use of bipolar energy for realistic dissection simulation (Figure 1C). The total cost to create the model was around U$170,00. The model was operated on the same robotic platform a day before the actual surgery, allowing the practice of hard-to-virtually train steps such as lymphadenectomy, bipolar energy training, and left-hand traction practice (Figure 1B). The surgery was successful with satisfactory anatomic correspondence (Figure 1D).

CONCLUSIONS

This study successfully demonstrates the significant potential of low-cost, personalized 3D-printed models in surgical simulations. Our findings suggest that such models not only aid in preoperative planning but also enhance surgical skills. This innovation stands as a testament to the evolving landscape of medical technology, offering a promising avenue for future research and application in patient-specific surgical strategies."

Disclosure: No significant relationships.
Keywords: Surgery Simulation, Robotic Surgery, 3D Printing, Segmentectomy.


A
B
C
D

O-110

TREATMENT OF POSTPNEUMONECTOMY SYNDROME WITH TISSUE EXPANDERS; SIMULATION BY INTRATHORACIC AIR INJECTION

Kyoshiro Takegahara, Masaki Hashimoto, Fuminobu Oono, Akihiro Fukuda, Akifumi Nakamura, Ayumi Kuroda, Seiji Matsumoto, Nobuyuki Kondo, Seiki Hasegawa
Department of Thoracic Surgery, Hyogo Medical University, Nishinomiya, Japan

OBJECTIVES

Postpneumonectomy syndrome is a rare complication in thoracic surgery. The trachea, bronchi, and pulmonary arteries and veins, which are pulled in by the marked mediastinal deviation, are compressed by the vertebral body and aorta, causing stenosis, which leads to dyspnea. Here, we report a case of postpneumonectomy syndrome treated with tissue expanders after simulation by intrathoracic air injection.

CASE DESCRIPTION

The patient is a 58-year-old woman. She underwent left pneumonectomy for left lung cancer (pT2bN0M0, stage IIIA). She underwent chemotherapy for postoperative recurrence, but gradually developed mediastinal deviation and respiratory distress. Respiratory failure due to postpneumonectomy syndrome was diagnosed, and intrathoracic air injection therapy was administered, resulting in dramatic improvement of respiratory distress.Thereafter, air was injected every 2-3 months, and there was no worsening of symptoms. However, as the number of injections increased, adhesions and back pain appeared, making the injections difficult, and surgery was performed.The shape of the injected air in the thoracic cavity was confirmed by 3D-CT before the surgery, and the tissue expander that most closely resembled the shape was selected and implanted.After the surgery, her respiratory distress disappeared. She is currently alive one year postoperatively without recurrence of respiratory distress.

CONCLUSIONS

Use of tissue expanders in adults with postpneumonectomy syndrome is an effective means of decompressing the remaining bronchus, thereby leading to a significant improvement in respiratory symptoms. However, the drawback of this surgery is that the effectiveness of the treatment can only be determined postoperatively. In this case, preoperative simulation allowed us to determine the shape of the tissue expanders that would improve symptoms. We report on the treatment strategy of the patient.

Disclosure: No significant relationships.
Keywords: Postpneumonectomy Syndrome, Tissue Expanders.

SUNDAY 26 MAY 2024
JUNIOR POSTER SESSION
17:00 – 18:00

P-001

NEOADJUVANT CHEMORADIATION COMBINED WITH IMMUNOTHERAPY (NICRT) VERSUS NEOADJUVANT CHEMORADIATION (NCRT) FOR LOCALLY ADVANCED OESOPHAGEAL SQUAMOUS CELL CARCINOMA: COMPARISON OF TWO PROSPECTIVE COHORTS

Yuqin Cao, Zhenyi Niu, Yajie Zhang, Chengqiang Li, Hecheng Li
Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

OBJECTIVES
Neoadjuvant chemoradiation (nCRT) followed by surgery has been established as the standard treatment for locally advanced oesophageal squamous cell carcinoma. Recently, the combination with immunotherapy (nICRT) has been explored in the retrospective setting or pilot studies. This study aims to compare the efficacy of nICRT and nCRT using prospective data from two ongoing clinical trials.

METHODS
Our institution has conducted the Preoperative Anti-PD-1 Antibody Combined with Chemoradiotherapy for Locally Advanced Squamous Cell Carcinoma of oEsophagus (PALACE)-2 trial (NCT04435197) and the Pre-Operative Enteral ImmunoNutrition for oEsophageal Cancer Patients Treated with Neoadjuvant Chemoradiotherapy (POINT) trial (NCT04513418) since August 2020. The perioperative data and active follow-up of 53 patients from the PALACE-2 trial (nICRT group) and 50 patients from the POINT trial (nCRT group) were analysed (Table 1).

RESULTS
Regarding the response rate of neoadjuvant therapy, 47.2% (25/53) patients in the nICRT group and 44.0% (22/50) patients in the nCRT group achieved pathological complete response (pCR) according to the post-neoadjuvant pathological staging (ypT0N0M0), showing no significant difference between the two groups (P=0.90). After a median follow-up time of 21 months (IQR:14-28), the 1-year survival rate was 96.2% in the nICRT group and 93.2% in the nCRT group; the 2-year survival rate was 86.8% and 88.5% respectively.

CONCLUSIONS
Compared with the standard treatment of neoadjuvant chemoradiation, combination of anti-PD-1 could improve the response rate and prognosis of patients with locally advanced oesophageal squamous cell carcinoma but showed no statistical significance. The results of further randomised controlled trials (RCTs) could provide more evidence for neoadjuvant immunotherapy.

Disclosure: No significant relationships.
Keywords: Neoadjuvant Therapy, Immunotherapy, Chemoradiation, Oesophageal Cancer.

Characteristic [a]	nCRT (n=50)	nICRT (n=53)	*P*-value [b]
Age at diagnosis			0.157
<60	9	17	
≥60	41	36	
Sex			1.000
Female	7	8	
Male	43	45	
Comorbidity score [c]			0.103
0	42	43	
1	5	10	
≥2	3	0	
Tumor location			0.787
Lower third	23	23	
Middle third	21	26	
Upper third	5	4	
Other	1	0	
Differentiation grade			0.992
Well differentiated (G1)	1	2	
Moderately differentiated (G2)	12	11	
Poorly differentiated (G3)	12	12	
Undifferentiated (G4)	0	1	
Unknown (Gx)	25	27	
Pre-treatment cT stage			0.517
cT0-1	0	0	
cT2	9	8	
cT3	41	43	
cT4	0	2	
Pre-treatment cN stage			0.601
cN0	3	3	
cN1	16	17	
cN2	29	27	
cN3	2	6	
Pre-treatment cM stage			1.000
cM0	50	53	
cM1	0	0	

nCRT: neoadjuvant chemoradiation; nICRT: neoadjuvant chemoradiation combined with immunotherapy.
[a] Presented as frequency (percentage).
[b] Pearson chi-square test or Fisher's exact test were used to compare the distributions between two groups.
[c] Calculated by Charlson-Deyo Comorbidity Score but ignoring cancer condition.

P-002

EFFECT OF THE CONTINUOUS ERECTOR SPINAE PLANE BLOCK ON RESPIRATORY STRENGTH AFTER VIDEO-ASSISTED LUNG SURGERY

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OBJECTIVES
Regional nerve blocks are a substantial part of postoperative pain management following lung cancer surgery. In addition to inducing sensory block, regional approaches may elicit motor blockade. This investigation seeked to evaluate the impact of continuous ultrasound-guided erector spinae plane block (ESPB) on maximal inspiratory and expiratory strength, comparing its effects with those of a conventional regional anesthetic technique, namely the intercostal nerve block (ICNB).

METHODS
A prospective randomized controlled study was conducted to compare the outcomes of patients scheduled for video-assisted thoracoscopic lung cancer resection. The patients were assigned to either the ESPB or ICNB group. The outcome assessed was respiratory muscle strength, quantified by maximal inspiratory and expiratory pressures (MIP/MEP) at 24 hours and 48 hours postoperatively, in comparison to the baseline MIP/MEP values measured on the day of hospital admission.

RESULTS
50 patients were included in the final analysis, half ESPB. MIP values at 24h were 71,58% ± 16,69% for ESPB and 75,98% ± 24,04% for ICNB. MEP values at 24h were 73,36% ± 20,82% for ESPB and 85,55% ± 37,35% for ICNB. There were no significant differences in MIP/MEP decrease from baseline after 24 h (MIP p=0.088, MEP p=0.182) or 48 h (MIP p=0.110, MEP p=0.645), time to chest tube removal or hospital discharge between the two groups. However, pain was significantly lower in the ESPB group in the first 48h (numerical rating scores 1.19 ± 0.73 vs 1.77 ± 1.01, p=0.039).

CONCLUSIONS
In the first 48 h after surgery, the continuous ESPB did not cause significant motor block with reduced respiratory strength in comparison to the single shot ICNB. Patients with the ESPB reported less pain than patients with ICNB. There were no differences regarding postoperative complications and time to hospital discharge. Continuous ESPB demanded more surveillance than ICNB.

Disclosure: No significant relationships.
Keywords: Erector Spinae Plane Block, Continuous Regional Block, Postoperative Analgesia, Respiratory Miscle Strenght, MIP/MEP.

Values (%)		ESPB	ICNB	p-value
MIP	24 h	71,58 ± 16,69	75,98 ± 24,04	0,088
	48 h	73,42 ± 19,10	88,11 ±30,72	0,110
MEP	24 h	73,36 ± 20,82	85,55 ± 37,35	0,182
	48 h	74,90 ± 22,39	98,90 ± 32,29	0,645

P-003

ELIMINATION OF ROUTINE CHEST X-RAYS AFTER LUNG RESECTION: A QUALITY IMPROVEMENT INITIATIVE

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OBJECTIVES
Performing a postoperative chest X-ray (CXR) is routine practice following lung surgery. Despite studies indicating that CXRs may be unnecessary for most patients, no initiative has been taken to discontinue routine CXRs. To improve quality of care, our initiative aims to eliminate routine CXR after lung resection and assess its safety.

METHODS
We performed a single-centre, controlled, prospective cohort study. Patients who underwent lung resection between January 2022 and May 2023, excluding pneumonectomy and spontaneous pneumothorax, were included. Prior to implementation of the initiative, patients had routine CXRs immediately after surgery, after chest tube removal, and during outpatient consultation. After implementation, CXR were only ordered if there was a clinical need. We compared 30-day readmission rates before and after discontinuation of routine CXRs. Cardiopulmonary complications, length of hospital stay, and reoperation were also analyzed. We performed additional analyzes 8 months after the start of the initiative to monitor the evolution of our practices.

RESULTS
A total of 128 patients (64 in each group) were included in this study. Among them, 46.1% underwent segmentectomy, 29.7% lobectomy, and 24.2% wedge resection. The total number of CXRs decreased by 56% after discontinuation of routine CXRs. 28.6% of patients did not receive any CXRs after the initiative. Moreover, 17/23 of the CXRs performed immediately after the operation and 9/14 during outpatient consultation were undertaken by mistake. There were no statistically significant differences in 30-day readmission rates between patients before and after the initiative (14.1% vs 4.8%, respectively, p=0.073) or in cardiopulmonary complications (28.1% vs 20.3%, respectively, p=0.302). Eight months after the initiative was introduced, 86.4% of patients no longer received postoperative CXRs, and the 30-day readmission rate was reduced to 0%.

CONCLUSIONS
Eliminating routine chest X-rays after lung resection is safe. The process of adapting to this practice and building confidence takes time.

Disclosure: No significant relationships.
Keywords: Lung Resection, Chest X-Ray, Quality.

P-004

SURVIVAL AND RECURRENCE PATTERNS AFTER NEOADJUVANT IMMUNOCHEMOTHERAPY VERSUS CHEMORADIOTHERAPY IN PATIENTS WITH ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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OBJECTIVES
The aim of this study was to compare clinicopathological and oncologic outcomes of neoadjuvant immunochemotherapy (nICT) and chemoradiotherapy (nCRT) followed by esophagectomy in patients with squamous cell carcinoma.

METHODS
Patients between 1/2018 and 12/2021 following nICT and nCRT were retrospectively reviewed. The primary outcomes were survival and recurrence pattern, and a propensity matching was employed to balance potential bias.

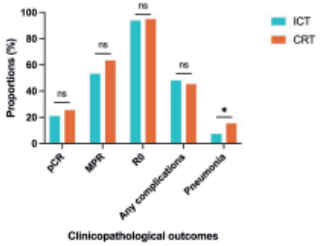
RESULTS
A total of 354 patients, with 177 in each arm were enrolled. The pCR rate was comparable (20.9% vs 25.4%, P=0.314) while a trend for decreased major pathological response (53.1% vs 63.3%, P=0.052) was observed following nICT versus nCRT. nCRT was associated with more postoperative pneumonia and less dissected lymph nodes (P<0.001). With a minimum follow-up time of 24 months, the rate of any recurrence, local, anastomotic or distant recurrence were all comparable between the two groups. Among them, Oligometastatic recurrence was observed in 17.5% and 16.4% (P=0.777) post nICT and nCRT. Patients following nICT showed a significantly improved 2-year overall survival [OS] (75.3% vs 65.0%, P=0.003) as well as cancer specific survival (80.3% vs 70.4%, P=0.006) with no significant difference in disease-free survival (63.3% vs 56.5%, P=0.113). In subgroup analysis, pCR patients had a comparable probability of survival (HR 1.653 95%CI 0.564-4.844) but non-pCR patients following nICT were found to have improved OS compared with nCRT (HR 1.855 95%CI 1.242-2.770). These patients were more likely to receive adjuvant therapy than nCRT (P<0.001), largely driven by immunotherapy (OR 5.451). Furthermore, after multivariable analysis, the receipt of adjuvant therapy was proved to be a significant promoter for improving long-term prognosis after nICT.

CONCLUSIONS
nICT compared with nCRT was associated with better survival but with no difference in patterns of recurrence. It was worthwhile to try adjuvant therapy whenever there was residual pathological disease.

Disclosure: No significant relationships.

Keywords: Neoadjuvant Immunochemotherapy, Chemoradiotherapy, Esophageal Squamous Cell Carcinoma.

A

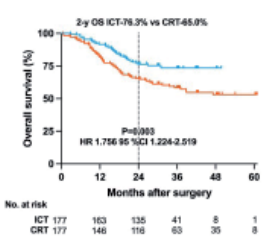


B

Recurrence Patterns	ICT	CRT	P
Any recurrence, N (%)	62(35.0)	72(40.7)	0.273
Local	24(13.6)	31(17.5)	0.304
Anastomotic	7(4.0)	4(2.3)	0.358
Distant	37(20.9)	41(23.2)	0.608
Isolated local recurrence, N (%)	7(4.0)	7(4.0)	>0.999
Isolated solid organ metastasis, N (%)	17(9.6)	18(10.2)	0.859
Oligometastatic recurrence, N (%)	31(17.5)	29(16.4)	0.777
Tumor-directed therapy following recurrence, N (%)	41(66.1)	55(76.4)	0.189

Fig.A Clinicopathological outcomes and postoperative complications between nICT and nCRT. Fig.B Patterns of recurrence between nICT and nCRT after minimum follow-up time of 2 years

C



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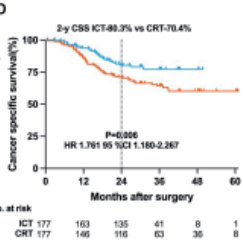

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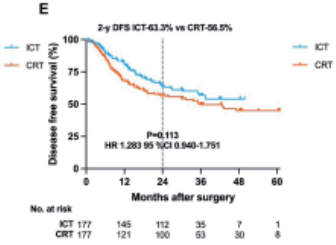

Fig.C Overall survival and Fig.D Cancer specific survival and Fig.E Disease-free survival in patients after nICT and nCRT

F

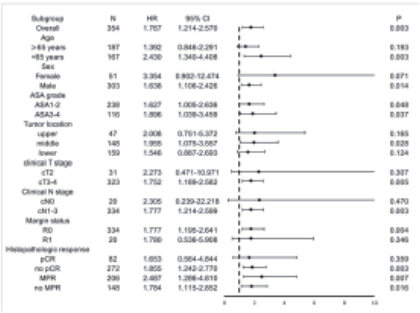

Fig.F Subgroup analysis of the impact of nCRT as compared with nICT on Overall survival

G

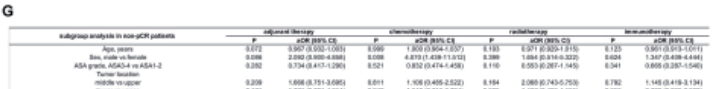

Fig.G Multivariable logistic regression analysis of the impact of neoadjuvant approach on subsequent treatment among patients with incomplete pathological response

H

subgroup analysis in patients receiving adjuvant therapy	DFS		CSS		OS	
	P	aHR (95% CI)	P	aHR (95% CI)	P	aHR
Age, years	0.407	1.012 (0.983-1.042)	0.351	1.019 (0.980-1.059)	0.349	1.017 (0.982-1.052)
Sex, male vs female	0.803	1.106 (0.501-2.441)	0.646	0.799 (0.306-2.084)	0.882	1.087 (0.424-2.789)
ASA grade, ASA3-4 vs ASA1-2	0.006	1.971 (1.220-3.183)	0.010	2.226 (1.208-4.102)	0.007	2.126 (1.232-3.669)
Tumor location						
middle vs upper	0.055	0.501 (0.247-1.016)	0.065	0.389 (0.142-1.063)	0.063	0.441 (0.186-1.044)
lower vs upper	0.034	0.449 (0.214-0.941)	0.271	0.566 (0.206-1.558)	0.068	0.434 (0.177-1.064)
Clinical T stage, cT3-4 vs cT2	0.832	0.923 (0.436-1.942)	0.711	0.846 (0.350-2.046)	0.896	1.064 (0.457-2.571)
Clinical N stage, cN2-3 vs cN0-1	0.417	1.208 (0.765-1.907)	0.980	0.993 (0.554-1.779)	0.516	1.190 (0.705-2.009)
Neoadjuvant therapy, chemoradiotherapy vs immunochemotherapy	<0.001	2.294 (1.426-3.690)	<0.001	3.070 (1.654-5.698)	<0.001	3.039 (1.760-5.247)

I

subgroup analysis in patients not receiving adjuvant therapy	DFS		CSS		OS	
	P	aHR (95% CI)	P	aHR (95% CI)	P	aHR (95% CI)
Age, years	0.239	1.019 (0.987-1.052)	0.157	1.031 (0.988-1.076)	0.114	1.032 (0.992-1.073)
Sex, male vs female	0.151	1.647 (0.834-3.253)	0.271	1.672 (0.669-4.180)	0.173	1.800 (0.773-4.192)
ASA grade, ASA3-4 vs ASA1-2	0.491	1.176 (0.741-1.868)	0.665	1.140 (0.630-2.062)	0.843	1.057 (0.612-1.823)
Tumor location						
middle vs upper	0.078	0.551 (0.286-1.064)	0.338	0.641 (0.258-1.593)	0.243	0.615 (0.272-1.390)
lower vs upper	0.067	0.536 (0.275-1.044)	0.601	0.795 (0.317-1.943)	0.354	0.682 (0.304-1.532)
Clinical T stage, cT3-4 vs cT2	0.505	0.763 (0.345-1.687)	0.721	1.253 (0.364-4.312)	0.410	1.671 (0.493-5.665)
Clinical N stage, cN2-3 vs cN0-1	0.69	1.107 (0.673-1.819)	0.445	1.285 (0.675-2.449)	0.721	1.112 (0.619-1.998)
Neoadjuvant therapy, chemoradiotherapy vs immunochemotherapy	0.385	1.295 (0.786-2.052)	0.113	1.700 (0.883-3.276)	0.04	1.915 (1.029-3.564)

Subgroup and Multivariable Cox regression analysis of the impact of neoadjuvant approach on Survival among patients (Fig.G) receiving adjuvant therapy and (Fig.I) not receiving adjuvant therapy

P-005

WITHDRAWN

P-006

PATIENT-REPORTED OUTCOMES OF NEOADJUVANT THERAPY VERSUS SURGERY ALONE FOR RESECTABLE ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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OBJECTIVES
This study aimed to compare the postoperative complications and health-related quality-of-life (HRQoL) for patients with esophageal squamous cell carcinoma (ESCC) who underwent neoadjuvant therapy or surgery alone.

METHODS
We investigated ESCC patients who underwent minimally invasive Mckeown esophagectomy in a single center. Comparing the incidence of postoperative complications in patients. The European Organization for Research and Treatment of Cancer's (EORTC) quality of life questionnaires were used to assess HRQoL before and after surgery. Propensity score matching (PSM) was used to reduce the influence of potential confounding factors.

RESULTS
Overall, 402 eligible ESCC patients were enrolled. After PSM, there were 200 remaining patients, of which 100 underwent neoadjuvant therapy before surgery (group NT), and 100 underwent surgery alone (group S). There were no significant differences in the postoperative complications between the two groups. Before surgery, the physical function(p=0.038) and global quality of life(p=0.001) in Group NT were relatively poor. On the 7th day after surgery, the group NT had poorer role function(p=0.026). Thirty days after surgery, Group S showed better physical function(p=0.003). 180 days after surgery, there were differences in physical(p=0.048), role (0.008), and cognitive(p=0.017) functions between the two groups. However, there was no significant difference in the HRQoL during the postoperative recovery process.

CONCLUSIONS
The longitudinal changes in postoperative HRQoL were about the same in both groups. But at some time, point, patients who underwent neoadjuvant therapy before surgery had a poorer HRQoL.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer, Patient-Reported Outcomes, Neoadjuvant Therapy, Esophagectomy.

Characteristics	Before PSM			After PSM		
	NT(n=147)	nNT(n=255)	p-value	NT(n=100)	nNT(n=100)	p-value
Age, median (range)	61(45-79)	64(41-80)	0.003	63(45-79)	62(46-68)	0.481
Gender, n(%)			0.151			0.845
Male	127(86.4%)	206(80.8%)		85(85.0%)	84(84.0%)	
Female	20(13.6%)	49(19.2%)		15(15.0%)	16(16.0%)	
BMI, median(IQR)	23.12(20.81,24.91)	22.99(20.66,24.65)	0.306	22.82(20.55,24.72)	22.71(20.69,24.66)	0.805
Basic disease			0.573			0.871
Yes	31(21.1%)	60(23.5%)		26(26.0%)	25(25.0%)	
No	116(78.9%)	195(76.5%)		74(74.0%)	75(75.0%)	
Education, n(%)			0.186			0.713
<High school	120(82.2%)	222(87.1%)		81(81.0%)	83(83.0%)	
≥ High school	26(17.8%)	33(12.9%)		19(19.0%)	17(17.0%)	
Smoking history, n(%)			0.119			0.556
Yes	98(66.7%)	150(58.8%)		62(62.0%)	66(66.0%)	
No	49(33.3%)	105(41.2%)		38(38.0%)	34(34.0%)	
Drinking history, n(%)			0.041			0.777
Yes	91(61.9%)	131(51.4%)		53(53.0%)	55(55.0%)	
No	56(38.1%)	124(48.6%)		47(47.0%)	45(45.0%)	
Tumor location, n(%)			0.187			0.097
Upper	17(11.6%)	23(9.0%)		13(13.0%)	11(11.0%)	
Middle	95(64.6%)	150(58.8%)		64(64.0%)	52(52.0%)	
Lower	35(23.8%)	82(32.2%)		23(23.0%)	37(37.0%)	
Clinical stage			<0.001			0.542
I	1(0.7%)	26(10.2%)		1(1.0%)	3(3.0%)	
II	27(18.4%)	103(40.4%)		26(26.0%)	33(33.0%)	
III	92(62.6%)	96(37.6%)		59(59.0%)	45(45.0%)	
IV	27(18.4%)	30(11.8%)		14(14.0%)	19(19.0%)	
cT			<0.001			0.888
T1	1(0.7%)	27(10.6%)		1(1.0%)	3(3.0%)	
T2	8(5.4%)	29(11.4%)		8(8.0%)	9(9.0%)	
T3	113(76.9%)	171(67.1%)		78(78.0%)	71(71.0%)	
T4	25(17.0%)	28(11.0%)		13(13.0%)	17(17.0%)	
cN			<0.001			0.751
N0	27(18.4%)	116(45.5%)		26(26.0%)	28(28.0%)	
N+	120(81.6%)	139(54.5%)		74(74.0%)	72(72.0%)	
Postoperative treatment			<0.001			0.737
Yes	23(16.5%)	80(33.1%)		22(22.0%)	24(24.0%)	
No	116(83.5%)	162(66.9%)		78(78.0%)	76(76.0%)	
ECOG scores, n(%)			0.751			0.856
0-1	124(84.4%)	212(83.1%)		82(82.0%)	81(81.0%)	
2-3	23(15.6%)	43(16.9%)		18(18.0%)	19(19.0%)	

P-007

LONG-TERM EFFICACY OF NEOADJUVANT IMMUNOTHERAPY AND CHEMORADIOTHERAPY PLUS SURGERY FOR THE TREATMENT OF LOCALLY ADVANCED ESOPHAGEAL SQUAMOUS CELL CARCINOMA: THE PALACE-1 CLINICAL TRIAL

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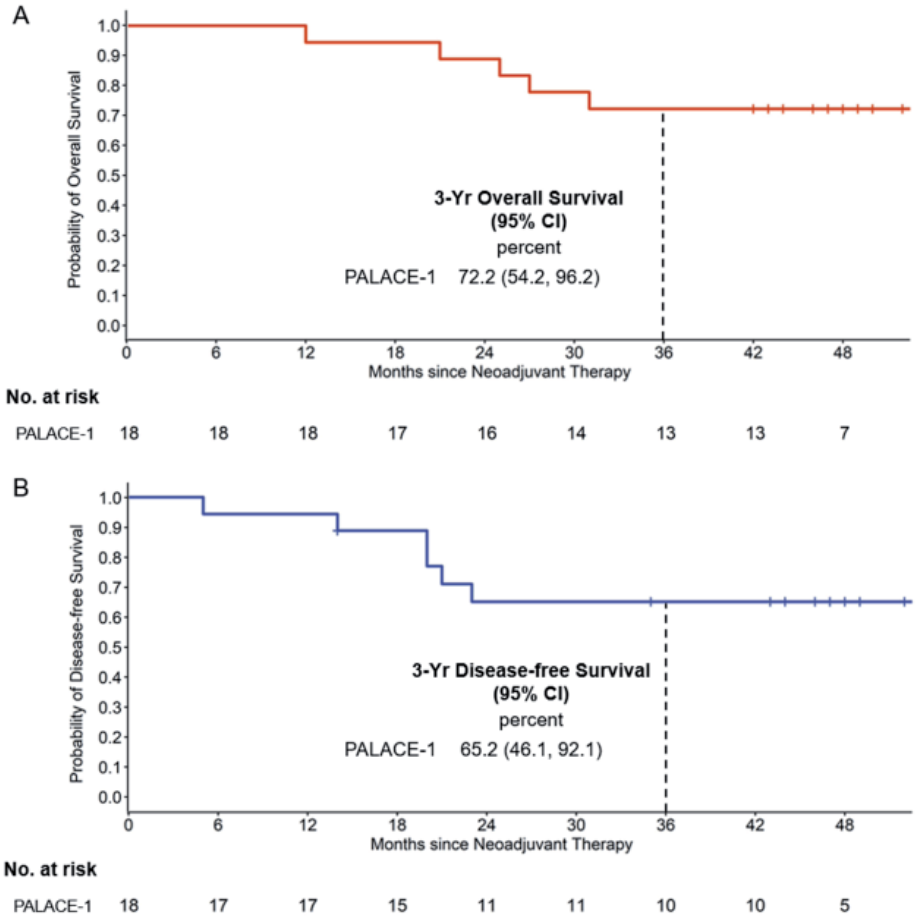
OBJECTIVES
Immune checkpoint inhibitors combined with chemoradiotherapy have shown promising efficacy for the treatment of resectable locally advanced esophageal squamous cell carcinoma (ESCC) in the PALACE-1 trial. However, the long-term efficacy of this combination treatment remains undefined. Here, we report the long-term results of the PALACE-1 trial (ClinicalTrials.gov number, NCT03792347).

METHODS
Patients with resectable locally advanced ESCC (T2-T4a, N0-N+, M0) received preoperative pembrolizumab with concurrent chemoradiotherapy. Preoperative therapy includes carboplatin (area under the curve of 2 mg per milliliter per minute, once a week for 5 weeks), paclitaxel (50 mg/m2, once a week for 5 weeks), radiotherapy (23 fractions of 1.8 Gy, 5 fractions a week) and pembrolizumab (2 mg/kg) on days 1 and 22. Patients underwent surgery within 4-6 weeks after preoperative treatment. The Kaplan-Meier approach was used to calculate overall survival and disease-free survival at 3 years.

RESULTS
From January 2019 to December 2019, 20 patients were enrolled in this study. All patients completed the full regimen, except for one patient who missed the last dose of chemotherapy due to leukopenia. Eighteen patients underwent surgery and the pCR rate was 55.6% (10/18). No patients received adjuvant therapy prior to recurrence. At a median follow-up of 48.0 months (range, 12-54), 5 deaths occurred. All the causes of death among these patients were ESCC associated deaths. Recurrence was observed in 8 (44.4%) patients, with 1 (5.6%) regional recurrence, 6 (33.3%) distant recurrences and 1 (5.6%) mixed recurrence. The median time to recurrence was 20 months (range, 5-23). The 3-year overall survival and 3-year disease-free survival was 72.2% and 65.2%, respectively.

CONCLUSIONS
Neoadjuvant pembrolizumab plus chemoradiotherapy demonstrates satisfactory tumor response rate and long-term efficacy in patients with resectable locally advanced ESCC. The PALACE-2 clinical trial is ongoing to evaluate this combination treatment strategy in a larger group of patients (NCT04435197).

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Immune Checkpoint Inhibitors, Chemoradiotherapy, Long-Term Outcomes.



P-008

SEGMENTECTOMY VERRSUS LOBECTOMY IN NON-SMALL CELL LUNG CANCER SMALLER THAN 2.5 CENTIMETERS (CM): A MULTICENTER, RETROSPECTIVE, NON-INFERIORITY STUDY

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OBJECTIVES

Current studies in early-stage non-small cell lung cancer (NSCLC) have shown that segmentectomy is non-inferior to lobectomy in patients with non-small cell lung cancer smaller or equal to 2 cm. Nevertheless, due to the disparity between radiologically measured tumor diameter and surgical-pathological diameter, performing segmentectomy becomes inevitable for patients with tumors larger than 2 cm. Our aim was to explore whether segmentectomy was non-inferior to lobectomy in patients with NSCLC smaller than 2.5 cm.

METHODS

A total of 290 patients who underwent segmentectomy for N0 NSCLC measuring less than 2.5 cm and 229 patients who underwent lobectomy were analyzed. Primary end point was overall survival. Overall survival was analyzed on an intention-to-treat basis.

RESULTS

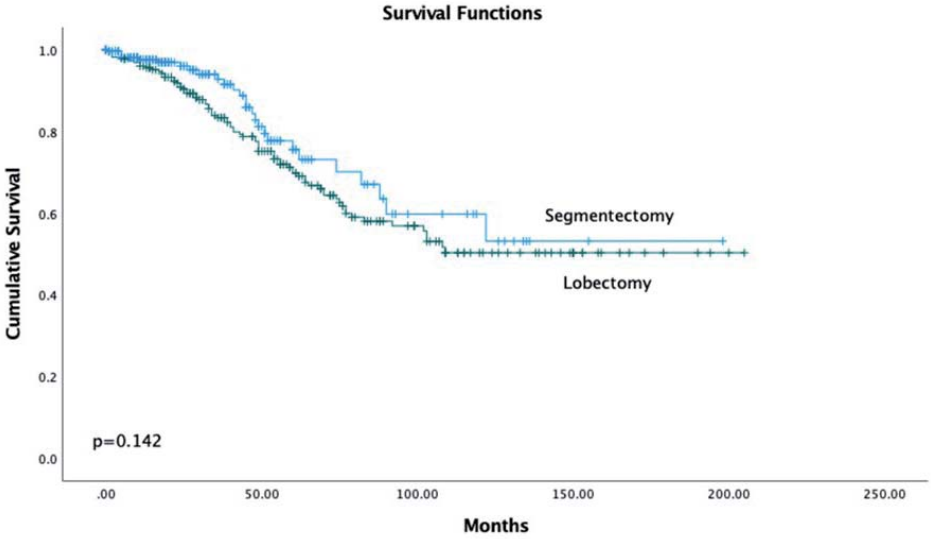
Tumor diameter, surgical margin distance, and hospital stay duration were statistically significantly higher in the lobectomy group ($p<0.001$, $p<0.001$, $p<0.001$, respectively). Five-year survival rates were 90.3% and 66.8% for in segmentectomy and lobectomy groups respectively ($p=0.142$; HR:0.720; 95%CI:0.463-1.120; Figure) Pleural invasion, lymphatic invasion, vascular invasion, surgical margin positivity, presence of STAS and postoperative complications were statistically significantly less in the segmentectomy group ($p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, $p=0.021$, $p=0.007$, respectively). Multivariate analysis revealed that cardiac risk index, pulmonary risk index and pathological diagnosis (adenocarcinoma/non-adenocarcinoma) were found to be independently associated with survival($p=0.016$, HR:0.051, 95%CI:0.004-0.577; $p=0.033$, HR: 0.308, 95%CI:0.104-0.911, $p=0.022$, HR:1.667, 95%CI:1.077-2.580, respectively).

CONCLUSIONS

Segmentectomy is non-inferior to lobectomy in terms of survival in patients with NSCLC smaller than 2.5 cm. Adenocarcinoma histology, pulmonary and cardiac risk indices have an impact on overall survival. The consideration of these parameters is essential in deciding between lobar or sublobar resection.

Disclosure: No significant relationships.

Keywords: Non-Small Cell Lung Cancer, Segmentectomy, Lobectomy.



P-009

STUDY OF SURVIVAL, AFTER LUNG SURGERY, OF PATIENTS WITH BRAIN-SYNCHRONOUS OLIGOMETASTATIC NON-SMALL-CELL LUNG CANCER MANAGED IN FRANCE

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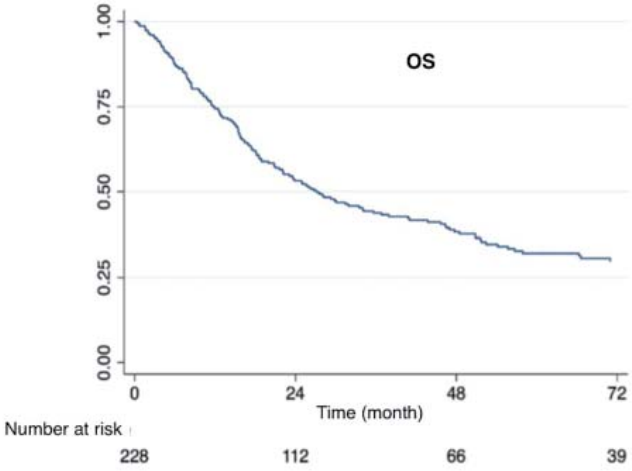
OBJECTIVES
The primary objective of this study is to evaluate the overall survival and recurrence-free survival of patients with brain-synchronous oligometastatic NSCLC who have undergone local management of their brain metastases and their pulmonary primary.

METHODS
Our study is retrospective and multicentric. It was conducted from January 2004 to January 2021 in 17 French thoracic surgery centers. Our study included patients with one or more brain metastases synchronous with the diagnosis of their NSCLC who had undergone curative treatment of their brain metastases, whether by stereotactic radiotherapy, gamma knife or neurosurgery, followed by major pulmonary resection of their primary lung tumor. Excluded from our study were patients without NSCLC, with typical or atypical carcinoid tumors, oligometastatic patients in non-encephalic sites, who had not undergone radical cerebral management, or who had not undergone major pulmonary resection of the lung tumor. Atypical resections were not included.

RESULTS
228 patients met the inclusion criteria. These patients were young (mean age 57.89 years), in good general condition and with few comorbidities. Median overall survival and recurrence-free survival were 27.2 and 11.1 months respectively. 43% of patients had an early recurrence after lung surgery, and the only independent risk factor for early recurrence was pT4 stage (OR: 4.94 [1.06-23.08], p=0.042). Finally, over 16% of patients included in our study did not receive systemic treatment, and a further 6 patients did not receive full systemic treatment.

CONCLUSIONS
Patients treated with local and systemic therapy for brain-synchronous oligometastatic NSCLC see an improvement in their prognosis.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Oligometastasis, Brain Metastasis.


OS
1.00
0.75
0.50
0.25
0.00
0
24
48
72
Time (month)
Number at risk
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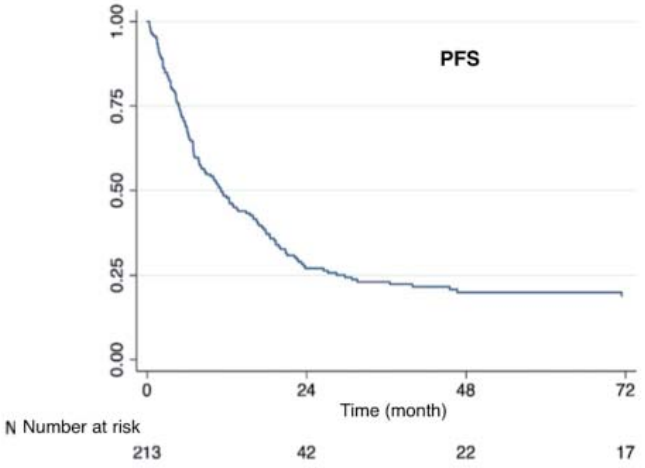
112
66
39


PFS
1.00
0.75
0.50
0.25
0.00
0
24
48
72
Time (month)
N Number at risk
213
42
22
17

P-010

THE IMPACT OF TUMOR DEPOSITS ON ESOPHAGEAL SQUAMOUS CELL CARCINOMA: IMPROVING THE VALUE OF MODERN STAGING

Sikai Wu, Jianfei Shen
Department of Thoracic Surgery, Taizhou Hospital of Zhejiang Province Affiliated to Wenzhou Medical University, Linhai, China

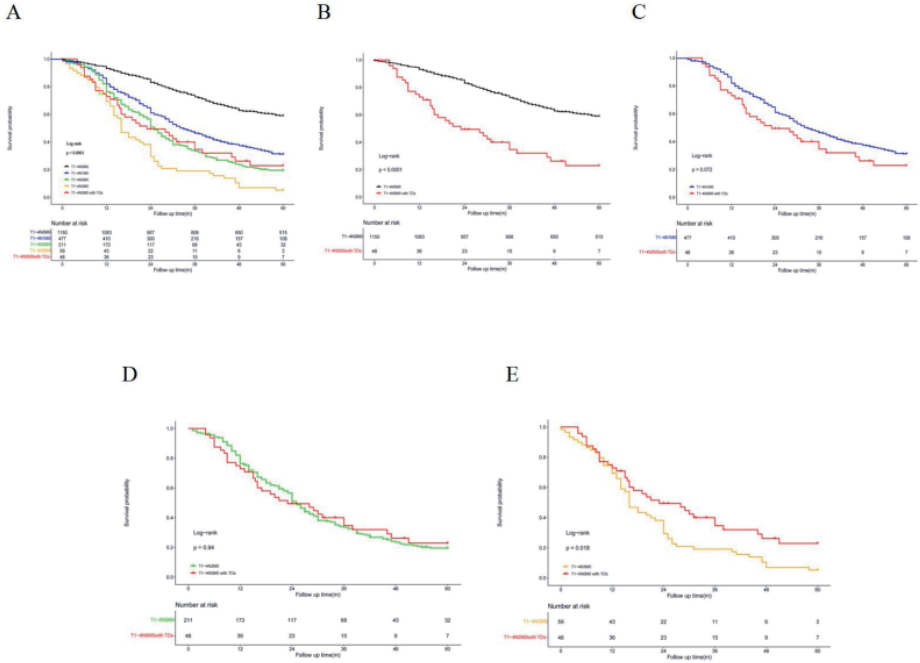
OBJECTIVES
TDs (tumor deposits) are defined as focal aggregates located around organs or away from tumor tissue that are discontinuous from the primary tumor and unrelated to the lymph nodes, which have been found in (ESCC). The impact of TDs on outcomes of ESCC and whether it could help guide follow-up treatment of ESCC is unclear.

METHODS
Two thousand three hundred thirty-two patients with ESCC were retrospectively reviewed from four large medical centers from 2006 to 2016, and the clinicopathological features, prognosis, and risk factors of ESCC patients with TDs and without TDs were evaluated. To investigate the effect of TD on the prognosis of ECSS patients, and distinguish TDs from lymph node metastasis. We defined the TDs group where TDs without lymph node metastasis (T1-4N0M0 with TDs) when comparing TDs-with and TDs-without patients. The prognosis of patients with TDs group (T1-4N0M0 with TDs) and patients without TDs (T1-4N1-4M0 without TDs) were compared.

RESULTS
In the prognostic analysis, there are 1945 patients in the M0 stage were divided into five groups: T1-4N0M0 with TDs patients (n=48), T1-4N0M0 without TDs patients (n=1150), T1-4N1M0 without TDs patients (n=477), T1-4N2M0 without TDs patients (n=211), T1-4N3M0 without TDs patients (n=59). T1-4N0M0 without TDs patients were significantly higher than that of T1-4N0M0 with TDs patients (the 5-year OS rate, 46.9% vs. 7.8%; P = 0.012). Patients who were categorized as T1-4N0M0 with TDs stage had a similar prognosis to T1-4N1M0 (P=0.072) or T1-4N2M0 (P=0.94) patients. The Cox regression analyses show that TDs were associated with worse survival of ESCC.

CONCLUSIONS
TDs should be recognized as an independent prognostic factor for ESCC. The prognosis for patients with TDs without lymph node metastases is similar to that of patients with N1 and N2 lymph node metastases.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma (ESCC), Tumor Deposits (TDs), Prognosis, Risk Factors.


A
B
C
D
E

P-011

INTENSIVE CARE UNIT READMISSION AFTER ESOPHAGECTOMY

Yuxin Yang, Zhichao Liu, Chao Jiang, Kaiyuan Zhu, Boyao Yu, Zhigang Li
Shanghai Chest Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

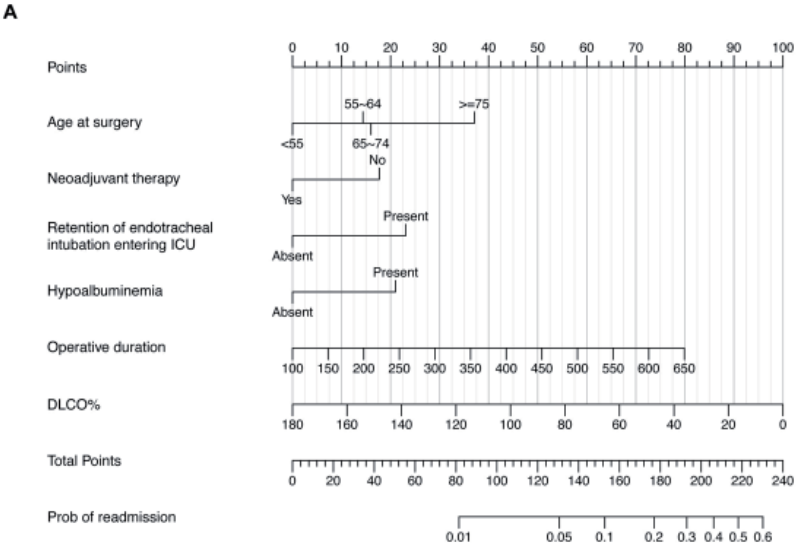
OBJECTIVES
Unplanned readmission to intensive care unit (ICU) after surgery had been demonstrated to worsen perioperative outcomes. Early identification and treatment for patients with higher risk of readmission is crucial. The aim of this study is to investigate risk factors and develop a prediction model for ICU readmission in patients following esophagectomy.

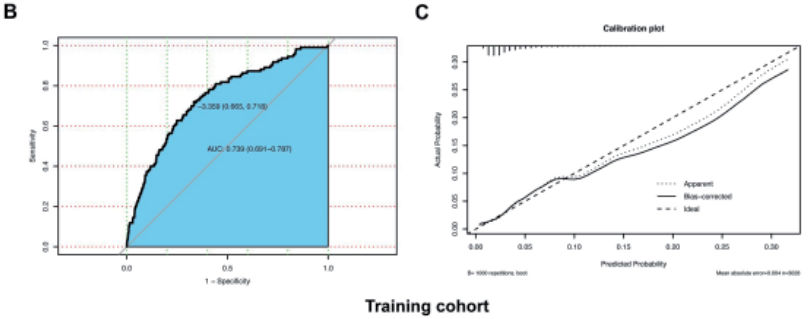
METHODS
A total of 3028 patients were enrolled from 2019.1 to 2022.12 as training cohort, and 829 patients from 2023.1 to 2023.8 were collected as validation cohort. Univariable and multivariable logistic regression analysis were performed to identify risk factors. Thereafter, a nomogram based on results from multivariable analysis was constructed and validated.

RESULTS
In training cohort, the rate of ICU readmission was 3.6% (110/3028). Patients with readmission were associated with worse short-term prognosis, a higher incidence of reoperation, 90-day mortality and prolonged postoperative stay (all P<0.001) were reported. Multivariable logistic regression analysis demonstrated that older age ≥ 75 years, neoadjuvant therapy, preoperative albuminemia, diffusing lung capacity for carbon monoxide (DLCO)%, operative duration and retention of endotracheal intubation when entering ICU were independent risk factors for ICU readmission. Based on these results, a nomogram for prediction was constructed and validated (Figure A). The Hosmer–Lemeshow test showed the model was well calibrated ($x2$=5.259, P=0.730). The area under the receiver operating characteristic curve (AUC) was 0.739 (95% confidence interval [CI]: 0.691-0.787) (Figure B-C). Application of the nomogram in validation cohort showed an improved AUC of 0.780 (95%CI: 0.703-0.857). The decision curve analysis showed the prediction model had superiority when prediction threshold >0.02 (Figure D-E).

CONCLUSIONS
We developed and validated a nomogram predicting ICU readmission for patients following esophagectomy. It provided clinicians an easy-to-use and effective tool for early prediction of potential ICU readmission, as well as supported decision-making around the arrangement of limited critical care resources.

Disclosure: No significant relationships.
Keywords: Critical Care, Readmission, Esophagectomy.


A
Points
0 10 20 30 40 50 60 70 80 90 100
Age at surgery
55~64
>=75
<55
65~74
Neoadjuvant therapy
No
Yes
Retention of endotracheal intubation entering ICU
Present
Absent
Hypoalbuminemia
Present
Absent
Operative duration
100 150 200 250 300 350 400 450 500 550 600 650
DLCO%
180 160 140 120 100 80 60 40 20 0
Total Points
0 20 40 60 80 100 120 140 160 180 200 220 240
Prob of readmission
0.01 0.05 0.1 0.2 0.3 0.4 0.5 0.6


B
C
Calibration plot
Apparent
Bias–corrected
Ideal
Actual Probability
Predicted Probability
Training cohort
D
E
Nomogram
All
None
Standardized Net Benefit
High Risk Threshold
Cost:Benefit Ratio
Validation cohort

P-012

BENEFITS OF ROUTINE PHARYNGEAL AND LARYNGEAL ENDOSCOPIC SCREENING IN PATIENTS WITH ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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[1]*Shanghai Chest Hospital, Shanghai, China*
[2]*Fudan university affiliated eye ear nose and throat hospital. otorhinolaryngology department, Shanghai, China*

OBJECTIVES

To evaluate the benefits of routine pharyngeal and laryngeal endoscopic screening in patients with esophageal squamous cell carcinoma.

METHODS

Between January 2018 and June 2023, a total of 5237 patients diagnosed with esophageal squamous cell carcinoma who underwent esophagogastroduodenoscopy were consecutively enrolled. All patients underwent endoscopic screening of the pharynx and larynx region by white-light endoscopy and narrow-band imaging after 1 July 2019. Primary outcome was the detection rate and overall survival of patients with second primary cancers of pharynx and larynx before and after the policy.

RESULTS

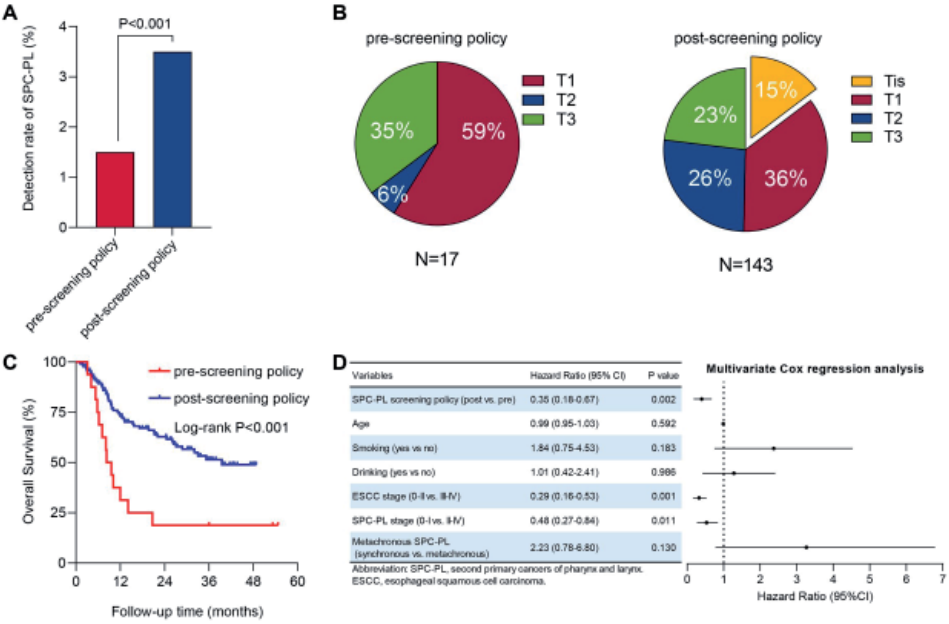
3.1% patients (160/5237) were detected with second primary cancers of pharynx and larynx, leading to the treatment plan change in 80.6% (129/160) of these patients. The percentage of second primary cancers located in oropharynx, hypopharynx and larynx were 3.1% (5/160), 92.5% (148/160) and 4.4% (7/160), respectively. Before and after the screening policy, detection rate of second primary cancers of pharynx and larynx significantly increased from 1.5% (17/1134) to 3.5% (143/4103) (Figure A, P<0.001). Percentage of stage 0-II second primary cancers were 65% and 77% (Figure B), respectively. The screening policy was associated with improved survival (Figure C, P<0.001) and the 2-year-overall-survival rate of patients with second primary cancers of pharynx and larynx before and after the policy was 20% and 62.7%, respectively. The Cox regression model demonstrated that the routine pharyngeal and laryngeal endoscopic screening policy was an independent prognostic factor (Figure D, Hazard Ratio: 0.35, 95% CI: 0.18-0.67) when adjusting for other clinical factors.

CONCLUSIONS

Routine pharyngeal and laryngeal endoscopic screening is a convenient and effective way to benefit patients with esophageal squamous cell carcinoma through better detection of second primary cancers of pharynx and larynx.

Disclosure: No significant relationships.

Keywords: Esophageal Squamous Cell Carcinoma, Second Primary Cancer, Pharyngeal Cancer, Laryngeal Cancer, Endoscopic Screening.



Variables	Hazard Ratio (95% CI)	P value
SPC-PL screening policy (post vs. pre)	0.35 (0.18-0.67)	0.002
Age	0.99 (0.95-1.03)	0.592
Smoking (yes vs no)	1.84 (0.75-4.53)	0.183
Drinking (yes vs no)	1.01 (0.42-2.41)	0.986
ESCC stage (0-II vs. III-IV)	0.29 (0.16-0.53)	0.001
SPC-PL stage (0-I vs. II-IV)	0.48 (0.27-0.84)	0.011
Metachronous SPC-PL (synchronous vs. metachronous)	2.23 (0.78-6.80)	0.130

Abbreviation: SPC-PL, second primary cancers of pharynx and larynx. ESCC, esophageal squamous-cell carcinoma.

Figure A. Detection rate before and after the screening policy for SPC-PL.
Figure B. Distribution tumor (T) stage of SPC-PL before and after the screening policy for SPC-PL.
Figure C. K-M survival curve before and after the screening policy for SPC-PL.
Figure D. Multivariate analysis Cox regression model

MONDAY 27 MAY 2024
MODERATED POSTER SESSION
17:00 – 18:00

P-013

A COMPARISON BETWEEN HIGH MORTALITY RISK GENES IN LUNG ADENOCARCINOMA AND PROGRESSION FREE INTERVAL (PFI) GENES IN LUNG CANCER ADENOCARCINOMA (LUAD) AND LUNG CANCER SQUAMOUS CELL (LUSC): A LARGE TCGA POPULATION ANALYSIS

Beatrice Aramini[1], Federico Banchelli[2], Valentina Masciale[3], Massimo Dominici[4], Adriano Zaghi[5], Daniele Dall'Olio[5], Gastone Castellani[5], Franco Stella[1]

[1]*Division of Thoracic Surgery, Department of Medical and Surgical Sciences - DIMEC of the Alma Mater Studiorum - University of Bologna, GB Morgagni - L Pierantoni Hospital, Forlì, Italy*

[2]*Department of Statistical Sciences, University of Bologna, Bologna, Italy*

[3]*Laboratory of Cellular Therapies, Department of Medical and Surgical Sciences for Children and Adults, University of Modena and Reggio Emilia, Modena, Italy*

[4]*Division of Oncology and Laboratory of Cellular Therapies, Department of Medical and Surgical Sciences for Children and Adults, University of Modena and Reggio Emilia, Modena, Italy*

[5]*Applied Physics Unit, Department of Medical and Surgical Sciences - DIMEC of the Alma Mater Studiorum - University of Bologna, Bologna, Italy*

OBJECTIVES

In 2015 a molecular expression signature [cell cycle progression (CCP) score] has been validate by Bueno et al. to identify patients with a higher risk of cancer-related death after surgical resection of early stage (I-II) lung adenocarcinoma. Aim of our study is to define if the same 31 genes have an impact on LUAD and LUSC progression free interval (PFI), not only in early but also in locally advanced stages.

METHODS

We retrospectively analyzed the association between the expression of 31 previously identified recurrence-related cell cycle genes and PFI. Data have been extracted from TGCA database including 741 patients from stage I to stage III affected by LUAD and LUSC. Results were reported as the hazard ratio (HR) related to a 1-unit increase in genes' FPKM-UQ, based on sex- and age-adjusted robust Cox analysis stratified by clinical stage. Statistical significance was set at $p < 0.05$.

RESULTS

741 patients were analyzed. For LUAD and LUSC patients in stage I, the genes most associated with PFI are DTL (HR=1.39, p=0.0005) and CDK1 (HR=1.27, p=0.0475), respectively. For

stage II patients, no gene was associated to PFI. For stage III patients, the most associated gene is PTTG1 (HR=2.08, p=0.000 and HR=2.14, p=0.0000, respectively).

CONCLUSIONS

In this study we show for the first time the most expressed genes which may have a huge impact on progression free interval (PFI) in LUAD and LUSC. This would highlight the most "sensible" genes which may need to be further investigated as "protective" against cancer.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Mortality, Adenocarcinoma, TCGA.

P-014

SIT UP STRAIGHT! THE IMPORTANCE OF GOOD POSTURE IN SURGICAL PERFORMANCE OF ROBOTIC ASSISTED THORACIC SURGERY

Ahmed G Elkhouly[1], Gowthanan Santhirakumaran[2], Ben Shanahan[2], Al-Rhan Dhanji[2], Ilecia Baboolal[2], Kire S Temov[2], Tim Batchelor[2], Henrietta Wilson[2], David Waller[2], Steven Stamenkovic[2], Kelvin Lau[2]
[1]*Cardiothoracic surgery department, Tanta University, Tanta, Egypt*
[2]*Department of Thoracic Surgery, Barts Thorax Centre, St Bartholomew's Hospital, London, United Kingdom*

OBJECTIVES
Motion tracking tools have been used in the analysis of surgeons' technical expertise and posture in simulated endoscopic surgery. But its use in human in vivo robotic thoracic surgery is limited. We have therefore analysed the effect of surgeons' ergonomics on skill metrics for vascular dissection during anatomical pulmonary resection and the effect of surgical experience on these parameters.

METHODS
In a prospective study of vascular dissection and division during segmentectomy or lobectomy we analysed the intergroup differences of those with more than (group 1) and less than (group 2) 100 robotic resections. The rapid upper limb assessment (RULA) scale was used to estimate ergonomic risk. Operative performance and posture for RULA were measured using the Kinovea-0.9.5 system. Path length of moving instruments, instrument speed, time for task completion, and duration of instruments out of vision were calculated to assess operator skill and performance.

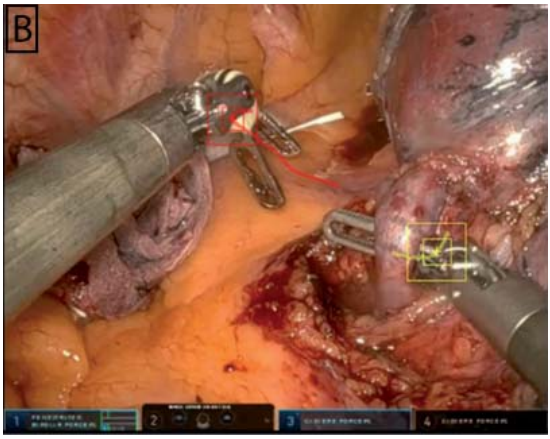
RESULTS
Group 1 (expert) comprised 2Male:1Female, age 42- 61 years, Group 2 (novice): 4Male, age 31- 52 years. 67 patients underwent robotic anatomical resection using the da Vinci Xi, with 180 pulmonary vessels isolations and divisions (Group-1=95 vs Group-2=85). Group-1 had significantly better RULA ergonomic scores (4.3 vs 4.7, $p<0.05$) which were associated with higher speed of (2.8±0.8cm/sec vs 2.1±0.2cm/sec, $p<0.05$); shorter task completion time (387±277sec vs 520±322, $p=0.004$) and shorter duration of instruments out of vision ($p<0.05$). There was no difference in path length ($p=0.9$). (Image1).

CONCLUSIONS
Video motion tracking software is an effective and unobtrusive method to evaluate surgical ergonomics and performance in robotic surgery. Better ergonomics were associated with increased surgical experience and resulted in improved surgical performance. Their duration of attainment and subsequent effect on surgical longevity remains to be determined.

Disclosure: No significant relationships.
Keywords: RATS, Motion Tracking, Ergonomics, Surgical Performance, Pulmonary Resection.

A	Group 1 (expert) 3 surgeons	Group 2 (novice) 4 surgeons	p-value
Type of resection: -lobectomy -segmentectomy	 15 19	 11 22	 - -
Number of divided vessels	95	85	0.5
Path length (cm) mean±SD	1066±678	1071±674	0.95
Time (sec) mean±SD	387±277	520±322	0.004
Speed (cm/sec) mean±SD	2.8±0.8	2.1±0.2	<0.05
Instruments out of field (sec) mean±SD	37±27	67±47	<0.05
RULA score mean±SD	4.3±0.4	4.7±0.7	<0.05

Rapid upper limb assessment score (RULA)



P-015

DOES THE USE OF INTRAOPERATIVE NASOGASTRIC TUBE DURING ROBOTIC THORACIC SURGERY REDUCE THE RISK OF POSTOPERATIVE GASTROINTESTINAL AND RESPIRATORY COMPLICATIONS?

Sara Volpi, Federico Femia, Giulia Fabbri, Arthur Streit, Alex Smith, George Christodoulides, Craig Johnstone, Tom Routledge, Andrea Billè
Guy's and St Thomas' Hospital, London, United Kingdom

OBJECTIVES
Gastrointestinal (GI) complications are the second commonest cause of mortality after respiratory in patients undergoing thoracic surgery. As well as primary GI complications, reduced GI motility may lead to aspiration. Intraoperative inflation of CO2 during robotic thoracic surgery may increase these risks. The aim of this study is to determine the effect of intraoperative nasogastric tube(iNGT) on the incidence of postoperative GI and respiratory complications in patients undergoing robotically assisted anatomical lung resection.

METHODS
We retrospectively analysed all patients undergoing robotically assisted anatomical lung resection at a single centre between 2017 and 2022. iNGT was used upon anaesthesiologist's practice. Comparison of means was undertaken using student's T-Test or Mann Whitney U test and categorical data using chi squared test. A multivariable logistic regression model was constructed to assess the association of iNGT insertion and respiratory/GI complications after adjusting for co-variables.

RESULTS
Between 2017 and 2022, 718 patients met the study entry criteria. 450 (63%) of patients had an iNGT inserted (group A) and 268 (37%) did not (group B). The incidence of GI complications (ileus, pseudo-obstruction, bowel ischaemia and bowel obstruction) was 1.8% in group A and 10% in group B ($p<0.0001$). The incidence of respiratory complications (pneumonia, sputum retention, atelectasis) was 19.3% in group A and 18.7% in group B ($p=0.82$). After adjusting for age, gender, transfer factor, BMI and laterality of surgery, the odds ratio of developing a gastrointestinal complication was 5.85 (95% CI 2.57-13.30, $p<0.001$) times higher in group B (no iNGT). There was no difference in the odds ratio of respiratory complication between the two groups.

CONCLUSIONS
In our series, after adjusting for age, BMI, gender, transfer factor and surgical laterality, iNGT insertion was associated with a significantly lower incidence of postoperative GI complications but was not associated with a change in the incidence of post-operative respiratory complications.

Disclosure: No significant relationships.
Keywords: Robotic Thoracic Surgery, Intra-Abdominal Complications, Gastrointestinal Complications, Aspiration Pneumonia, Ileus.

Table 1

	Patients with iNGT (n=450) Group A	Patients without iNGT (n=268) Group B	P value
Age (years)	69 (SD 10)	70 (SD 10)	0.04
Gender	Male 186 (41%) Female 264 (59%)	Male 102 (38 %) Female 166 (62%)	0.35
Preop FEV1 (%)	92% (IQR 77 - 109)	89% (IQR 74 - 104)	0.30
Preop TLCO (%)	76% (IQR 63 – 88)	76% (IQR 63 - 88)	0.54
Laterality	Right: 264 Left: 186	Right: 162 Left: 106	0.64
BMI	27 (SD 6)	28 (SD 6)	0.006
GI complications	8 (1.8%)	27 (10%)	<0.0001
Respiratory complications	87 (19.3%)	50 (18.6%)	0.82
30-day mortality	7 (1.6%)	1 0.4%)	0.14

P-016

NEOADJUVANT CHEMOTHERAPY IN SQUAMOUS CELL CARCINOMA OF ESOPHAGUS AND EGJ: A RANDOMISED CONTROLLED TRIAL COMPARING CDDP+5FU WITH PACLITAXEL+CARBOPLATIN

Naveen Kumar, Amitabh Mondal, Sandeep Bhoriwal, Svs Deo, Atul Sharma, Raja Pramanik, Sushmita Pathy, Rakesh Kumar, Sunil Kumar
All India Institute Of Medical Sciences, New Delhi, India

OBJECTIVES

1. To assess the disease-free survival and overall survival following two chemotherapy regimens 5FU+Cisplatin and paclitaxel and carboplatin in squamous cell carcinoma of esophagus.
2. To assess the operability rate, and pathological complete response.

METHODS

Squamous cell carcinoma of the esophagus and GE junction were randomized to either 5FU+Cisplatin or Paclitaxel and carboplatin. Response assessment was done after three cycles of NACT using PERCIST criteria. Operable patients on imaging had been taken for surgery, and those who were inoperable were offered definitive chemoradiation.

RESULTS

A total of 126 patients were randomized to 5FU+CDDP (Arm-1, n=63), and TP (Arm-2, n=63). Finally, 106 patients (arm-1, n=51, arm-2, n=55) received NACT as per protocol and were included in final analysis. After NACT, complete and partial response rates were 7.8% in arm-1, 10.9% in arm-2, and 58.8% in arm1, 65.5% in arm-2 respectively (p=0.373). The overall operability rate was 62.86% without any difference between the arms (p=0.516). The complete pathological response was noted in 20% of patients without any differences between the arms (p=0.688). After a median follow-up of 20.5 months, 23 patients (34.3%) developed recurrence without any differences between the arms (p=0.4). Systemic and locoregional recurrence rates were 36%. Disease free survival (DFS) for arm-1, and arm-2 were 39.138 months (95%CI-32.1-46.1), and 39.5 months (95%CI- 32.2-46.7) respectively without any difference (p=0.7). Median overall survival for arm-1, and arm-2 were 40.1 and 48.3 months respectively. No significant differences were found between the arms (p=0.883).

CONCLUSIONS

Neoadjuvant chemotherapy in the squamous cell carcinoma of the esophagus is a potential option, especially in resource constraint centers. Both regimens are acceptable without significant differences in the outcome. However, further study with a bigger sample size is warranted to establish the role of NACT in esophageal cancer.

Disclosure: No significant relationships.
Keywords: SCC, Neoadjuvant, Chemotherapy, Esophagus.

P-017

MULTI-OMICS ANALYSIS OF B-HYDROXYBUTYRYLATED(KBHB) AND/ OR PHOSPHORYLATED MODIFICATION OF ONE-LUNG VENTILATION PRECONDITION AGAINST ONE-LUNG VENTILATION INJURY

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Nanfang Hospital, Southern Medical University, Guangzhou, China

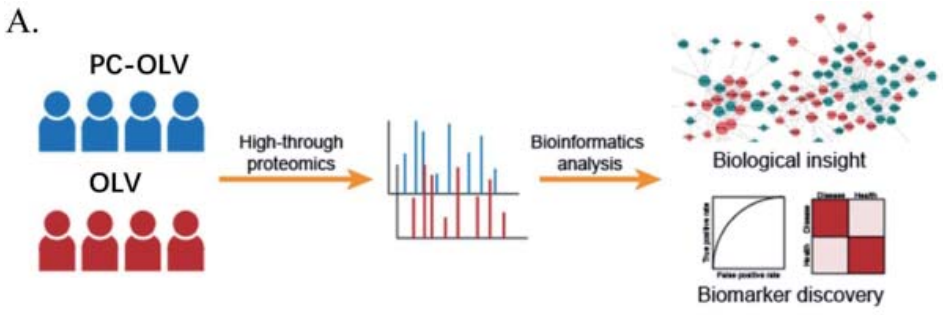
OBJECTIVES
One-lung ventilation precondition (PC) has been shown to be protective against one-lung ventilation injury in previous studies. β-Hydroxybutyrylation (Kbhb) as a novel post-translational modification whose regulatory mechanism is closely associated with the pathogenesis of metabolic diseases, while phosphorylation modification is one of the most common and essential protein translational modifications, and gaps remain in regarding the mechanism of interaction between the two modifications in the protective effect of ischemic preconditioning. Potential crosstalk proteins at play were searched for by comparing β-hydroxybutyrylation (Kbhb) and phosphorylation modifications in the one-lung ventilation group (OLV) and the one-lung ventilation group after one-lung ventilation precondition (PC_OLV).

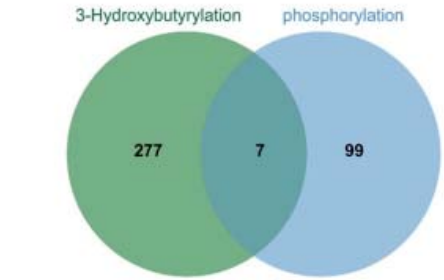
METHODS
Sprague-Dawley rats were randomly divided into 2 groups (n = 8): OLV (1h OLV and then 3h of double lung mechanical ventilation), PC _OLV (consist of 3 cycles' PC before OLV, 10min per PC). Detection of β-hydroxybutyrylation-modified or phosphorylation-modified peptides and proteins of OLV and PC_OLV using quantitative proteomics analysis. Protein-protein interaction networks were analyzed using the STRING database. Potential targets were subjected to functional annotation such as Gene Ontology (GO) functional enrichment and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analyses.

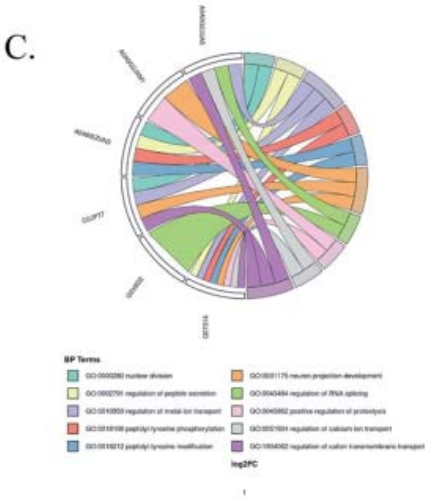
RESULTS
By performing quantitative proteomics analysis and Sample quality control (QC) of the two groups, we clarified the crosstalk between the two groups' differentially expressed proteins（DEPs） ($p < 0.05$) (Fig, A-C). Further analysis of the crosstalk proteins revealed that they were mainly associated with cell junctions, regulation of metal ion transport, RNA splicing, nuclear division, and secretion of regulatory peptides.

CONCLUSIONS
Together, our findings bridge newly identified β-hydroxybutyrylation with phosphorylation modifications, thus providing novel insights into epigenetic regulation in human.

Disclosure: No significant relationships.
Keywords: Multi-Omics, ß-Hydroxybutyrylated,One-Lung Ventilation Precondition, One-Lung Ventilation Injury.


A.
PC-OLV
OLV
High-through proteomics
Bioinformatics analysis
Biological insight
Biomarker discovery


B.
3-Hydroxybutyrylation
phosphorylation
277
7
99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P-018

RATE OF EARLY RESTENOSIS AFTER TRACHEAL RESECTION IN PATIENTS POST- CORONAVIRUS-19 (COVID-19) INFECTION: A MULTICENTER REAL-LIFE STUDY

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OBJECTIVES
The recent SARS-CoV-2 pandemic increased the number of patients requiring invasive ventilation through prolonged intubation or tracheostomy, with higher reported incidence of tracheal stenosis. Few studies have analyzed the surgical outcome in this subset of patients submitted to tracheal resection and anastomosis in order to define if it is different from results reported in tracheal stenosis before COVID-19 era. This study aimed to evaluate postoperative complications, recurrence/restenosis rates and need for reintervention in a multi-center real-life setting.

METHODS
Prospective, observational, multicenter study enrolling patients with an history of prolonged invasive mechanical ventilation due to SARS-CoV-2 infection who underwent tracheal/laryngotracheal resection/anastomosis. In-hospital mortality, postoperative complication rate and the prevalence of restenosis were assessed.

RESULTS
Between June 2020 and December 2023, 90 patients in 5 high-volume thoracic surgery Centers were submitted to tracheal (n=82) or laryngo-tracheal (n=8) resection/anastomosis for a stenosis related to COVID-19 infection. The median age at surgery time was 58.4±11.5 years, male sex was predominant 56/90 (62%). Etiology was post-intubation in 17 (19%) and post-tracheostomy in 73 (81%) (percutaneous 26, surgical 47). Mean intubation time before stenosis development was of 20.0±29.4 days; mean decannulation time was 38.5±44.9 days. Thirty-two (35%) patients were operated after single (n=20), 2 (n=5) or ≥3 (n=7) endoscopic treatment failure, 58 (65%) received upfront surgery. Major and minor complication rates were 6.6% and 16.6%, respectively. Prevalence of restenosis during a mean follow-up period of 18.8±11.3 months was 8.8% (8/90) with a mean time of occurrence of 34.2±26.0 days. Restenosis required endoscopic dilatation in 4 cases of whom 1 was followed by stent placement and tracheostomy in 3 patients.

CONCLUSIONS

In high volume Centers tracheal resection/anastomosis for stenosis after COVID-19 infection is associated with relatively low recurrence and major complications rates. Restenosis may have an early occurrence, thus suggesting a close follow-up after surgery for its optimal management.

Disclosure: No significant relationships.
Keywords: Tracheal Resection, Laryngotracheal Resection, COVID-19 Tracheal Stenosis, Restenosis After Tracheal Surgery, Airway Surgery.

P-019

ASSOCIATION BETWEEN IMAGING MORPHOLOGY AND PROGNOSIS IN PATIENTS UNDERGOING RESECTION FOR PULMONARY METASTASES OF COLORECTAL CANCER

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OBJECTIVES
Metastatic lung tumors often display clear boundaries from normal lung tissue; however, some present with blurred margins and require differentiation from primary lung cancer. Additionally, lung cancers with ground-glass nodules have a better prognosis than those with solid nodules. Our study aimed to investigate the correlation between tumor shape and prognosis in patients with recurrent colorectal cancer with lung metastases treated with curative resection.

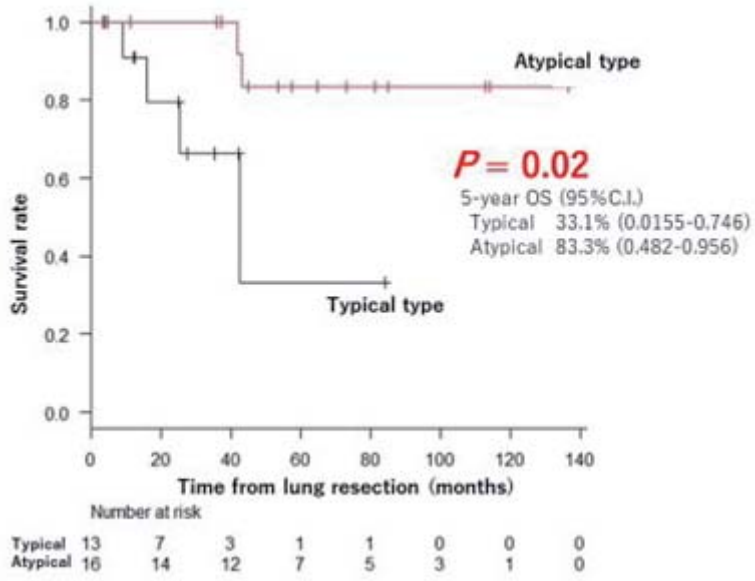
METHODS
We retrospectively analyzed 219 patients who underwent curative resection for colorectal cancer with lung metastasis from January 2006 to November 2022. Tumors were categorized into two groups: typical type with a clear circular or lobulated boundary resembling metastatic lung tumors, and atypical type with an unclear boundary resembling primary lung cancer. They were evaluated using preoperative computed tomography and analyzed using clinical factors.

RESULTS
The following are our findings: male/female 128/91, median age 70, primary sites in the colon/rectum 103/116, partial resections/ lobectomies 152/67, patients with solitary lung metastases/multiple metastases 171/48, and typical/atypical tumor morphology 164/55. Besides, high preoperative CEA levels were observed in 34 patients and high CA19-9 levels in 9 patients, whereas 55, 49, and 76 patients had previous liver metastases, received preoperative chemotherapy, and received postoperative chemotherapy, respectively.
The 5-year survival rate post lung resection was 65.1% (colon cancer/rectal cancer 66.2%/63.7%; P=0.642), with a median follow-up of 113.9 months. The atypical tumor morphology group showed better prognosis than the typical tumor morphology group (5-year survival rate: typical/atypical 61.3%/78.8%, P=0.09). Propensity score matching analysis confirmed a more favorable prognosis in atypical than in typical tumor morphology (5-year survival rate: typical/atypical 33.1%/83.3%, P=0.02).

CONCLUSIONS
Lung resection remains a crucial option for treating colorectal cancer with lung metastasis, with 5-year survival rates similar to those reported previously. Notably, atypical tumor morphology in lung metastasis from colon cancer is associated with better prognosis.

Disclosure: No significant relationships.

Keywords: Colorectal Cancer with Lung Metastasis, Tumor Morphology, Computed Tomography.



P-020

PERIOPERATIVE RISKS IN UNDIAGNOSED SLEEP-DISORDERED BREATHING: CARBON NANOTUBE SENSOR FEASIBILITY STUDY

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OBJECTIVES

Sleep-disordered breathing escalates perioperative risk, and anesthesia can exacerbate sleep apnea, yet a considerable number of patients remain undiagnosed during the perioperative period. Although polysomnography (PSG) is the gold standard for the diagnosis of sleep disorder, its limitations include a high cost and impracticality for postoperative patients equipped with chest drains. In collaboration with YAMAHA Corporation, we have developed a carbon nanotube (CNT) sensor for facile monitoring of chest movements. This study aimed to evaluate the feasibility of CNT sensors and delineate the correlation between abnormal postoperative breathing and postoperative complications in thoracic surgery.

METHODS

For subjects undergoing anatomic lung resection without a prior diagnosis of obstructive sleep apnea, thoracic motion was continuously recorded utilizing a CNT sensor from immediately post-surgery until the initial postoperative day. Abnormal breathing identified by CNT censors was defined as a drop in the peak sensor signal by ≥30% from that in the pre-event baseline, adhering to the diagnostic criteria for obstructive apnea or hypopnea outlined in AASM guidelines. Hospital records were reviewed to assess the incidence and type of postoperative complications.

RESULTS

A total of 86 subjects were enrolled, with 41 patients exhibiting abnormal breathing detected by CNT sensors. Postoperative abnormal breathing correlated significantly with increased incidence of postoperative prolonged air leak (OR, 3.0; $P = 0.03$) and respiratory complications (OR, 7.5; $P < 0.001$). Multivariate analysis disclosed a significant correlation between the occurrence of postoperative prolonged air leak and respiratory complications with abnormal breathing ($P = 0.025$ and 0.001, respectively) and comorbidities such as chronic obstructive pulmonary disease or Interstitial Pneumonia ($P = 0.01$ and 0.049, respectively).

CONCLUSIONS

CNT sensors demonstrated an aptitude for discerning latent sleep disorders, a predictive factor for postoperative complications following thoracic surgery.

Disclosure: YAMAHA corporation, company research grant.
Keywords: Sleep-Disordered Breathing, Carbon Nanotube Sensor, Postoperative Complication, Thoracic Surgery.

P-021

AUTOMATED COMPUTED TOMOGRAPHY (CT) QUANTIFICATION OF INTERSTITIAL LUNG ABNORMALITY IN PATIENTS WITH RESECTABLE STAGE I LUNG CANCER: PROGNOSTIC SIGNIFICANCE

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OBJECTIVES
In patients with non-small cell lung cancer (NSCLC), interstitial lung abnormalities (ILA) have been linked to mortality and can be identified on computed tomography (CT) scans. To evaluate the predictive value of automatically quantified interstitial lung abnormalities (ILA) based on the Fleischner Society's definition in patients with stage I non-small cell lung cancer (NSCLC).

METHODS
948 patients (ILA; n=99, normal; n=849) with pathologic stage I NSCLC who had pulmonary resections performed between April 2009 and October 2022 were reviewed retrospectively. The commercially available deep-learning-based automated quantification program for ILA was used to evaluate preoperative CT data. The Fleischner Society's definition, quantitative results, and interdisciplinary discussion led to the division of patients into normal and ILA groups; sum of the fibrotic and non-fibrotic ILA components is the total ILA component and more than 5%.

RESULTS
Of the 948 patients with stage I NSCLC, 99 patients (10.4%) had ILA. Shorter overall survival (OS) and recurrence-free survival (RFS) was linked to the existence of ILA(Fig 1). After controlling for confounding variables, the presence of ILA remained significant for increased risk of death (HR = 3.09, 95% confidence interval [CI] 1.91-5.00, P < 0.001) and the presence of ILA remained significant for increased recurrence (HR = 1.96, 95% CI 1.16-3.30, P=0.012) (table 1).

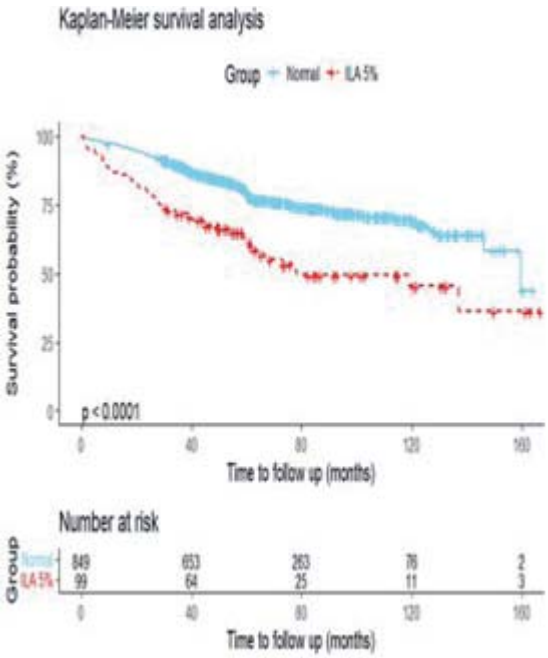
CONCLUSIONS
The automated CT quantification of ILA based on the Fleischner Society definition was substantially linked with poorer survival and recurrence in stage I NSCLC.

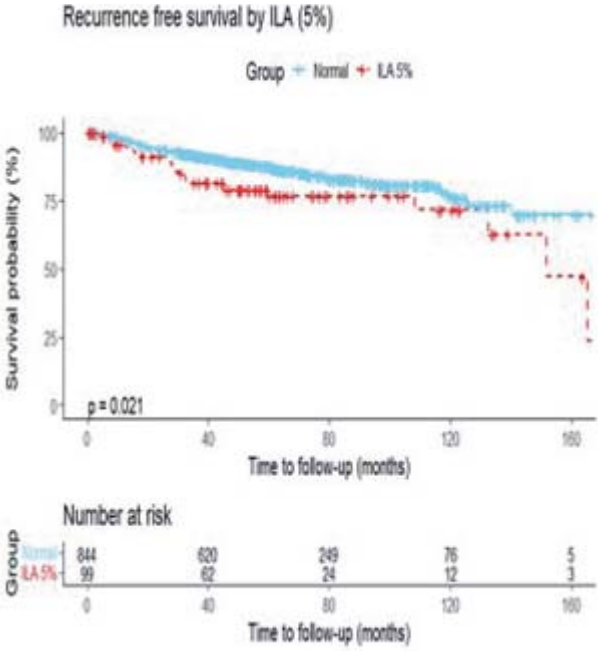
Disclosure: No significant relationships.
Keywords: Deep Learning; Lung Cancer, Interstitial Lung Abnormality, Computed Tomography.

Table 1. Univariable and multivariable hazard ratio (HR) of risk factors associated with recurrence free survival (RFS) in the Cox proportional hazards model

	Univariable HR (95% CI)	P-value	Multivariable HR (95% CI)	P-value
Sex				
- Female	Reference		-	-
- Male			1.32 (0.78-2.24)	0.302
Age	1.02 (1/00-1/04)	0.042	1.00 (0.9-1.03)	0.557
BMI	0.97 (0.92-1.03)	0.395	0.96 (0.90-1.02)	0.205
Ex/current Smoker	1.54 (1.08-2.20)	0.018	1.25 (0.76-2.04)	0.379
Respiratory Disease	1.54 (0.91-2.61)	0.111	1.36 (0.79-2.04)	0.271
Cerebrovascular Disease	1.43 (0.64-3.20)	0.399	1.73 (0.75-3.96)	0.788
Cardiovascular Disease	1.09 (0.64-1.89)	0.743	1.08 (0.62-1.88)	0.738
Liver Dysfunction	1.31 (0.53-3.26)	0.558	1.14 (0.45-2.87)	0.789
Renal Dysfunction	2.38 (0.90-6.29)	0.081	2.20 (0.82-5.95)	0.107
Hypertension	1.56 (1.11-2.25)	0.011	1.62 (0.53-1.31)	0.015
DM	1.08 (0.71-1.64)	0.733	1.21 (0.77-1.90)	0.404
Previous Cancer History	1.19 (0.74-1.91)	0.470	1.27 (0.78-2.07)	0.330
Pathologic Type				
- ADC	Reference			
- SCC	1.43 (0.95-2.17)	0.090	1.18 (0.47-2.95)	0.726
- Others	0.95 (0.39-2.30)	0.906	1.23 (0.47-3.23)	0.675
ILA (5%)	1.88 (1.4-3.09)	0.013	1.96 (1.16-3.30)	0.012

CI: confidence interval, HR: hazard ratio, ILA: interstitial lung abnormality, DM: diabetes mellitus, ADC: adenocarcinoma, SCC: squamous cell cancer


Kaplan-Meier survival analysis
Group Normal ILA 5%
Survival probability (%)
100
75
50
25
0
p < 0.0001
0
40
80
120
160
Time to follow up (months)
Number at risk
Group
Normal 849 653 263 76 2
ILA 5% 99 64 25 11 3
0
40
80
120
160
Time to follow up (months)


Recurrence free survival by ILA (5%)
Group Normal ILA 5%
Survival probability (%)
100
75
50
25
0
p = 0.021
0
40
80
120
160
Time to follow-up (months)
Number at risk
Group
Normal 844 620 249 76 5
ILA 5% 99 62 24 12 3
0
40
80
120
160
Time to follow-up (months)

P-022

THE OPTIMAL TIME TO TREATMENT ON OVERALL SURVIVAL IN PATIENTS WITH ESOPHAGEAL SQUAMOUS CELL CARCINOMA UNDERGOING NEOADJUVANT THERAPY

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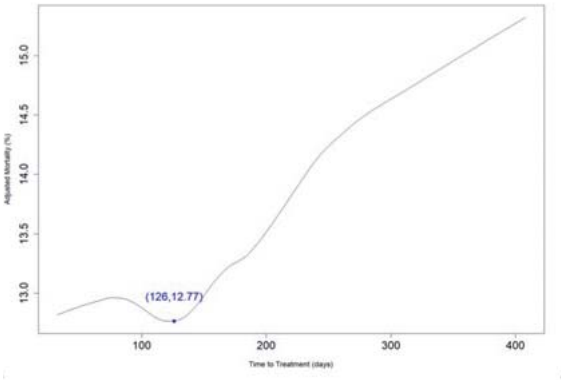
OBJECTIVES
This study aimed to evaluate the impact of time from diagnosis to treatment (TTT) on postoperative overall survival in patients with esophageal squamous cell carcinoma who underwent neoadjuvant therapy and determine the optimal TTT.

METHODS
From January 2017 to February 2023, esophageal squamous cell carcinoma patients underwent neoadjuvant followed by therapy esophagectomy were collected. The time of diagnosis was determined to be the time of pathological biopsy. Random forest survival was used to establish a predicted model to determine the importance of TTT in collected factors to overall survival. Partial dependence plots were performed to present the risk-adjusted effect of TTT on all-cause mortality and overall survival.

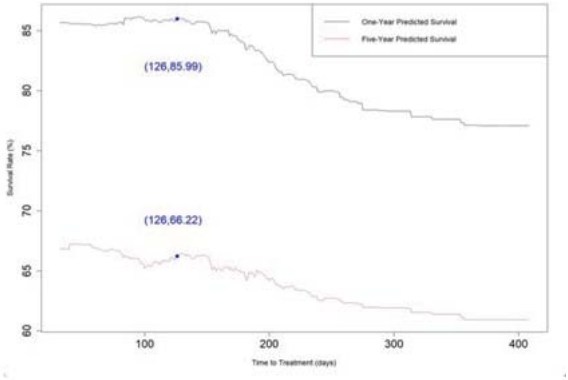
RESULTS
In total, 751 patients (84% males) were enrolled with a median age of 63 years (range: 29, 81). The survival model revealed TTT ranked sixth in the variable importance assessment, following recurrence and metastasis, age, pathological stage, body mass index, and vascular invasion. Additionally, we found that 126 days was a crucial tipping point according to the partial dependence plots. Patients with a TTT of 126 days demonstrated the lowest expected mortality rate at 12.7%. Before the threshold, the expected mortality had a slow declining trend. Conversely, once the TTT is beyond the threshold, the expected mortality increases rapidly with the prolonged duration of TTT. Meanwhile, One- and 5-year overall survival decreased obviously when TTT was more than 126 days.

CONCLUSIONS
TTT was a significant prognostic factor for esophageal squamous cell carcinoma patients undergoing neoadjuvant therapy. It is crucial to carefully consider the balance between the TTT and the therapeutic effectiveness of neoadjuvant therapy when developing a treatment plan for patients. The optimal TTT on postoperative overall survival was 126 days.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Neoadjuvant Therapy, Time from Diagnosis to Treatment, Overall Survival.



A. Risk-adjusted effects of time to treatment on all-cause mortality after esophagectomy following neoadjuvant therapy. The blue dot marks the coordinates of the lowest adjusted mortality (126 days, 12.77%).



B. Risk-adjusted effects of time to treatment on predicted one-year and five-year overall survival after esophagectomy following neoadjuvant therapy. The blue dots represent the survival coordinates at 126 days, predicting a one-year survival of 85.99% and a five-year survival of 66.22%. One- and five-year overall survival decreased sharply when TTT was more than 126 days.

P-023

THE IMPACT OF PLEURAL METASTASIS IN PREOPERATIVE PERCUTANEOUS TRANSTHORACIC NEEDLE BIOPSY IN CLINICALLY EARLY-STAGE NON-SMALL CELL LUNG CANCER

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OBJECTIVES
The question of preoperative percutaneous transthoracic needle biopsy (PCNB) responsible for pleural recurrence in lung cancer patients remains controversial. This study aims to assess whether PCNB increases the risk of pleural recurrence in clinical stage I non-small-cell lung cancer (NSCLC).

METHODS
We conducted a retrospective analysis of 1733 patients with clinical stage I lung cancer who underwent surgery from 2018 to 2020. Cox regression analyses were performed to identify risk factors for pleural recurrence before and after propensity score matching.

RESULTS
Out of the 1733 patients, 700 were included in the PCNB group, and 1033 were included in the non-PCNB group. In multivariate analysis before matching, visceral pleural invasion and lymphatic invasion were associated with isolated pleural recurrence (HR = 4.002; 95% CI, 1.814-8.829; p = 0.001, HR = 2.719; 95% CI, 1.224-6.039; p =0.014), while PCNB was associated with concomitant pleural recurrence (HR = 2.001; 95% CI, 1.039-3.855; p = 0.038). After propensity score matching, 531 patients were included in the study for each group. In multivariate analyses, isolated pleural recurrence was associated with PCNB (HR = 3.344; 95% CI, 1.064-10.509; p = 0.039), visceral pleural invasion (HR = 5.803; 95% CI, 2.061-16.336; p = 0.001), and lymphatic invasion (HR = 2.653; 95% CI, 0.959-7.336; p = 0.060). However, PCNB was not significantly associated with concomitant pleural recurrence (p = 0.097); instead, visceral pleural invasion (HR = 5.285; 95% CI, 2.496-11.190; p < 0.001), and lymphatic invasion (HR = 2.282; 95% CI, 1.097-4.747; p = 0.027) were associated.

CONCLUSIONS
Preoperative PCNB is associated with isolated pleural recurrence in clinical stage I lung cancer, along with visceral pleural invasion.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Biopsy, Needle, Recurrence, Neoplasm Recurrence.

Univariate				
	Isolated pleural recurrence		**Concomitant pleural recurrence**	
	HR	**P value**	**HR**	**P value**
PCNB (Ref. other)	3.256 (1.050-10.103)	0.041	2.147 (1.005-4.589)	0.049
Age (per 1 year)	1.026 (0.969-1.087)	0.377	1.034 (0.991-1.079)	0.119
Sex (Ref. Female)	0.925 (0.344-2.484)	0.877	0.908 (0.441-1.870)	0.794
<0.0001				
Lobectomy	1.104 (0.251-4.856)	0.896	1.431 (0.434-4.717)	0.556
Histologic type (Ref. adenocarcinoma)				
Non-adeno	0.527 (0.070-3.990)	0.535	1.559 (0.597-4.074)	0.365
Clinical T stage (Ref. T1a)				
T1b	0.585 (0.065-5.238)	0.632	1.592 (0.206-12.336)	0.656
T1c	2.021 (0.256-15.960)	0.505	2.433 (0.314-18.850)	0.395
T2a	0.578 (0.052-6.374)	0.654	1.991 (0.245-16.183)	0.520
Pathological tumor size (per 1cm)	1.309 (0.883-1.939)	0.180	1.225 (0.899-1.670)	0.199
Visceral pleural invasion (y/n)	5.795 (2.105-15.948)	0.001	5.978 (2.844-12.565)	<0.001
Lymphatic invasion (y/n)	3.049 (1.134-8.197)	0.027	2.957 (1.435-6.092)	0.003
Multivariate				
	Isolated pleural recurrence		**Concomitant pleural recurrence**	
	HR	**P value**	**HR**	**P value**
PCNB (Ref. other)	3.344 (1.064-10.509)	0.039	1.906 (0.889-4.088)	0.097
Visceral pleural invasion (y/n)	5.803 (2.061-16.336)	0.001	5.285 (2.496-11.190)	<0.001
Lymphatic invasion (y/n)	2.653 (0.959-7.336)	0.060	2.282 (1.097-4.747)	0.027

P-024

CHARACTERIZATION AND PREDICTION OF 5-YEAR AND 10-YEAR SURVIVORS OF ESOPHAGEAL CANCER BENEFITING FROM NEOADJUVANT THERAPY

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OBJECTIVES
To determine characteristics of long-term survivors (LTS) receiving neoadjuvant therapy (NAT) plus esophagectomy; and to develop and validate a practical predictive model.

METHODS
This cohort study used the National Cancer Database (2004-2015) to identify patients receiving neoadjuvant therapy and undergoing definitive surgery with active follow-up data within 5 years and 10 years. Multivariable stepwise logistics regression models were used to identify survivor characteristics, explain their contributions and build nomograms. Caliberation and discrimination (area under receiver-operating characteristic curve, AUC) were validated internally using bootstrap resampling.

RESULTS
We included 14139 and 11707 patients with esophageal cancer who received NAT in 5-year and 10-year survivor cohorts, with median follow-up times of 94.1 months and 133.0 months respectively. The proportion of 5-year survivors was 26.8% and the proportion of 10-year survivors was 4.6%. The most important characteristics of long-term survivors were ypT stage, positive lymph node ratio, age and clinical stage. The final 5-year survivor model included 13 variables, and the 10-year survivor model included 9 variables. Both models showed good discrimination with AUC statistics of 0.75 (95% CI 0.74-0.76) for the 5-year model and 0.79 (95% CI 0.77-0.81) for the 10-year model.

CONCLUSIONS
Although NAT has given EC patients a better chance at survival, the proportion of LTS, especially of 10-year survivors remains low. Our study elucidated the characteristics of the LTSs and further developed and validated two predictive models, which can accurately predict the probability of becoming an LTS.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer, Long-Term Survivor, Neoadjuvant Therapy.

10-year survivors					5-year survivors				
Characteristic	OR	95% CI	P value	Cumulative C-index	Characteristic	OR	95% CI	P value	Cumulative C-index
ypT					ypT				
ypT0/TIS	—	—		0.706	ypT0/TIS	—	—		0.658
ypT1	0.98	0.50, 2.13	>0.9		ypT1	0.92	0.78, 1.07	0.3	
ypT2	0.95	0.49, 2.03	0.90		ypT2	0.72	0.61, 0.83	<0.001	
ypT3	0.55	0.29, 1.17	0.01		ypT3	0.57	0.49, 0.65	<0.001	
ypT4	0.79	0.24, 2.32	0.70		ypT4	0.26	0.14, 0.43	<0.001	
Unknown	4.29	2.23, 9.15	<0.001		Unknown	1.69	1.49, 1.92	<0.001	
Lymph node ratio					Lymph node ratio				
0%	—	—		0.742	0%	—	—		0.697
0-10%	0.33	0.20, 0.52	<0.001		0-10%	0.6	0.51, 0.69	<0.001	
10-20%	0.36	0.23, 0.57	<0.001		10-20%	0.41	0.35, 0.48	<0.001	
20-100%	0.22	0.14, 0.35	<0.001		20-100%	0.24	0.21, 0.29	<0.001	
Not examined	0.52	0.40, 0.67	<0.001		Not examined	0.64	0.57, 0.72	<0.001	
Age					Approach				
<=45	—	—		0.758	Open/unspecified	—	—		0.719
46-60	0.78	0.54, 1.14	0.20		MIE	0.84	0.68, 1.03	0.1	
61-75	0.52	0.36, 0.79	0.00		RAMIE	0.57	0.37, 0.85	0.008	
>75	0.22	0.11, 0.43	<0.001		Conversion to open	1.24	0.80, 1.87	0.3	
Stage					Unknown	2.12	1.89, 2.37	<0.001	
I	—	—		0.770	Age				
II	0.68	0.44, 1.08	0.09		<=45	—	—		0.727
III	0.58	0.39, 0.90	0.01		46-60	0.73	0.61, 0.88	<0.001	
IV	0.5	0.30, 0.83	0.01		61-75	0.64	0.53, 0.78	<0.001	
Unknown	1.15	0.76, 1.79	0.50		>75	0.32	0.24, 0.42	<0.001	
Neoadjuvant modality					Median income				
NCRT	—	—		0.775	< $38,000	—	—		0.734
NCT	0.44	0.24, 0.74	0.00		$38,000 - $47,999	1.14	0.99, 1.31	0.061	
NOT	2.87	1.80, 4.41	<0.001		$48,000 - $62,999	1.17	1.02, 1.33	0.025	
NRT	0.89	0.52, 1.44	0.70		>=$63,000	1.43	1.26, 1.64	<0.001	
Insurance					Unknown	0.25	0.15, 0.38	<0.001	

10-year survivors					5-year survivors				
Characteristic	OR	95% CI	P value	Cumulative C-index	Characteristic	OR	95% CI	P value	Cumulative C-index
Uninsured	—	—		0.782	Grade				
Private	2.71	1.28, 6.99	0.02		Well differentiated	—	—		0.737
Medicaid	1.06	0.42, 3.02	>0.9		Moderately differentiated	0.67	0.55, 0.83	<0.001	
Medicare	2.05	0.95, 5.37	0.10		Poorly differentiated	0.52	0.43, 0.64	<0.001	
Other government	1.66	0.50, 5.49	0.40		Undifferentiated	0.64	0.44, 0.92	0.018	
Unknown	3.74	1.52, 10.6	0.01		Unknown	0.68	0.55, 0.84	<0.001	
Median income					Insurance (%)				
< $38,000	—	—		0.786	Uninsured	—	—		0.74
$38,000 - $47,999	1.11	0.82, 1.51	0.50		Private	1.44	1.08, 1.94	0.015	
$48,000 - $62,999	1.14	0.85, 1.54	0.40		Medicaid	0.88	0.63, 1.25	0.5	
>=$63,000	1.4	1.05, 1.88	0.03		Medicare	1.13	0.84, 1.53	0.4	
Unknown	0.16	0.03, 0.53	0.01		Other government	0.94	0.60, 1.47	0.8	
Charlson-Deyo score					Unknown	1.33	0.89, 1.99	0.2	
≥2	—	—		0.788	Surgical margin				
0	1.76	1.07, 3.15	0.04		Negative (R0)	—	—		0.743
1	1.23	0.71, 2.27	0.50		Positive (R1, R2, NOS)	0.53	0.42, 0.65	<0.001	
Surgical margin					Unknown	0.62	0.50, 0.76	<0.001	
Negative (R0)	—	—		0.790	Stage				
Positive (R1, R2, NOS)	0.59	0.34, 0.96	0.04		I	—	—		0.745
Unknown	0.69	0.44, 1.07	0.11		II	1.12	0.90, 1.41	0.3	
					III	0.95	0.77, 1.18	0.7	
					IV	0.65	0.51, 0.83	<0.001	
					Unknown	1.05	0.84, 1.32	0.7	
					Neoadjuvant modality				
					NCRT	—	—		0.747
					NCT	1.51	1.29, 1.76	<0.001	
					NOT	1.16	0.86, 1.55	0.3	
					NRT	0.76	0.60, 0.96	0.022	
					Site (%)				

10-year survivors					5-year survivors				
Characteristic	OR	95% CI	P value	Cumulative C-index	Characteristic	OR	95% CI	P value	Cumulative C-index
					Lower third of esophagus	—	—		0.748
					Middle third of esophagus	0.76	0.66, 0.87	<0.001	
					Upper third of esophagus	0.77	0.62, 0.96	0.02	
					Overlapping lesion	0.73	0.61, 0.88	<0.001	
					Unknown	0.61	0.43, 0.86	0.005	
					Charlson-Deyo score				
					≥2	—	—		0.749
					0	1.36	1.11, 1.68	0.004	
					1	1.13	0.90, 1.41	0.3	
					Sex				
					Male	—	—		0.750
					Female	1.26	1.12, 1.41	<0.001	

POSTER
POSTER DISPLAY

P-025

PREVALENCE, TRAJECTORIES, AND RISK FACTORS OF MODERATE-TO-SEVERE SYMPTOMS IN THE FIRST YEAR AFTER LUNG CANCER SURGERY

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OBJECTIVES
Patient experience after surgery is gaining prominence. However, the long-term symptom burden after lung cancer surgery remains unclear, particularly when assessed using a lung surgery-specific scale. This study aimed to identify the prevalence, trajectories and risk factors of moderate-to-severe symptoms during the first year after lung cancer surgery.

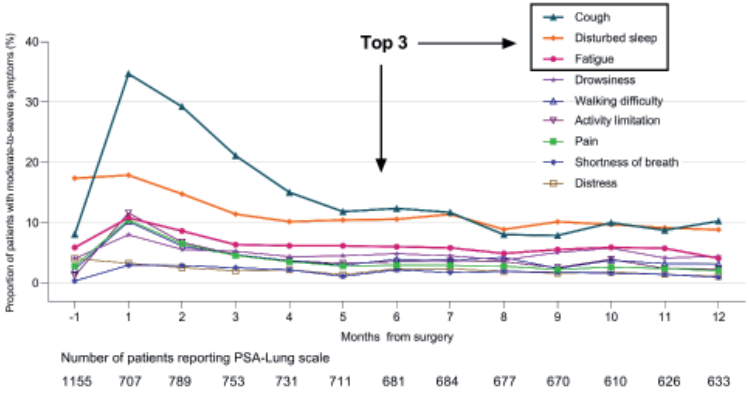
METHODS
This study used data from a prospective longitudinal cohort study (CN-PRO-Lung 3). Patients undergoing surgery for stage 0-III NSCLC between January 2021 and December 2022 were included. Symptoms were assessed using the Perioperative Symptom Assessment for Lung Surgery (PSA-Lung) scale, which comprises nine symptom items rated from 0 to 10. These assessments were conducted preoperatively and then monthly after surgery for up to 12 months.

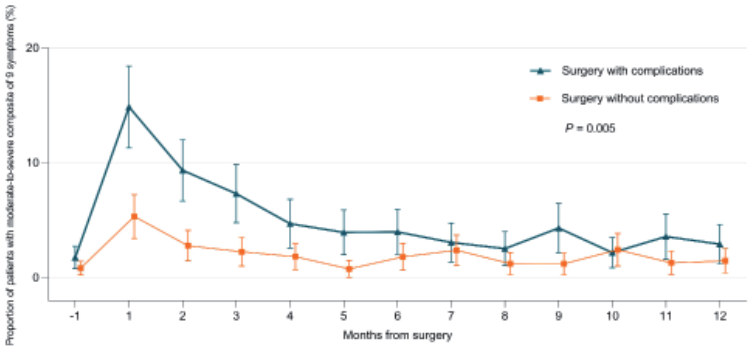
RESULTS
A total of 1,208 patients (mean age: 53 years; 65.5% female), with 8,255 PSA-Lung assessments, were included in the analysis. Most patients were in the 0-IA stage (81.4%), underwent a minimally invasive approach (95.6%), and received sublobectomy (56.5%). The three most prevalent moderate-to-severe symptoms were cough (15.5%), disturbed sleep (11.2%), and fatigue (6.4%). The severity of all nine symptoms decreased from the first month, and three of them (pain, fatigue, and distress) returned to the pre-surgery level by 12 months post-discharge. A significant proportion of patients (10.3%) continued to report moderate-to-severe cough at 12 months post-discharge. Age ≥ 60 years (relative risk [RR] 1.51−1.75), female sex (RR 1.59), lower educational level (RR 1.60−4.45), open surgery (RR 1.79−2.73), and surgery with complications (RR 1.51−3.22) were associated with a higher symptom burden after lung cancer surgery. No significant differences were found between lobectomy and sublobectomy ($P = 0.46$) for the moderate-to-severe composite of nine symptoms in the year following surgery.

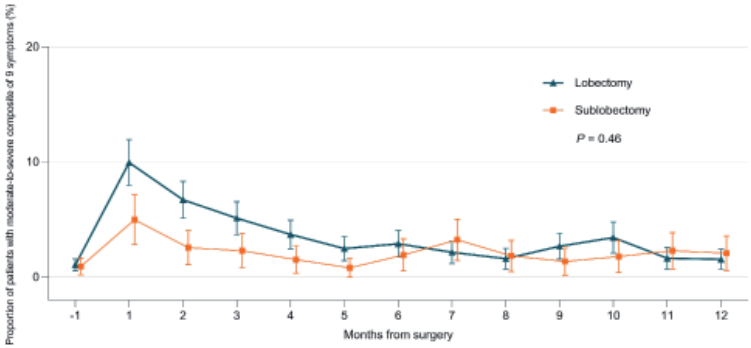
CONCLUSIONS
The findings of the prevalence, trajectories and risk factors of the moderate-to-severe symptoms after surgery for NSCLC can provide information for patient counselling, facilitate shared decision-making, and improve symptom management.

Disclosure: No significant relationships.

Keywords: Patient-Reported Outcomes, Long-Term Symptom Burden, Risk Factors, Minimally Invasive Surgery, Non-Small-Cell Lung Cancer.







P-026

RESECTION OF MEDIASTINAL MASS BY ROBOTIC ASSISTED THORACIC SURGERY (RATS) IN A CHILD: A CASE REPORT

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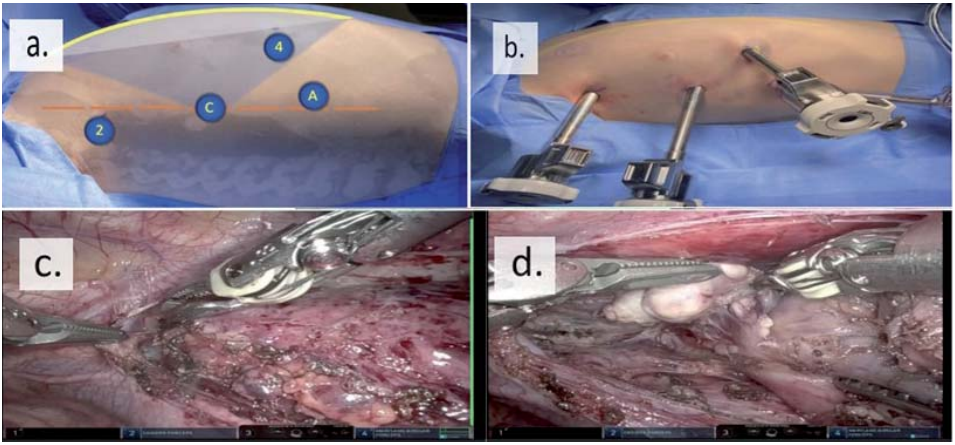
OBJECTIVES
To describe the surgical technique performed in a resection of a mediastinal mass in a 5-year-old patient performed by RATS.

CASE DESCRIPTION
An initial diagnosis of pneumonia was made and the patient completed a course of antibiotic therapy at home.
In the follow-up chest X-ray, a mediastinal enlargement was identified, leading to a thoracic surgery evaluation. A chest CT scan revealed a multilobulated mass of approximately 5 cm in the anterior mediastinum, without involvement of the lung parenchyma and or vascular invasion.
We performed a resection of the mediastinal mass by RATS. Da vinci Xi platform was chosen due to thinner arms and trocars. A four portal set was adopted using a three-arm approach. Arm 1 was put away, and arm 2 received a Cadiere forceps introduced in the 3rd intercostal space between the anterior and middle axillary lines. Arm 3 received a 30° 8mm robotic camera that was inserted in the 5th intercostal space on the anterior axillary line. Arm 4 received a Bipolar Maryland in the 8th intercostal space between the anterior and mid-clavicular lines.
We insufflated gas with an initial pressure of 4 mmHg and flow rate of 10ml/L, followed by the passage of the other ports under direct visualization. The auxiliary portal with 1.2 cm was inserted in the 7th space mid-clavicular line.
The procedure was uneventful. A small bore pigtail catheter was inserted and removed 24 hours postoperatively. Patient was discharged 72 hours after surgery. Pathological anatomy confirmed a bronchogenic cyst.

CONCLUSIONS
This case of resection of a bronchogenic cyst by RATS provides information on both anesthetic and surgical technique, arms placement and insufflation pressure and flow, which helped maintain hemodynamic stability in the child, resulting in a successful case.

Disclosure: No significant relationships.
Keywords: Mediastinal Tumor, Robotic Resection of Mediastinal Lesion, Mediastinal Tumor in Children.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P-027

THREE DIMENSIONAL (3D)-MODELLING FOR THE INDIVIDUALIZED PLANNING AND FEASIBILITY PREDICTION OF RECONSTRUCTIVE PARENCHYMA-SPARING SURGERY FOR CENTRALLY LOCATED LUNG MALIGNANCIES

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OBJECTIVES
The main objective of our study is to develop a method based on 3D-modeling for making decisions regarding the feasibility of parenchyma-sparing surgery (PSS) for centrally located lung malignancies by integrating assessment of tumor extension, individual anatomy, surgery planning and prediction of postoperative structures state.

METHODS
From 2021 to 2023 one hundred twelve patients diagnosed with carcinoid or NSCLC and having traditional indications to pneumonectomy were included. In all cases 3D-models from CT-scans were created according to our own algorithm with 3DSliser software use. In the planning phase, the resection lines were determined by a minimum distance from the tumor's borders, which was 10-15 mm along the relevant structure. Volumes of residual functional lung parenchyma, tension along the bronchial anastomosis axis, postoperative pulmonary artery kinking were predicted, relevant variants of vascular anatomy were noted. The feasibility of reconstructive PSS was the main topic of the analysis conclusion. Fully marked individual maps were used during surgery with intention to avoid pneumonectomy. During follow-up period, models of the operated thoracic structures were created. The patency of bronchial and vascular anastomoses was carefully assessed. Changes in density and volume of lung parenchyma were evaluated.

RESULTS
Positive decision regarding the feasibility of PSS was made in 63 cases. PSS was performed in 60 (95.3%) cases, bronchoplasties - 41, angioplasties - 2, both - 17, including triple – 1 and quadruple – 1 sleeve lobectomies, R0 – 100%. Postoperative mortality was 5 % (n=3). Median follow up time was 13.4 months. No any cases of local recurrence have been occurred. Distal metastases revealed in 4 cases, including 1 case of concomitant regional relapse.

CONCLUSIONS
Preoperative analysis of CT 3D-models with a high accuracy of 95.3 % can predict feasibility of PSS and facilitate surgery planning in patients with centrally located lung malignancies.

Disclosure: No significant relationships.
Keywords: 3D-Modelling, Bronchoplasty, Surgery, Virtual Planning.

P-028

THREE DIMENSIONAL (3D)-RECONSTRUCTION SOFTWARE FOR PLANNING OF MINIMALLY INVASIVE SEGMENTECTOMIES SIGNIFICANTLY IMPROVES SURGICAL OUTCOMES AND REDUCES THE INCIDENCE OF SERIOUS COMPLICATIONS

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OBJECTIVES
Video-assisted segmentectomies are challenging operations and potentially associated with serious complications. In this analysis, we investigated whether preoperative reconstructions of the lung anatomy with Visible PatientTM 3D-reconstruction software based on HRCT-scans improve both surgical and postoperative outcomes.

METHODS
We retrospectively collected data from 100 consecutive patients who signed the general research consent and received minimally invasive segmentectomies from 2019-2022. The operative outcomes (type of segmentectomy, conversion to thoracotomy, chest tube duration, intensive care unit stay) and complications of the surgeries planned with 3D-reconstructions were compared to the results of those performed without. The data was analyzed using propensity modelling and inverse probability of treatment weighting (IPTW).

RESULTS
With 37 of the 100 patients included, surgical planning was performed with 3D-reconstruction. 3D-reconstructions enabled to successfully perform significantly more complex segmentectomies ($p<0.001$) in patients with a higher BMI. In this patient group, surgeries lasted longer ($p=0.002$), there were significantly fewer conversions to thoracotomy ($p=0.003$), and fewer major complications (Clavien-Dindo grade III or IV) (odds ratio 0.10 95% CI 0.01 to 0.87, $p=0.037$).
In addition, planning surgery with 3D-reconstruction software leads to a reduction in the number of segments removed (1.7 ± 0.8 vs. 1.9 ± 1.0) ($p = 0.402$) and the average duration of the chest tube remaining from 3.0 days (2.0–4.0) to 2.0 days (1.0–3.0) ($p=0.06$). The stay in the intensive care unit/HDU also was shortened. See Table 1.

CONCLUSIONS
The planning of complex anatomical VATS segmentectomies with the 3D-reconstruction software Visible PatientTM significantly reduces both, the need for conversions from

minimally invasive to thoracotomy and the postoperative complications rates. Additionally, this proceeding allows safe performing of complex surgeries.

Disclosure: No significant relationships.
Keywords: 3D-Reconstruction, Minimally Invasive Segmentectomy, Outcomes, Complications.

	Total (n = 100)	**without 3D (n = 63)**	**3D (n = 37)**	**p**
Complex surgery n (%)		24 (38%)	33 (89%)	<0.001
Number of removed segments n		1.9±1.0	1.7±0.8	0.402
BMI [kg/m²]		25.7±5.0	27.9±4.8	0.032
Conversion	12 (12%)	12 (19%)	0 (0.00%)	0.003
Duration of surgery [min]	221±56	209±53	243±54	0.002
Duration ICU/HDU [days]				0.23
0	3 (3.0%)	3 (4.8%)	0 (0.00%)	
1	87 (87%)	51 (81%)	36 (97%)	
2	4 (4.0%)	4 (6.3%)	0 (0.00%)	
3	5 (5.0%)	4 (6.3%)	1 (2.7%)	
5	1 (1.0%)	1 (1.6%)	0 (0.00%)	
Chest tube duration [days]	3.0 (2.0 to 4.0)	3.0 (2.0 to 4.0)	2.0 (1.0 to 3.0)	0.06
Complication C-D grade				0.57
0	61 (61%)	38 (60%)	23 (62%)	
I	16 (16%)	9 (14%)	7 (19%)	
II	14 (14%)	8 (13%)	6 (16%)	
III	8 (8.0%)	7 (11%)	1 (2.7%)	
IV	1 (1.0%)	1 (1.6%)	0 (0.00%)	
(I-IV)	39 (39%)	25 (40%)	14 (38%)	1.00
III or IV	9 (9.0%)	8 (13%)	1 (2.7%)	0.15
IPTW C-D grade III or IV Odds Ratio (95% CI)	***Before*** 0.19 (0.02 to 1.59) p=0.13		***After*** 0.10 (0.01 to 0.87) p=0.037	

P-029

5-YEAR SURVIVAL PREDICTION USING ARTIFICIAL INTELLIGENCE MODELS IN SURGICALLY RESECTED NON-SMALL CELL LUNG CARCINOMA PATIENTS

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OBJECTIVES
The majority of lung cancer consist of NSCLC.Early stage and clinically resectable patients benefit from surgical treatment.Survival expectation forms the basis of staging and treatment procedures.In our study, we aimed to determine the 5-year survival expectancy of patients operated on for NSCLC with a high success and confidence rate through artificial intelligence modeling.

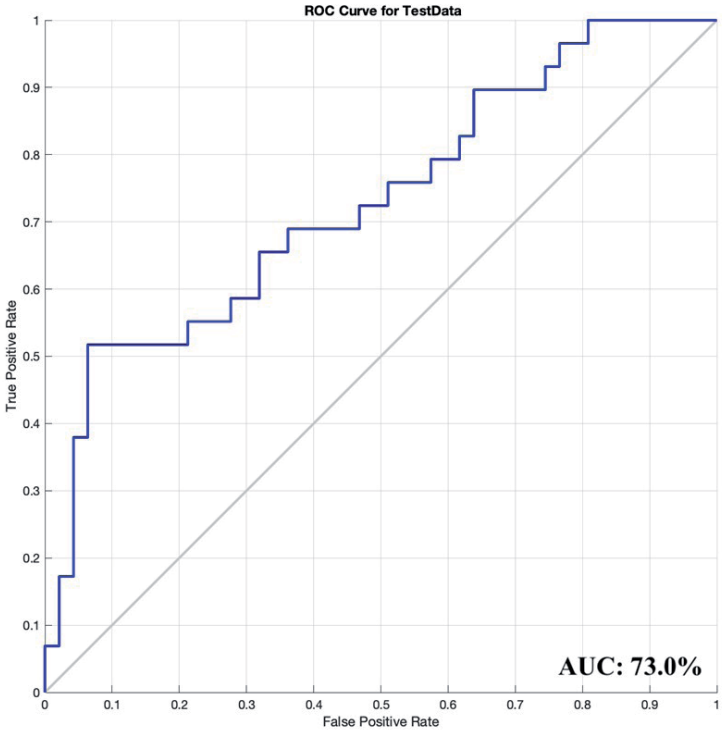
METHODS
Patients who were operated on for NSCLC in our clinic between January 2001 and January 2023 were included in the study.Patients who did not have at least 5 years of follow-up after surgery were excluded from the study.There were a total of 756 patients.338(44.7%) patients were accepted as exitus within 5 years.Clinical, respiratory, radiological and pathological data of the patients were recorded.A deep learning model was developed using the Scaled Conjugate Gradient algorithm in MATLAB 2022a application.90% of the data was used for training, 10% for validation, and 10% for testing.The success of the model was evaluated by specificity, sensitivity, positive predictive value, negative predictive value, F1 1 score, F1 0 score, F1 average value and area under the curve in the ROC curve.

RESULTS
The training precision value of the model was 67.0%, the training recall value was 73.1%, the training accuracy value was 65.6%, and the training F1 average value was 64.8%.The test precision value of the model was 74.0%, the test recall value was 78.7%, the test accuracy value was 69.7%, and the test F1 average value was 67.3%(Table 1).In the ROC analysis performed for the test evaluation of the model, the area under the curve was 73.0%(Figure 1).

CONCLUSIONS
In our study, the 5-year survival prediction of patients who underwent lung resection for NSCLC was made with high accuracy and confidence using artificial intelligence models. Estimating the 5-year survival of patients with high success and confidence will guide clinical additional treatment and follow-up decisions.

Disclosure: No significant relationships.
Keywords: Artificial Intelligence, 5-Year Survival, Deep Learning.

	Train	Validation	Test
Specificity	56.4%	63.9%	55.2%
Recall (Sensitivity)	73.1%	75.0%	78.7%
Negative Predictive Value	63.4%	69.7%	61.5%
Positive Predictive Value (Precision)	67.0%	69.8%	74.0%
Accuracy	65.6%	69.7%	69.7%
F1 1 Score	69.9%	72.3%	76.3%
F1 0 Score	59.7%	66.7%	58.2%
F1 Average Score	64.8%	69.5%	67.3%



P-030

A CASE OF LUNG TRANSPLANTATION FOR BRONCHIOLITIS OBLITERANS AFTER TREATMENT FOR HEMATOLOGIC MALIGNANCY IN A YOUNG PATIENT WITH MISLEADING COMPUTED TOMOGRAPHY (CT) SCAN

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OBJECTIVES

To present a case of a young patient who underwent bilateral lung transplantation (LTx) for bronchiolitis obliterans (BO) after hematopoietic stem cell transplantation (HSCT) and achieved favorable outcomes.

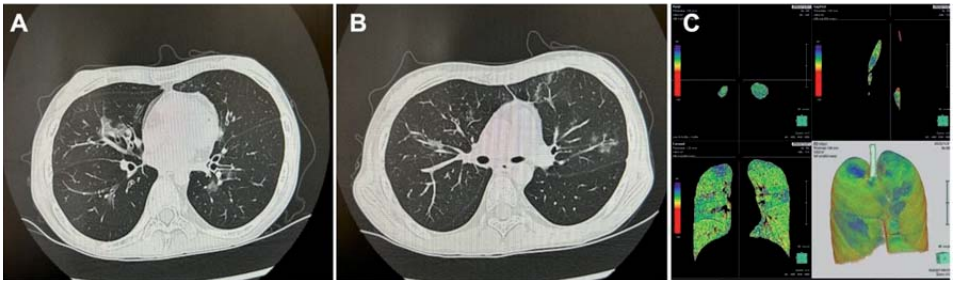
CASE DESCRIPTION

The patient was a 16-year-old female who was diagnosed with mixed-cell leukemia in May 2020 and received a semi-matched HSCT from her mother. She experienced repeated dyspnea nine months after HSCT. Despite immunosuppressive therapy, her symptoms worsened and her pulmonary function test (PFT) showed extremely severe mixed ventilation dysfunction. Nevertheless, her CT scan only showed mild to moderate multifocal infection-like lesions, which is not quite consistent with classical radiological findings in BO patients (Figure 1A and B). And thus we applied three-dimensional reconstruction of small airways by bronchoscopy and confirmed that numerous small and thin bronchioles in both lungs of the patient were partially or completely obstructed (Figure 1C). After multidisciplinary evaluation, we believe LTx was necessary to reverse the progression of the disease. Although only one year passed after HSCT, the patient had achieved complete remission of leukemia and had a low risk of recurrence. In March 2022, the patient received bilateral lung transplantation with volume reduction of the left lung. The ischemic time of the left and right donor lungs was 2 hours and 3.5 hours, respectively. The patient was extubated on the second postoperative day. Her PFT improved significantly after LTx with a VC of 1.96 L, a FEV1 of 1.92 L and a FVC of 1.96 L. She experienced neither recurrent BO nor hematological malignancy and had a good quality of life at the last follow-up in September 2023.

CONCLUSIONS

Lung transplantation emerged as a successful treatment for severe BO patients after HSCT, but the indication and timing of transplantation remain controversial and should be carefully evaluated by multidisciplinary team.

Disclosure: No significant relationships.
Keywords: Lung Transplantation, Bronchiolitis Obliterans, Hematopoietic Stem Cell Transplantation.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P-031

A COMPARATIVE ANALYSIS OF VIDEO ASSISTED THORACIC SURGERY (VATS) VERSUS ROBOTIC ASSISTED THORACIC SURGERY (RATS) FOR SUBXIPHOID THYMECTOMY: A SINGLE-CENTRE EXPERIENCE

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OBJECTIVES

The study compares outcomes of Video Assisted Thoracic Surgery(VATS) and Robotic Assisted Thoracic Surgery(RATS) for subxiphoid thymectomy within a single thoracic-surgery centre. Primary objectives were to assess differences in pre-operative details, intraoperative factors, postoperative complications, and 30-day survival between the two surgical approaches.

METHODS

Retrospective data from VATS procedures performed between 2020-2022 were contrasted with prospective data from RATS procedures conducted in 2023. Parameters evaluated included demographics, smoking status, intubation status, operative times, use of patient-controlled analgesia(PCA), conversion rates, ICU admissions, postoperative pain scores (visual analogue), histopathology results, and 30-day survival. Data analysis was conducted using Python 3.10.12.

RESULTS

Total of 36 patients were included, with 18 in each cohort. Mean age, gender distribution and smoking prevalence differed slightly between VATS and RATS groups. 77.78% of VATS patients and 100% of RATS were intubated. Both intubated VATS and RATS patients exhibited comparable surgery and anesthetic times. PCA was universally used in both groups. Neither groups had conversions to open surgery. Postoperative complications were minimal in both groups, however 2 RATS patients required ICU admission. Median pain score day 1 vs 30 days postoperatively in both groups were 3/10 vs 0/10 respectively. Thymoma was the predominant histopathological finding in both cohorts, however 11.11% VATS had R1 resection. Both groups had 100% 30-day survival.

CONCLUSIONS

This study presents early results of an ongoing investigation into robotic subxiphoid thymectomies performed using the Versius Surgical Robotic System within a single centre. Comparable outcomes between VATS and RATS cohorts suggest that both approaches are feasible and safe for subxiphoid thymectomy. As opposed to VATS, RATS showed longer operative time, similar pain score, length of stay, and survival, and lower R1 resection rate. Future research, incorporating larger sample sizes and longer follow-up periods, is warranted to elucidate the cost-effectiveness and survival benefits of robotic subxiphoid thymectomies over time.

Disclosure: No significant relationships.
Keywords: Subxiphoid Thymectomy, Robotic Assisted Thoracic Surgery, Video Assisted Thoracic Surgery, VATS, RATS.

		VATS (n=18)	RATS (n=18)	
Mean Age in years (σ)		57.61(±19.18)	63.11(±19.48)	
% Male		38.89	33.33	
% Smokers		33.33	38.89	
% Intubated		77.78%	100%	
Mean Surgery time (mins)	Intubated	150.5	243.22	p=2.5e-6
	Non-Intubated	160.75	-	
Mean anesthetic time (mins)	Intubated	221.07	306.83	p=0.00011
	Non-Intubated	265.25	-	
% ICU admissions		0	11.11	
% Conversion to open surgery		0	0	
Median pain score	Day 1	3/10	3/10	
	Day 30	0/10	0/10	
Drain out (POD)		2.17(±3.18)	1(±0)	
Discharge from physiotherapy (POD)		1.61(±1.24)	2.39(±2.33)	
Median LOS	Intubated	2	2	
	Non-Intubated	3	-	
30-day survival		100%	100%	
Histology confirmed Thymoma (% R1 resection)		11.11%	0%	

σ : Standard deviation, ICU: Intensive Care Unit, POD: Post-operative day, LOS: Length of stay.

P-032

A METABOLISM-RELATED GENE SIGNATURE CAN PREDICT THE PROGNOSIS OF ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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OBJECTIVES
Esophageal squamous cell carcinoma (ESCC) is a highly heterogeneous disease, which makes the prognostic prediction challenging, as metabolism in the tumor or its microenvironment can affect the prognosis. However, the prognostic value of metabolism-related genes in ESCC remains unclear.

METHODS
In this study, the mRNA expression profiles and corresponding clinical data of ESCC patients were downloaded from a public database. The least absolute shrinkage and selection operator Cox analysis was utilized to construct a multigene prognostic signature in The Cancer Genome Atlas (TCGA) cohort. Kaplan–Meier analysis was used to compare the overall survival (OS) between high- and low-risk groups. Univariate and multivariate Cox analyses were applied to determine the independent predictors for OS. Single-sample gene set enrichment analysis was utilized to calculate the immune cell infiltration score and immune-related pathway activity. Gene set enrichment analysis was implemented to conduct Gene Ontology (GO) terms and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathways.

RESULTS
A metabolism-related gene signature model was constructed. Patients in the high-risk group showed significantly reduced OS. Receiver operating characteristic (ROC) curve analysis confirmed the predictive capacity of the prognostic gene signature. Multivariate Cox analysis revealed that the risk score was an independent predictor for OS. Functional analysis indicated that immune status was definitely different between two risk groups, and cancer-related pathways were enriched in the high-risk group. The risk score was correlated with tumor grade, tumor stage, and immune infiltrate types. The expression levels of prognostic genes were correlated with sensitivity of cancer cells to anti-tumor drugs.

CONCLUSIONS
A novel signature in metabolism-related genes can be used for prognostic prediction in ESCC.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Metabolism, Gene Signature, Overall Survival, Immune Status.

P-033

A NEW CONCEPT SURGICAL SIMULATOR "FEATURE-ENHANCED PULMONARY ARTERY MODEL"

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OBJECTIVES
Mastering pulmonary artery manipulation is the most important first step for general thoracic surgeons. We have developed a new concept simulator "feature-enhanced pulmonary artery model", and report its details and usefulness.

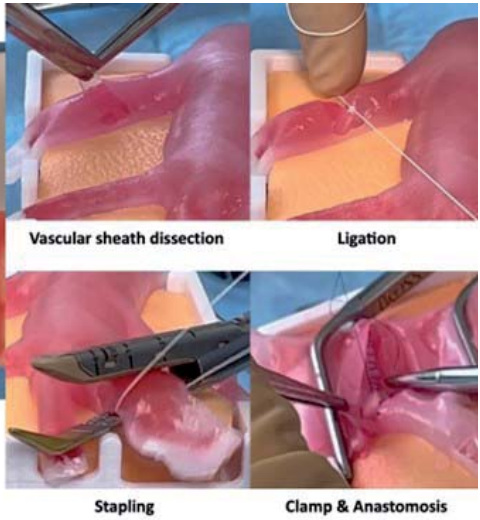
METHODS
The concept is to create an artificial organ that can be more useful for surgical training than a real organ. We focused not only on the morphology but on the fragility and vascular sheath, which were features of the pulmonary artery. The artery has a main trunk and several branches and has a two-layered structure consisting of the artery itself and vascular sheath. A pseudo-blood is filled inside the artery. Since the artery is embedded in another gel, properly handling the vascular sheath is required to encircle the artery safely. Various manipulations can be practiced with the simulator (Image). Additionally, it is electrically conductive and can be used in any surgical approach.
The simulator was evaluated with the manipulation of ligation and stapling by 6 thoracic surgeons including 3 board-certified surgeons and 3 residents. Each surgeon performed each procedure 3 times and rated subjectively its usefulness with a 5-point scale (1:poor-5:excellent). The number of vascular injuries and duration of each procedure were collected as objective data.

RESULTS
The average scores of the subjective evaluation were as follows; ligation 4.3, stapling 5 by board surgeons, ligation 4, stapling 4.7 by residents. 6 injuries were observed during the ligation, and 5 of those were by residents. During the stapling. 7 injuries were observed, 5 by residents. The board surgeons could perform each procedure significantly faster than the residents; ligation 248.7 vs 387.2 seconds, stapling 189.9 vs 396.7 seconds, $p<0.001$.

CONCLUSIONS
Our new concept simulator was successfully created with favorable surgeons' feedback and appropriate reflection of surgeons' skills. We hope that this will be useful for a new era of sustainable surgical training.

Disclosure: No significant relationships.
Keywords: Surgical Simulator, Artificial Organ, Medical Engineering.

Appearance of the new concept pulmonary artery model



P-034

A NEW SEALING TEST METHOD USING INDOCYANINE GREEN IN PNEUMOTHORAX SURGERY

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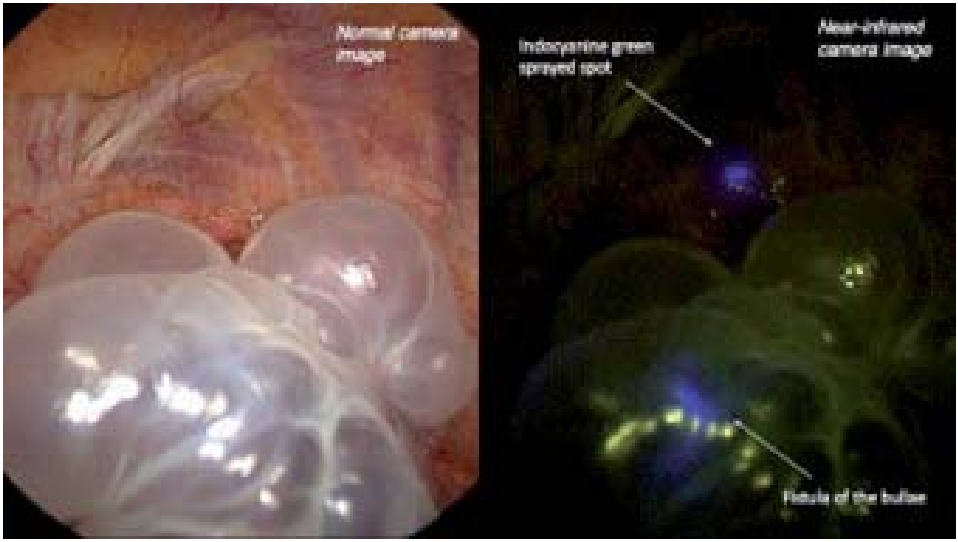
OBJECTIVES
We developed a novel sealing test method that involves the administration of aerosolized indocyanine green into the airway. Since airflow is generated in the alveolar-pleural fistulas, indocyanine green aerosol administered into the airway is deposited on the pleural injury site and can be identified with a near-infrared camera. Detecting the air leak site is especially important in pneumothorax surgery. However, it can be difficult in cases of multiple bullae or strong pleural adhesions. This study investigated whether air leak sites in pneumothorax surgery could be identified by the indocyanine green sealing test.

METHODS
13 patients who underwent pneumothorax surgery between 2020 and 2023 were enrolled. Sealing test including Indocyanine administration and observation with near infrared camera was performed before conventional sealing test. Result of each sealing test were compared and evaluated.

RESULTS
In the 8 pneumothorax patients, the air leak sites were identified as fluorescent sites in the indocyanine green sealing test. In the 3 cases, the fistula of the bullae; in 2 cases, the entire small bullae; in one case, the lung parenchyma in the bulla; in one case, the pleural defect; and in one case, the lung parenchyma between the bullae were stained with indocyanine green. In the 2 pneumothorax patients, the both conventional sealing test and indocyanine green sealing test showed no air leak sites. In the 3 pneumothorax patients, the indocyanine green sealing test could not identify the responsible air leak points because of presence of pleural injury sites caused by intraoperative manipulation.

CONCLUSIONS
The indocyanine green sealing test was able to identify air leak points in pneumothorax surgery. This indocyanine green sealing test permits observation of the pleural injury site even with the lungs in a collapsed state with no limitation of surgical field view of thoracoscopic surgery.

Disclosure: No significant relationships.
Keywords: Pneumothorax, Indocyanine Green, Sealing Test.


Normal camera image
Indocyanine green sprayed spot
Near-infrared camera image
Fistula of the bullae

P-035

A NEW TECHNIQUE FOR MIDDLE LOBE BRONCHUS RESECTION AND RECONSTRUCTION WHILE PERFORMING RIGHT LOWER LOBE LOBECTOMY

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OBJECTIVES

The main objective is to demonstrate the role of 3D-modelling in individualized surgical plan development in thoracic surgery.

CASE DESCRIPTION

A 31-year-old woman was diagnosed with carcinoid of the lower lobe of the right lung with extension into the lower lobe bronchus. According to computed tomography (CT), a tumor of the right lower lobe up to 42 mm obstructed the lower lobe bronchus. The upper pole of the tumor was located immediately distal to the orifices of both the middle lobe bronchus and the bronchus of the sixth segment (Fig. A). On bronchoscopy, the bronchial openings of the middle lobe and the sixth segment are located at the same level. The upper pole of an exophytic tumor was located in 5 mm further, obstructing the bronchial lumen (Fig. B). In such cases, lower bilobectomy is usually performed.

In order to develop an individual surgical plan and to preserve the middle lobe, a 3D-model was built by using CT scans and with 3DSliser software use. Analysis of the 3D-model revealed the possibility of preserving the middle lobe using a bronchoplasty technique that had not previously been published (Fig. C).

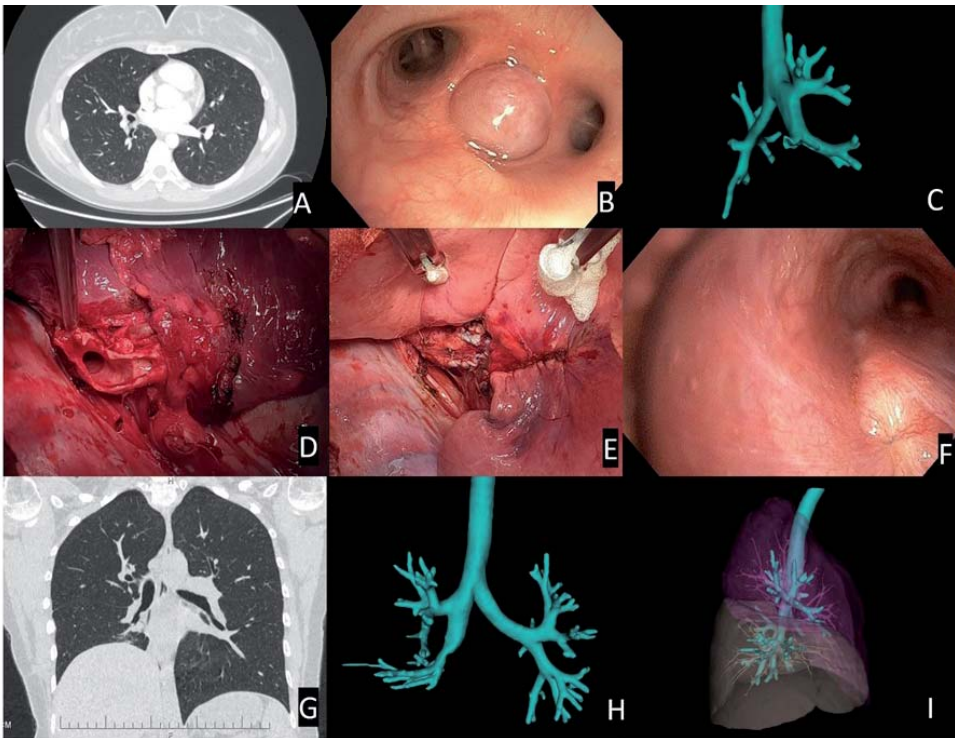
During the surgery the right lower lobectomy was performed with resection of bronchus intermedius and the orifices of B6 and B4-5 with B6 stump preservation (Fig. D). After its longwise section along the lower wall, we used the B6 stump as a patch for the middle lobe brochus reconstruction (Fig. E).

The postoperative course was uneventful. Pathological examination confirmed typical carcinoid pT2bN0M0 GI R0. Six months after the surgery, the middle lobe was totally expanded, and the bronchial lumen was permeable at all the segments on endoscopy (Fig. F), CT-scans (Fig. G) and virtual bronchography (Fig. H, I).

CONCLUSIONS

Conclusion. 3D modeling makes it possible to individualize the surgical planning and find non-standard solutions for bronchoplasty.

Disclosure: No significant relationships.
Keywords: 3D-Modelling, Bronchoplasty, Surgery, Virtual Planning.


A
B
C
D
E
F
G
H
I

P-036

A NOVEL INTRAOPERATIVE LONGITUDE-LATITUDE-DEPTH THREE DIMENSIONAL (3D) LOCALIZATION METHOD ACHIEVES HIGHER ACCURACY IN LOCALIZING SMALL PULMONARY NODULES AND CAUSES NO LOCALIZATION-RELATED COMPLICATIONS COMPARED TO PREOPERATIVE COMPUTED TOMOGRAPHY (CT)-GUIDED HOOK-WIRE LOCALIZATION

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OBJECTIVES

Small pulmonary nodules are difficult to be identified during sublobar resection by video-assisted thoracoscopic surgery (VATS). Preoperative CT-guided localization of pulmonary nodules has been widely used. However, it is invasive and may cause complications. In this paper, we devised a novel intraoperative nodule localization method, defined as longitude-latitude-depth 3D localization method (LLD localization method).

METHODS

We definitely introduced our experience of intraoperative LLD localization method integrating multiple natural longitudinal lines, multiple natural horizontal lines and depth during lung deflation. A total of 519 patients with solitary peripheral pulmonary nodule (≦20mm diameter, consolidation to tumor ratio ≦0.5) undergoing intraoperative LLD localization method or preoperative CT-guided hook-wire localization method followed by VATS at Qilu Hospital of Shandong University from March 2020 to November 2023 were retrospectively enrolled. Clinicopathological characteristics, localization duration, needle-carrying time, localization complications, failure to localization and other perioperative outcomes were compared between two groups.

RESULTS

260 patients underwent intraoperative LLD localization method, while 259 patients underwent preoperative CT-guided hook-wire localization method. LLD localization method could achieve very high accuracy (success rate at 96.92%) in localizing small pulmonary nodules during lung deflation in the surgery. Additionally, the localization duration (5.00 min vs 18.00 min), needle-carrying time (0 vs 82.00 min), localization complications (pain, hemothorax, pneumothorax, hemoptysis), estimated blood loss (45 ml vs 60 ml), chest tube removal time (3 vs 4 days), pain score after surgery (3 vs 4), oxygenation index after surgery, postoperative day (5 vs 6 days), hospitalization cost (¥40053.07 vs ¥47862.09) and failure rate of localization (3.08% vs 7.72%) were all significantly decreased in intraoperative LLD localization method than that in CT-guided hook-wire localization method.

CONCLUSIONS

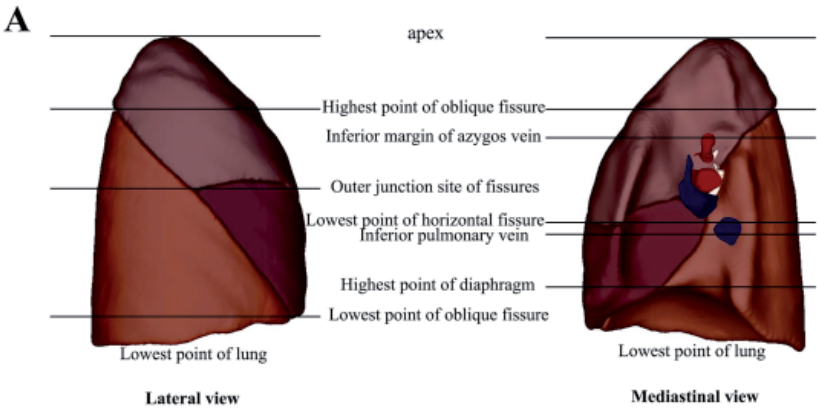
LLD localization method is non-invasive, time-saving, cost-saving and may be a feasible, safe and effective technique to localize small pulmonary nodules during surgery.

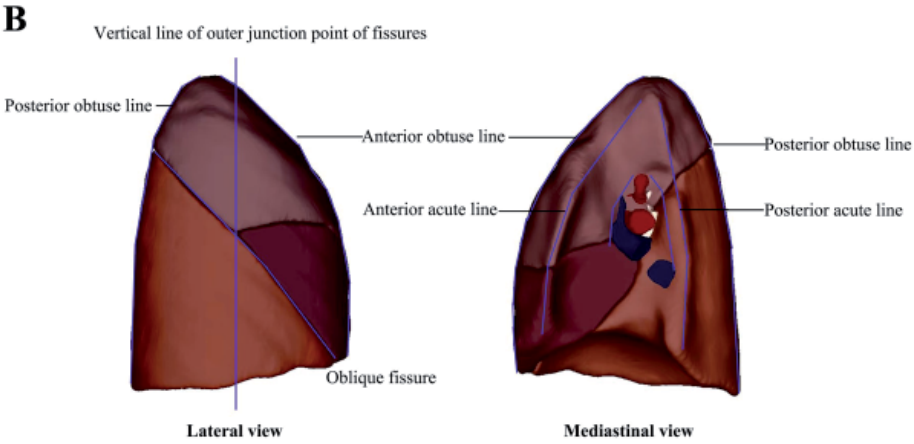
Disclosure: No significant relationships.
Keywords: LLD Localization Method, Small Pulmonary Nodules, Localization, Hook-Wire.

Table. Perioperative outcomes of CT-guided localization and LLD localization for patients with pulmonary nodules

Perioperative outcomes	CT-guided localization (n=259)	LLD localization (n=260)	P value
Localization duration (min), median (IQR)	18.00 (15.00, 21.00)	5.00 (5.00, 6.00)	**<0.001**
Needle-carrying time (min), median (IQR)	84.00 (59.00, 107.00)	0 (0.00, 0.00)	**<0.001**
Localization complications, n (%)			
Pain	15 (5.8)	0 (0.0)	**<0.001**
Hemothorax	8 (3.1)	0 (0.0)	**0.012**
Pneumothorax	12 (4.6)	0 (0.0)	**0.001**
Hemoptysis	15 (5.8)	0 (0.0)	**<0.001**
Estimated blood loss (ml), median (IQR)	60.00 (35.00, 75.00)	45.00 (30.00, 60.00)	**<0.001**
Chest tube removal (d), median (IQR)	4.00 (3.00, 5.00)	3.00 (3.00, 4.00)	**<0.001**
NRS score, median (IQR)			
POD-1	4.00 (3.00, 5.00)	3.00 (3.00, 4.00)	**<0.001**
POD-2	3.00 (3.00, 4.00)	3.00 (3.00, 3.00)	**<0.001**
Oxygenation index (mmHg), median (IQR)			
POD-1	373.17 (360.97, 381.70)	465.85 (425.60, 497.56)	**<0.001**
POD-2	382.92 (370.73, 395.12)	458.53 (429.26, 485.97)	**<0.001**
POS (d), median (IQR)	6.00 (5.00, 7.00)	5.00 (4.00, 6.00)	**<0.001**
Hospitalization cost (¥), median (IQR)	47862.09 (43773.72, 54806.25)	40053.07 (36499.75, 45034.82)	**<0.001**
Failed to localization, n (%)	20 (7.72)	8 (3.08)	**0.019**

LLD localization, longitude-latitude-depth 3D localization; CT, computed tomography; IQR, interquartile range; POD, postoperative day; NRS, numerical rating scale; POS, postoperative length of stay.


A
apex
Highest point of oblique fissure
Inferior margin of azygos vein
Outer junction site of fissures
Lowest point of horizontal fissure
Inferior pulmonary vein
Highest point of diaphragm
Lowest point of oblique fissure
Lowest point of lung
Lowest point of lung
Lateral view
Mediastinal view


B
Vertical line of outer junction point of fissures
Posterior obtuse line
Anterior obtuse line
Posterior obtuse line
Anterior acute line
Posterior acute line
Oblique fissure
Lateral view
Mediastinal view

P-037

A PERMANENT THORACIC WINDOW MODEL FOR REAL-TIME IMAGING OF NON-SMALL CELL LUNG CANCER IN ITS ORTHOTOPIC SETTING

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CHUV, Lausanne, Switzerland

OBJECTIVES

Real-time imaging is a powerful approach allowing longitudinal observation of tumors and their microenvironment, providing cancer progression insights. In the context of NSCLC, understanding changes in tumor immune content is crucial for evaluating its response to immunotherapies. However, intravital imaging studies on NSCLC are infrequent and impeded by technical challenges. We present here a novel murine thoracic window model combined with a breathing artifact correction method, enabling high-resolution real-time imaging of immune, vascular, and tumor compartments of orthotopic NSCLC.

METHODS

Two lung adenocarcinoma (LAD) cell lines, CMT167-GFP (KRASG12V mutant, syngeneic to C57BL/6 mice) or 344SQ-GFP (KrasG12D; p53R172HΔG mutant, syngeneic to 129/Sv mice), were orthotopically injected into the lungs of 17 C57BL/6 mice, and tumor growth was monitored using micro-CT. The thoracic window was permanently implanted on the chest 10 days post-injection allowing repeated observation using an upright 2-photon microscope. The combination of a frame stabilizer and a respiratory gating monitoring pad integrated with the imaging system minimized breathing artifacts enabled high-resolution imaging of tumor cells (GFP), vasculature (Pacific Blue-Dextran angiography), and leukocytes (Rhodamine-6G) over a three-week period.

RESULTS

The surgical window implantation protocol was successfully performed within 60 minutes with a 95% success rate (n=18). Micro-CT data guided accurate window placement, and the frame design combined with stabilization enabled repeated high-resolution imaging of a surface area measuring 800 um2 and 300 um depth of tumor bulk, vasculature, and leukocytes with limited breathing artifacts. Finally, the monitoring of LAD three times weekly over three weeks revealed increased vascular density (9%), tumor progression (55%), and leukocyte recruitment (13%) at the tumor site.

CONCLUSIONS

We successfully established a reproducible NSCLC permanent thoracic window model with an orthotopic approach. Longitudinal assessment of treatment-induced modulation of the TME and particularly on the immune cell homing may bring valuable information in the future.

Disclosure: No significant relationships.
Keywords: NSCLC, Intravital Imaging, Tumor Microenvironment.

P-038

A PILOT STUDY OF INTRAPLEURIC ANALGESIA IN THE TREATMENT OF ACUTE POST-OPERATIVE PAIN IN MINI-INVASIVE THORACIC SURGERY OF LUNG CANCER

Marilina La Porta[1], Matteo Petroncini[2], Leonardo Valentini[3], Marialuisa Lugaresi[1], Fabrizio Cucciniello[2], Niccolò Antonino Barbera[3], Valentina Roncarati[1], Franco Stella[2], Elena Salvaterra[3], Filippo Antonacci[4], Giampiero Dolci[3], Piergiorgio Solli[5], Niccolò Daddi[6]
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[2]*IRCCS Azienda Ospedaliero- Universitaria S. Orsola-Maggiore, Bologna, Italy*
[3]*Bologna (BO), Bologna, Italy*
[4]*Dipartimento di Scienze Medico-Chirurgiche Alma Mater Studiorum Bologna, Bologna, Italy*
[5]*U.O. Anestesia e Rianimazione, Bologna, Italy*
[6]*Azienda Ospedaliero- Universitaria S. Orsola-Malpighi, Bologna, Italy*

OBJECTIVES
The aim of the present study is to evaluate the efficacy of intrapleural analgesic treatment with a dedicated drainage through a continuous intrapleural infusion channel, in the management of acute postoperative pain associated with spinal erector block(ESP).

METHODS
Two randomized prospective study groups were created and divided into chest tube drainage with pre-incision ESP block [GROUP A] and patients with dedicated drainage for intrapleural analgesia coupled with pre-incision ESP [GROUP B]. A retrospective case-matched control group of patients who performed standard drainage associated with intercostal block [GROUP C] was added. For each group, n= 10 patients who underwent bi-portal VATS lobectomy were enrolled from 25/05/2022 to 29/07/2022. Case-match comparisons were made by gender, site, and surgical technique. Pain management was assessed upon awakening and at 24 and 48 hours, at discharge and in the outpatient clinic, with topical, intravenous, and oral analgesics. The Kruskal-Wallis and the Friedman tests were used, using SPSS (version 15.0; SPSS Inc., Chicago, IL), respectively, to analyze categorical and continuous variables and repeated measurements. Values of $P < 0.05$ will be considered significant.

RESULTS
When comparing the three groups, categorical variables were not statistically significant. Postoperative pain was present in 5 out of 10 patients in groups A and C and 4 out of 10 in group B; this data was not statistically significant. Postoperative pain of group B was mainly localized at surgical accesses. The statistical significance is, however, appreciable in the comparison at 48 h with a p-value respectively: 0.036 for Group B vs A, 0.005 for Group B vs. C, and finally 0.037 for Group A vs. C.

CONCLUSIONS

Despite the limitations of this pilot study, the analysis can provide an important starting point for a prospective study about intrapleural analgesia with dedicated drainage to control acute postoperative pain according to new ERAS guidelines.

Disclosure: No significant relationships.
Keywords: Analgesia, Post-Operative Pain.

P-039

A PROMISING STRATEGY IN THE EVALUATION OF AIRWAY RECONSTRUCTION USING COMPUTATIONAL FLUID DYNAMICS

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OBJECTIVES
Surgical resection, consisting of the tracheal/carinal resection and reconstruction, is considered as the cornerstone intervention for airway obstruction, especially tracheal tumor. However, the effect of airway reconstruction on aerodynamics remains unclear. Computational fluid dynamics (CFD), a promising technique applied to fluid management, comprehensively complements the results of anatomy and pulmonary function pre and post-operation. This study aims to clarify the structural and functional alterations of airway after reconstruction.

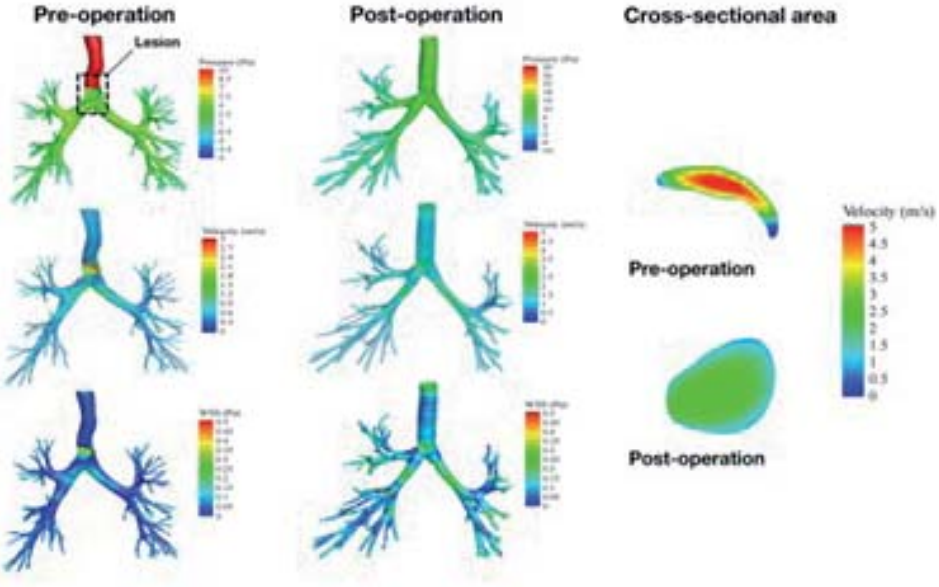
METHODS
Totally 18 patients undergoing airway reconstruction were evaluated. CFD investigation was performed of the airway tree both before and after surgery for all patients. The variations in fluid dynamics parameters and in tracheal ventilation, including pressure, wall shear stress (WSS), velocity and cross-sectional area between the pre and post-operative conditions were quantified changes.

RESULTS
CFD provided detailed airway geometry and aerodynamics both pre and post-operation. Airway parameters significantly increased through the tracheobronchial lesions, reflecting clinically with dyspnea, stridor, and cough. Following reconstruction the mean peak flow velocity corrected to 2.15m/s from 3.72m/s. The mean pressure and WSS decreased as well from 8.54Pa to 4.51Pa, and from 0.56Pa to 0.28Pa. In the post-situation, smoother airflow velocity, and more uniform pressure and WSS were present. The mean cross-sectional area significantly improved to 106.79mm2 from 52.98mm2 at the same segment. Correspondingly, these metrics showed strong correlations with resolution of stridor and dyspnea. Interestingly, rapid airflow could be detected in some postoperative patients without morphological problems, showing strong relationship with irritative cough after reconstruction.

CONCLUSIONS
CFD is a feasible and promising approach to evaluate the structural and functional alterations of the airway after reconstruction. CFD supports the current clinical treatment both in the operability assessment and personalized respiratory rehabilitation. Moreover, flow analysis detects rapid airflow through the anastomosis, which might correlate with postoperative respiratory symptoms, but could not be shown in the CT or bronchoscopy exam.

Disclosure: No significant relationships.
Keywords: Airway Reconstruction, Computational Fluid Dynamics.

Figure: Alterations of airway trees induced by airway reconstruction.



P-040

A SMALL NUMBER OF JCOGS IN A BIG SEGMENTECTOMY WHEEL: HOW REAL-LIFE HISTORICAL PRACTICE COMPARES TO THE JCOG0802/ WJOG4607L TRIAL

George Hudson, Igor Saftic, Douglas West, Eveline Internullo, Rakesh Krishnadas, Stylianos Gaitanakis, Periklis Perikleous
Bristol Royal Infirmary, Bristol, United Kingdom

OBJECTIVES
Recent trials have supported the use of segmentectomy in early-stage non-small cell lung cancer (NSCLC). We set to investigate how applicable the JCOG0802/WJOG4607L trial is to real-life experience by comparing current and previous practice.

METHODS
A single-centre database was screened for segmentectomies between April 2012 and December 2022. From 255 segmentectomies, 163 were performed for NSCLC and these were retrospectively examined against JCOG's inclusion/exclusion criteria.

RESULTS
In 2022 we recorded the highest number of NSCLC segmentectomies (n=43) and highest proportion of 'complex' segmentectomies, (n=20/43, 47%) compared to previous years. Across all years, only 20 (12%) patients would have fulfilled JCOG-criteria, the majority falling short due to pre-operative tumour size >20mm and/or non-peripheral location, co-morbidities, or resection margins not confirmed intra-operatively.
Segmentectomies not adhering to JCOG-criteria showed no significant difference in pre-operative WHO performance [median=1 vs 1, p=0.437], Clavien-Dindo scores [median=1 vs 0, p=0.222], length of stay [median=4 vs 5-days, p=0.371], or 30-day mortality [median=1 vs 1 deaths, p=0.581] compared to JCOG-adherent segmentectomies. Importantly, the non-adherent group had 4 (3%) incomplete (R1) resections and 20 (14%) recurrences, compared to 0 incomplete resections and 1 (5%) recurrence in the adherent group.

CONCLUSIONS
Segmentectomies are becoming more common and complex and thoracic surgeons should adhere to evidence-based practice. Although our JCOG-group was too small for survival analysis, we identified a higher proportion of incomplete resections and recurrences in historical segmentectomies not adhering to JCOG-criteria; we therefore suggest lobectomies should still be offered for larger tumours and when resection margins cannot be confirmed.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Segmentectomy, Sub-Lobar, NSCLC, JCOG.

		All patients (N=163)		Segmentectomies meeting JCOG criteria (N=20)		Segmentectomies not meeting JCOG criteria (N=143)		P-value
Age	Mean age	70.4	(SD=8.61, range=41-88)	69.5	(SD=8.64, range=50-83)	70.5	(SD=8.63, range=41-88)	0.662
Sex	Male	90	55%	8	40%	65	45%	0.646
	Female	73	45%	12	60%	78	55%	
Smoking status	Current	33	20%	4	20%	29	20%	0.973
	Ex	108	66%	13	65%	95	66%	
	Never	21	13%	3	15%	18	13%	
	Not known	1	1%	0	0%	1	1%	
Pre-op co-morbidities	COPD	59	36%	9	45%	50	35%	0.581
	IHD	13	8%	0	0%	13	9%	0.289
	Previous CVA/TIA	18	11%	2	10%	16	11%	0.793
	Heart failure	5	3%	0	0%	5	3%	0.555
	Insulin dependent diabetes	4	2%	0	0%	4	3%	0.600
Pre-op lung function	Mean pre-op FEV1 (% predicted)	85%	(SD=22.2, range=34-170)	83%	(SD=25.2, range=43-126)	85%	(SD=21.79, range=34-170)	
	Mean pre-op TLCO (% of predicted)	72%	(SD=21.4, range=31-153)	74%	(SD=19.3, range=31-109)	72%	(SD=21.80, range=33-153)	
Pre-op functional status	Median ASA	3	(range=1-3)	3	(range=2-3)	3	(range=1-3)	
	Median WHO performance score	1	(range=0-3)	1	(range=0-1)	1	(range=0-3)	0.437
Segmentectomy type	Simple	110	67%	12	60%	98	69%	0.446
	Complex	53	33%	8	40%	45	31%	
Incision approach	VATS	155	95%	19	95%	136	95%	0.559
	Thoracotomy	4	2%	1	5%	3	2%	
	VATS converted to thoracotomy	4	2%	0	0%	4	3%	
Lymph node station(s) resected	Median number of hilar	1	(range=0-4)	1	(range=1-3)	1	(range=0-4)	0.307
	Median number of mediastinal	2	(range=0-5)	3	(range=1-4)	2	(range=0-5)	0.163
Margins	Mean minimum of any margin	14	(SD=10.88, range=0-60)	21.1	(SD=11.45, range=5-50)	13.1	(SD=10.53, range=0-60)	0.007**
Pathological stage on histology	1A	115	71%	19	95%	96	67%	0.247
	1B	31	19%	1	5%	30	21%	
	2A	10	6%	0	0%	10	7%	
	2B	1	1%	0	0%	1	1%	
	3A	5	3%	0	0%	5	3%	
	4	1	1%	0	0%	1	1%	
Median length of stay (days)		4	(range=1-20)	5	(range=2-11)	4	(range=1-20)	0.371

		All patients (N=163)		Segmentectomies meeting JCOG criteria (N=20)		Segmentectomies not meeting JCOG criteria (N=143)		P-value
Clavien-Dindo complication score	0	81	50%	11	55%	70	49%	0.222
	1	36	22%	1	5%	35	24%	
	2	33	20%	4	20%	29	20%	
	3a	4	2%	1	5%	3	2%	
	3b	4	2%	1	5%	3	2%	
	4a	3	2%	1	5%	2	1%	
	4b	0	0%	0	0%	0	0%	
	5	2	1%	1	5%	1	1%	
Outcomes (median follow-up 32 months)	Deaths	31	19%	2	10%	29	20%	Dataset too small
	Recurrences	21	13%	1	5%	20	14%	
	30-day mortality	2	1%	1	5%	1	1%	
	90-day mortality	2	1%	1	5%	1	1%	

P-041

A SYSTEMATIC META-ANALYSIS TO DETERMINE THE OPTIMAL TIME POINT OF POSTOPERATIVE CIRCULATING TUMOR DEOXYRIBONUCLEIC ACID (DNA) SURVEILLANCE FOR EFFICACY PREDICTION IN NON-SMALL CELL LUNG CANCER

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[2]*Medical Department, Nanjing Geneseeq Technology Inc., Nanjing, China*

OBJECTIVES

The clinical application of circulating tumor DNA (ctDNA) for monitoring minimal/measurable residual disease (MRD) has become increasingly prevalent. However, there remains a lack of consistent standards for blood collection time.

METHODS

We conducted a systematic meta-analysis of published data on the use of ctDNA for MRD monitoring in resectable non-small cell lung cancer (NSCLC), by researching on the online database. Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) were applied to assess the applicability of the studies and two independent reviewers assessed the risk of bias. Information on patient disease-free survival (DFS) for subgroup analysis based on divided surveillance time, as well as prediction sensitivity and specificity were extracted.

RESULTS

The summary receiver operating characteristic curve (sROC) for all nine included studies demonstrated an area under the curve (AUC) of 0.77, with a sensitivity of 0.46 and a specificity of 0.86. We further subdivided the first blood collection time points (median: 2 weeks; range: 1~over 4 weeks) into within and after two weeks of surgery. Our analysis showed that the predictive performance of postoperative blood collection after two weeks was better than that of blood collection within two weeks (AUC: 0.87 vs. 0.86; sensitivity: 0.45 vs. 0.35). Of the six studies subjected to longitudinal monitoring, the overall AUC was 0.87 (sensitivity of 0.57, specificity of 0.87). In addition, subgroup analysis of four studies that had first blood collection time points after two weeks of operation showed an AUC of 0.89 (sensitivity of 0.62, specificity of 0.89).

CONCLUSIONS

Despite potential biases stemming from a single-center study and variations in MRD detection strategies, our research illustrates the promising use of ctDNA for postoperative MRD monitoring in NSCLC patients. Furthermore, our study suggests that collecting blood samples two weeks after surgery may yield the most optimal results.

Disclosure: No significant relationships.
Keywords: Circulating Tumor DNA, NGS, MRD, NSCLC, Meta-Analysis.

P-042

ABSTRACT EMERGENCY MANAGEMENT OF MALIGNANT TRACHEOBRONCHIAL STENOSIS

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OBJECTIVES
The objective of this study is to present therapeutic alternatives for tracheal stenosis resulting in severe respiratory compromise that requires urgent management.

CASE DESCRIPTION
Malignant tracheobronchial stenosis can become a serious emergency and potentially compromise the patient's life. Diagnosis is confirmed through imaging tests and endoscopic techniques. Tracheal prostheses are a safe treatment option, although they are not always readily available. In this report, we present a case of tracheal stenosis with severe respiratory compromise that necessitated veno-venous ECMO as a bridge to tracheal prosthesis placement.
We present the case of a patient:
A 56-year-old man with a recent diagnosis of stage IV squamous cell lung cancer presented to the emergency service due to dyspnea. He was admitted to the intensive care unit (ICU) due to significant respiratory compromise. Imaging tests revealed a right adenopathic conglomerate that compressed the trachea and the right bronchus. Bronchoscopy showed an obstruction of more than 80% of the trachea's lumen. Consequently, a multidisciplinary decision was made to provide respiratory support with veno-venous ECMO and without sedation, as a bridge to the placement of a self-expanding nitinol tracheal prosthesis, which was not immediately available. The patient progressed satisfactorily with an immediate resolution of dyspnea after the prosthesis placement. Chemotherapy and immunotherapy treatments were initiated promptly. Initially, he required weekly bronchoscopies for cleaning and aspiration of secretions. Currently, these procedures are performed every 4 weeks.

CONCLUSIONS
The use of expandable metal stents is a treatment to be considered in patients with airway obstruction.
When tracheal stenosis is severe and produces critical respiratory compromise, respiratory support with veno-venous ECMO and without sedation serves as a bridge to the placement of a tracheal prosthesis. Consequently, it is an effective alternative therapy that also allows for adequate planning of the procedure.

Disclosure: No significant relationships.
Keywords: Stenosis.

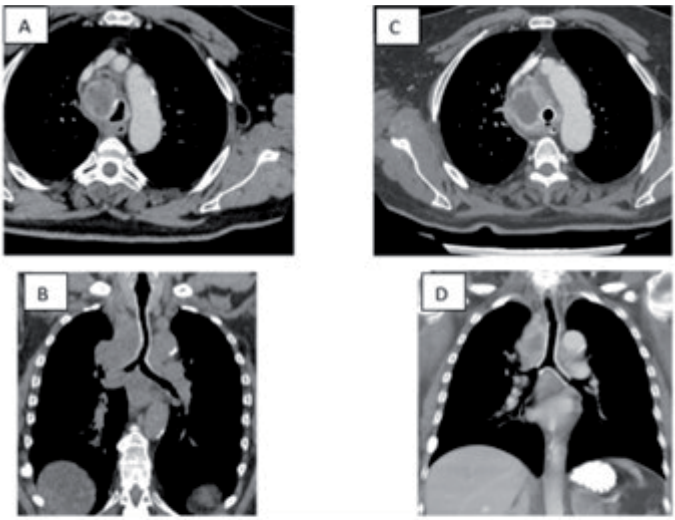

Figure 1. CT images. A and B show a large adenopathic conglomerate obstructing the trachea and the right main bronchus. C and D show adequate airway patency after prosthesis placement

P-043

ACCESS TO PERIOPERATIVE THERAPY AND PRACTICE PATTERNS AMONG EUROPEAN SOCIETY OF THORACIC SURGEONS (ESTS) MEMBERS FOR PATIENTS WITH STAGE IB-III LUNG CANCER: A SURVEY FROM THE ESTS CLINICAL TRIAL PLATFORM TEST

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OBJECTIVES

With multiple targeted therapy and immunotherapy approvals, treatment options have changed dramatically for patients with stage IB-III non-small cell lung cancer (NSCLC). It is important to understand variability of practice patterns among ESTS members in order to better compare outcomes, standardize reporting, and develop global trials.

METHODS

A 14 question SurveyMonkey survey regarding staging/treatment of 3 case scenarios was emailed to ESTS members. Results were tabulated and reported anonymously.

RESULTS

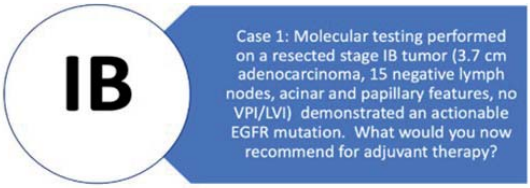
Among 127 respondents, 80% worked at academic institutions and 89.6% had reimbursed access to neoadjuvant and/or adjuvant immunotherapy. Only 16.7% of respondents practiced at ESTS accredited centres, but 63% practiced at institutions performing >/=100 lung cancer resections/year, while 25% at centers performing >/=200. Regarding case scenarios (Figure 1), 59.7% would perform molecular testing on a resected stage IB tumor and if an actionable EGFR mutation was found, 44.4% would offer osimertinib only while 22.6% would offer both chemotherapy/osimertinib. For scenario 2, a biopsy proven cT1N1 adenocarcinoma, 69.1% would proceed with upfront lobectomy, while 29.4% would give neoadjuvant chemotherapy/immunotherapy. If that patient received upfront surgery and was found to have pT1N2

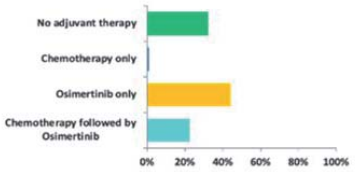
adenocarcinoma (PD-L1 25%), 68.8% of respondents would give adjuvant chemotherapy/immunotherapy, 16.8% would give adjuvant chemotherapy only, and 12% would give adjuvant chemotherapy and radiation. In scenario 3, for a patient with T2N2 (single station) squamous cell carcinoma, 71.2% of respondents would give neoadjuvant chemotherapy/immunotherapy. If this patient received neoadjuvant therapy and had MPR with PD-L1=60%, 76.2% of respondents would recommend adjuvant immunotherapy.

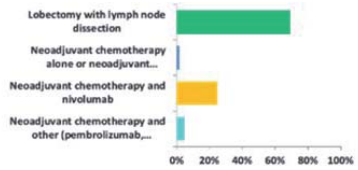
CONCLUSIONS

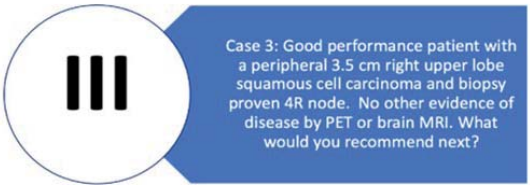
ESTS member surgeons have incorporated neoadjuvant/adjuvant immunotherapy and targeted therapy strategies into their practices for patients with stage IB-III NSCLC. However, wide variation exists based on perceived preferences rather than licensed indications and standards of care underscoring the need for further education efforts across Europe.

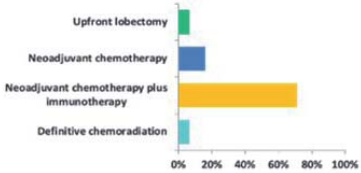
Disclosure: No real conflicts of interest. The following could be perceived as such: Roche (Institutional Grant and Speakers Bureau), Roche Genentech (Steering Committee), AstraZeneca (Advisory Board and Speakers Bureau), MSD (Advisory Board), BMS (Advisory Board), Medtronic (Institutional Grant and Advisory Board), Intuitive (Proctorship).
Keywords: Immunotherapy, NSCLC.











P-044

ADEQUACY OF SURVEILLANCE IMAGING FOLLOWING LUNG CANCER RESECTION SURGERY – ARE WE DOING ENOUGH?

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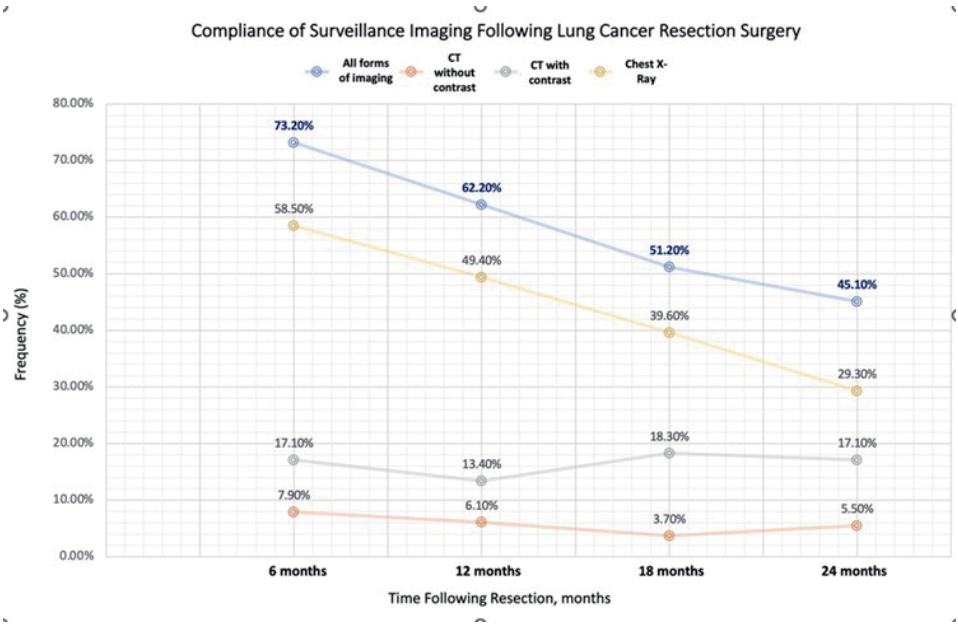
OBJECTIVES
Surgical resection with curative intent is offered to patients with localised lung cancer. Post-operative surveillance imaging is essential to detect cancer recurrence. Clinical guidelines by the American Society of Clinical Oncologists (ASCO) recommend all patients with curatively treated lung cancer should undergo surveillance imaging every 6 months for 2 years, preferably using computed tomography (CT) imaging with contrast. We aim to evaluate the adequacy of surveillance imaging amongst lung cancer patients following resection surgery, against ASCO guidelines.

METHODS
A clinical audit was performed on all patients undergoing curative lung resection surgery between 19/01/2019 and 22/12/2020. Data was collected from electronic health records including demographics, post-operative tumour staging and presence of surveillance imaging at 6-, 12-, 18- and 24-months following resection. Data analysis was performed using SPSS V.29.

RESULTS
164 patients undergoing lung cancer resection with complete and available follow-up data were included in analysis. The median age of patients at operation was 74 years (IQR 68-80). Most patients had pre-operative tumour staging of T1 (48.8%), N0 (68.3%), M0 (83.5%). Surveillance imaging was performed in 73.2%, 62.2%, 51.2% and 45.1% of patients at 6, 12, 18 and 24 months, respectively (Figure 1). Chest X-ray was the most frequently utilised imaging modality, followed by CT with contrast and CT without contrast. Primary lung cancer recurrence was most frequently detected at 18-months post-resection (9.1%).

CONCLUSIONS
Surveillance imaging following resection is adequate regarding CXR usage but not CT scan within the first 6-months, however, improvement is needed to ensure patients receive timely imaging 24-months post-surgery. Future recommendations should involve implementing digital proforma to assist in prompt surveillance imaging for all patients. Emphasising the importance of using CT imaging (with contrast) amongst clinicians will also enable early detection of cancer recurrence.

Disclosure: No significant relationships.
Keywords: Surveillance, CT Scan, Lung Cancer.


Compliance of Surveillance Imaging Following Lung Cancer Resection Surgery
All forms of imaging
CT without contrast
CT with contrast
Chest X-Ray
Frequency (%)
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
73.20%
62.20%
51.20%
45.10%
58.50%
49.40%
39.60%
29.30%
17.10%
13.40%
18.30%
17.10%
7.90%
6.10%
3.70%
5.50%
6 months
12 months
18 months
24 months
Time Following Resection, months

P-045

WITHDRAWN

P-046

ANALYSIS OF ANATOMIC LEFT LUNG UPPER LOBE RESECTIONS FOR EARLY-STAGE LUNG CANCER; MULTISEGMENTECTOMY VERSUS (VS) LOBECTOMY

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OBJECTIVES
The anatomy of the right and left sides of the lung are different. In the left lung, "S1-3 trisegmentectomy" and "lingulectomy" operations are defined as segmentectomies, whereas their right-sided counterparts are 'right upper lobectomy' and 'middle lobectomy.' If similar surgical outcomes are shown, it may be recommended to change the resection names. In this study, we aim to compare the outcomes of lobectomy and multi-segmentectomy (S1-3 Trisegmentectomy vs lingulectomy) for NSCLC located at the left upper lobe.

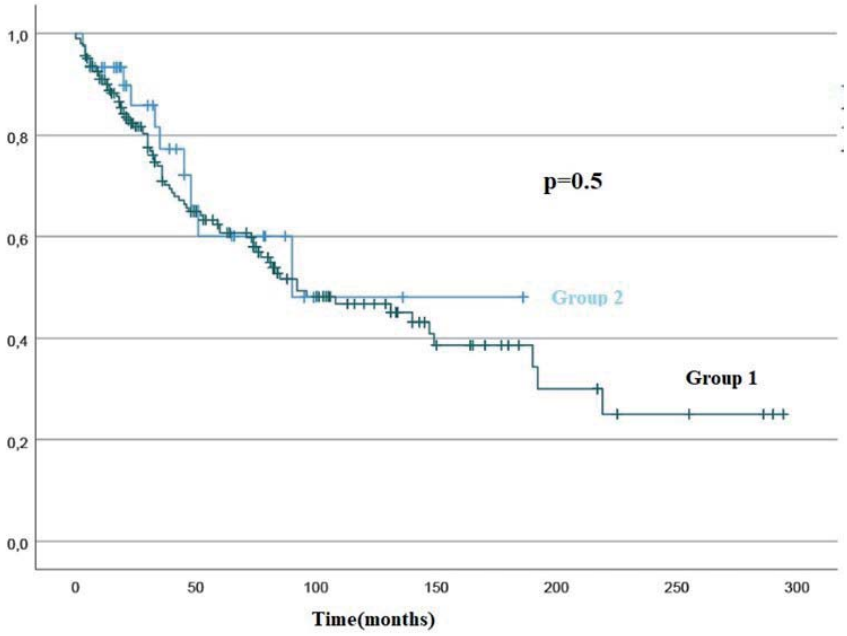
METHODS
We retrospectively reviewed the medical data of 1737 patients with NSCLC undergoing anatomic lung resection between 1999 and 2022. The study included 380 patients located in the upper lobe. Segmentectomy was the preferred surgical option for patients with suitable cardiopulmonary reserve for lobectomy but with small tumor diameter, tumors far from the parenchymal surgical margin, and limited cardiopulmonary reserve. Patients with the following criteria were excluded from the study. Segmentectomies other than multi-segmentectomy, patients with extensive resections and completion lobectomy. In total, 248 patients were included into the study and divided into two groups; group 1 lobectomy (n=203), group 2 multi-segmentectomy (n=45).

RESULTS
There were 213 (85.9%) male and 35 (14.1%) female patients with a mean age of 62.7±9.98 years. Neoadjuvant treatment was administered in 78 (31.4%) (group 1=66, 32.5%, group 2=12, 26.6%)(p=0.28). Morbidity rate was %35,4 (88/248) [group 1=36,4% (76/203), group 2=26.6% (12/45) p=0,5] along with 90-days mortality rate of 1.6% (4/248) [group 1=1.9% (4/203), group 2=0% (0/45) p=0,34]. The five-year survival rates were 60.7% in group 1 and 60.1% in group 2 (p=0.51)(graphic 1).

CONCLUSIONS
Similar surgical and oncological results were obtained in patients who underwent multi-segmentectomy and lobectomy in the upper lobe of the left lung. If supported by large multicentre studies, it may be recommended to change the definitions such as left upper lobectomy, trisegmentectomy, etc. that we currently use.

Disclosure: No significant relationships.

Keywords: Lung Cancer, Surgical Treatment, Lobectomy, Parenchyma-Preserving Surgery.



P-047

ANALYSIS OF THE SIGNIFICANCE OF PREOPERATIVE COMORBIDITY, ACTIVITY AND GENERAL CONDITION SCORING ON POSTOPERATIVE OUTCOME AFTER ANATOMICAL VIDEO ASSISTED THORACIC SURGERY (VATS) RESECTION

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OBJECTIVES
Thoracic surgeons are faced with providing patients with the most effective treatment modalities. Several risk prediction scores exist, but often do not include a comorbidity analysis or scoring of the patient's activity and general condition.
The aim of this study is to investigate the influence of the preoperative Clinical Frailty Scale (KFS), Activity of Daily Life Score (ADL), American Society of Anesthesiologists Risk Classification (ASA) and Charlson Comorbidity Index (CCI) on postoperative complication rates and their clinical value.

METHODS
529 patients who underwent anatomical VATS resection for primary lung cancer in 2015-2020 were included. Patients were followed up for at least one year.

RESULTS
Postoperative complications occurred in 44.8%; male patients suffered complications more frequently (49.4 vs. 39.3%; p=0.011). Postoperative complications were associated with higher patient age (65.51 vs. 62.96; p=0.003).
Mean ADL score for patients with complications was 17.84 (vs. 17.90: p=0.024).
Patients with complications had a higher mean CCI score of 3.05 (vs. 2.85; p=0.011). Interestingly, CCI (1.47 vs. 1.30; p=0.141) and ASA values (2.44 vs. 2.36; p=0.98) do not appear to allow conclusions about postoperative risk of complications.
ADL and ASA showed no significant influence on mortality (17.50 vs. 17.88; p=0.235 and 2.33 vs. 2.39; p=0.718). KFS and CCI, were found to be predictors of 90-day mortality with values of 4.00 (vs. 2.93; p=0.009) and 2.33 (vs. 1.37; p=0.044). Analysis of 1-year survival yielded similar results with KFS and CCI values of 3.41 (vs. 2.91; p=0.003) and 1.94 (vs. 1.34; p=0.029), with ADL and ASA again showing no significance.
Preoperative FEV1 showed no influence on complications and mortality.

CONCLUSIONS
The results of this study show that scoring systems, that are not based on clinically measurable values, can be used for assessing the risk of complications. Future risk prediction scores should also include the activity status and general condition of patients.

Disclosure: No significant relationships.
Keywords: Postoperative Complications, VATS, Activity Scoring, Comorbidity Scoring.

P-048

ANALYZING OUTCOMES IN UNIPORTAL VATS LUNG RESECTION – A 40-MONTH EXPERIENCE

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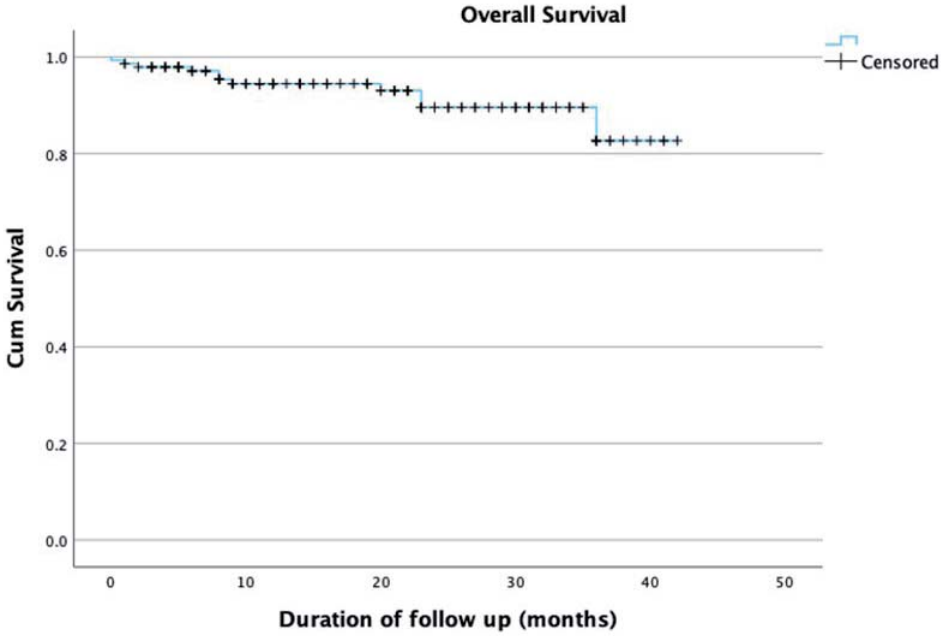
OBJECTIVES
Uniportal VATS (uVATS) lung resection is gaining popularity in Asian and European medical centers; however, its adoption in North America lags behind due to a prevailing preference for multiport or robotic VATS. In this study, we examined the early experience with uVATS lung resection by a surgeon experienced in multiport VATS (mVATS) with recent adoption of uVATS into their practice.

METHODS
Uniportal VATS was performed using a 4cm incision crossing the anterior axillary line in the 4th interspace for upper lobe, or the 5th interspace for middle/lower lobe resections. Adverse events (AE), defined according to the STS general thoracic database, were assessed. Learning curve was analyzed by comparing he first fifty procedures with subsequent cases. Oncological outcomes were analyzed in patients undergoing resection for non-small cell lung cancer (NSCLC).

RESULTS
Over a 40-month period, 188 patients underwent uVATS resection. Median age was 70 (37-90) years. Procedures included 117 (62.2%) lobectomies, 33 (17.6) segmentectomies and 39 (20.2%) wedge resections. Conversion was required in 23 (12.2%) patients; 16 to mVATS and 7 to thoracotomy. Median hospital stay was 3 days. Major AE occurred in 9 (4.8%) and included pneumonia(1), unexpected return to the operating room (6) and mortality (2). When comparing outcomes between the early and late experience, there was no significant difference in hospital stay, AE, conversion, and readmission rate. Operation for NSCLC was undertaken in 145 patients. The mean number of lymph nodes and node stations dissected were 10.08 and 4.79 respectively. The number of nodal stations dissected was superior (5.12 versus 3.89; $p<0.001$) for later procedures. Median follow-up was 18 months. Survival is demonstrated in the figure.

CONCLUSIONS
Uniportal VATS lung resection is safe and feasible with good peri-operative and oncological outcomes. Lymph node dissection improved with experience, otherwise no significant learning curve was demonstrated when transitioning from a multiport approach.

Disclosure: No significant relationships.
Keywords: Uniportal VATS, Lung Resection, Surgical Approach, Learning Curve, Oncologic Outcomes.


Overall Survival
Censored
Cum Survival
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
50
Duration of follow up (months)

P-049

ANATOMICAL REOPERATION AFTER IPSILATERAL SEGMENTECTOMY OR LOBECTOMY

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OBJECTIVES
Anatomical reoperation after ipsilateral segmentectomy or lobectomy can be challenging due to severe adhesions around the hilar structures. This may lead to fatal bleeding and bronchial or lung injury, especially in completion lobectomy or pneumonectomy. We aimed to investigate the perioperative outcomes of reoperation after anatomical resection between completion and non-completion surgery.

METHODS
All consecutive patients with anatomical reoperation after ipsilateral segmentectomy or lobectomy at Tokyo Medical and Dental University between April 2010 and November 2023 were included.
The data of patients who underwent anatomical reoperation after segmentectomy or lobectomy were extracted, and perioperative factors were compared between the completion and non-completion groups.

RESULTS
Among the 2055 anatomical resection, 53 patients (25 segmentectomies, 21 lobectomies, and 7 pneumonectomies) underwent anatomical reoperation after ipsilateral segmentectomy or lobectomy. They were divided into two groups: 19 patients (12 lobectomies and 7 pneumonectomies) in the completion group and 34 patients underwent completion (25 segmentectomies and 9 lobectomies) in the non-completion group. No significant differences were observed between the two groups in age, sex, surgical approach, or lymph node dissection during the previous surgery.
Although no significant differences were observed in intraoperative vascular injury (47.4% vs. 29.4%, p=0.1938), severe hilar adhesions were detected in 18 (94.7%) and 24 (70.6%) patients in the completion and non-completion groups (p=0.038), respectively. Further, main pulmonary artery taping was significantly performed in the completion group (47.3% vs. 14.7%, p=0.009). The duration of operative time (310.3±26.7 vs. 223.5±12.7, p=0.002) and intraoperative blood loss (1265±380 vs. 400±81, p=0.006) were significantly higher in the completion group. However, no significant differences were found in the surgical approach, duration of postoperative chest drainage and hospital stay, or postoperative complications.

CONCLUSIONS

Anatomical reoperation after ipsilateral segmentectomy or lobectomy resulted in acceptable perioperative outcomes. Particularly in completion lobectomy/pneumonectomy, main pulmonary artery taping, including intrapericardial taping, should be considered.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Lobectomy, Completion Lobectomy/Pneumonectomy.

P-050

ANTITUMOR EFFICACY OF THE DOUBLE SUICIDE GENES IN LUNG CANCER CELLS

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OBJECTIVES
To construct a recombinant adenovirus containing CDglyTK double suicide genes and evaluate the antitumor efficacy of the double suicide genes driven by kinase domain insert containing receptor (KDR) promoter on lung cancer cells.

METHODS
A double suicide gene system with the KDR promoter, pcDNA3-KDRp-CDglyTK, was constructed and transfected into lung cancer cell lines L9981 and NL9980, and human hepatocellular carcinoma cell line HepG2. The efficiency and specificity of the double suicide gene system were assayed by in vivo xenograft studies. Different injection techniques in vivo antitumor effects had also been compared.

RESULTS
The transgenic CD and TK genes were only expressed in L9981 and NL9980 but not in HepG2 cells. It also showed the evident tumor inhibiting ability by intratumoral injection than tail vein injection in the highly metastatic human large cell lung cancer cell line L9981, which displayed higher inhibitory rate than in the less metastatic human lung cell line NL9980. But, no effect was shown on the tumors from the hepatic carcinoma HepG2 cells.

CONCLUSIONS
the KDR promoter is capable of regulating a double suicide gene system in human lung cancer cells, thus providing laboratory evidence to develop a gene therapy approach against various cancers. expression of CDglyTK genes under the control of KDR promotor represents a new strategy for effective gene therapy of tumors expressing intrinsic KDR.

Disclosure: No significant relationships.
Keywords: Double Suicide Gene System, Lung Cancer Cell, Kinase Domain Insert Containing Receptor.

P-051

APPLICATION OF THREE-DIMENSIONAL-PRINTED SCAFFOLDS MODIFIED WITH HYALURONIC ACID METHACRYLOYL HYDROGEL VIA LOADED BONE MARROW MESENCHYMAL STEM CELL-DERIVED EXOSOMES FOR THE CONSTRUCTION OF VASCULARIZED TRACHEAL REPLACEMENTS

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OBJECTIVES
To investigate the potential of creating a vascularized tracheal substitute through the application of three-dimensional-printed polycaprolactonel scaffolds modified with hyaluronic acid methacryloyl hydrogel via loaded bone marrow mesenchymal stem cell-derived exosomes.

METHODS
Exosomes were proportionally mixed with hyaluronic acid methacryloyl solution, and a hyaluronic acid methacryloyl solution loaded with exosomes was prepared after ultraviolet light irradiation. Polycaprolactone scaffolds were fabricated and subsequently coated with hyaluronic acid methacryloyl solution, as well as exosome-loaded hyaluronic acid methacryloyl solution. The resulting scaffold underwent ultraviolet light irradiation to obtain the scaffold suitable for animal experiments. Subcutaneous embedding and investigations on local tracheal defect replacement were conducted, followed by the assessment of therapeutic effects after a period of 30 days. Histological staining was employed to evaluate vascular formation.

RESULTS
Experiments on hyaluronic acid methacryloyl release demonstrated the gradual release of exosomes embedded in the hydrogel over time. Following hyaluronic acid methacryloyl modification, the biocompatibility of the three-dimensional-printed polycaprolactonel scaffold was enhanced, as observed under scanning electron microscope. Favorable postoperative conditions were observed across all experimental animal groups. Examination of gross specimens and histological analysis indicated a higher degree of vascular formation in the exosome group.

CONCLUSIONS
The hyaluronic acid methacryloyl hydrogel proves effective as a controlled release carrier for exosomes. The synergistic integration of three-dimensional-printed scaffolds and hyaluronic acid methacryloyl hydrogel, leveraging their individual advantages, yields a composite tracheal scaffold characterized by excellent biocompatibility, making it well-suited for the construction of vascularized tracheal substitutes.

Disclosure: No significant relationships.
Keywords: Tracheal Reconstruction, Exosome, Polycaprolactone, Three-Dimensional-Printing, Vascularization.

P-052

ARTIFICIAL INTELLIGIENCE-BASED TUMOR-STROMA SEGMENTATION IN MALIGNANT PLEURAL MESOTHELIOMA

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[2]*University of Leicester, Leicester, United Kingdom*

OBJECTIVES
Malignant pleural mesothelioma is a rare aggressive mesothelioma of the pleura with poor survival. Immunohistochemistry is used in the histological analysis of patients with confirmed or suspected mesothelioma. Tumor-stroma segmentation is a crucial step in the analysis of pleura derived from these patients. Segmentation of tissue helps isolate tissue microenvironments and assess for differences in these compartments. This is usually performed manually by a trained histopathologist. We sought to investigate if a sufficiently trained AI model can be used to reliably segment different components of a mesothelioma histopathology sample.

METHODS
A deep convolutional neural network was used to segment tumour and stroma on tissue microarray (TMA) cores from 98 patients with a biopsy-proven malignant pleural mesothelioma. Specimens for the TMA cores were obtained during cytoreductive surgery and underwent multiplex immunofluorescence staining. Two methods were utilised to segment tumor and stroma; object classification and pixel classification. The digital pathology software used was Qupath. The classifier was trained on TMA cores from all 98 patients.

RESULTS
The object classifier was able to segment tumor and stroma including enumerating cells which stained for the various markers used. The pixel classifier was trained to delineate tissue area based on the pancytokeratin channel. Figure 1 shows the results obtained using the convolutional neural network (pixel classifier). Results of both classifiers were verified with a pathologist. High tumor-to-stroma ratio was not significant in predicting worse survival (p=0.56).

CONCLUSIONS
Using deep convolutional neural networks to segment tumor and stroma segments of mesothelioma tissue is feasible and reproducible method. A verified classifier helps reduce analysis time. Current work is focusing on building a more robust classifer to also segment biphasic mesothelioma (epithelioid and sarcomatoid areas).

Disclosure: No significant relationships.
Keywords: Mesothelioma, Machine Learning, Pathology.

P-053

ASSESSING OPERATING ROOM EFFICIENCY IN LUNG RESECTION USING OPERATIVE TIMES. TEAM AND TECHNICAL VARIABLES INFLUENCING IT

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OBJECTIVES
Measuring and improving operating room (OR) efficiency is a must in the context of improving the quality of care and decreasing costs. We aimed to evaluate lung resection operative times in a University Hospital and team and technical variables associated to it.

METHODS
We performed a single institution retrospective review of lung resections, including wedge, segmentectomy and lobectomy. The influence of different human and technical variables in total OR occupation time (patient in-patient out), total anesthesia time (patient in-patient asleep), preparation time (patient asleep-skin incision) and total surgical time (skin to skin) were investigated in univariate and multivariate analysis. Among the human variables, we studied the anesthesiologists and surgeons performing the operation and among the technical variables, the extent of resection, approach (Open, VATS or RATS) and the incidence of intraoperative complications.

RESULTS
We reviewed 199 prospectively recorded lung resections. They were performed by 4 surgeons and 17 anesthesiologists. Average times for each type of procedure are shown in Table 1. 41 patients presented any intraoperative complication (21%). The most common were the presence of adherences (32%), difficulties finding the lesion (20%), air leak requiring revision (12%) and bleeding requiring vascular control (10%) or thoracotomy (5%). On univariate analysis, the extent of resection (p=0.000), the approach (p=0.000) and the incidence of intraoperative complications (p=0.000) influenced OR and total surgical time. On multivariate analysis only the extent of resection (p=0.000) and the incidence of intraoperative complications (p=0.000) did. None of the variables correlated with anesthesia time. The surgeon and the anesthesiologist in charge were associated with preparation time (p= 0.013, and p= 0.035, respectively).

CONCLUSIONS
In our series, the main variables influencing OR occupation and surgical time were the extent of the resection and the incidence of intraoperative complications. Motivating surgeons and anesthesiologists involved could play a role in decreasing preparation times.

Disclosure: Honoraria from Abex/Intuitive, Astrazeneca and Johnson and Johnson.
Keywords: Efficiency, Team Work, Human Factors, Operative Times.

Type of resection	n (%)	Total OR time*	Surgical time*	Anesthesia time*	Preparation time*	Total lost time*	Lost preparation time*	Lost surgical time*	Lost transfer time*
Open lobectomy	6	341.09	243	41.16	26.83	46.66	10	10.16	25
RATS Lobectomy	43	369.74	283.62	49.09	17.97	27.96	6.55	5.81	9.07
VATS Lobectomy	8	337.07	258.87	44.87	21.62	22.5	3.37	5.25	13
Open wedge	2	332.65	257.5	62	11	5.7	1.5	14.5	1.2
RATS wedge	25	221.32	137.08	44.45	21.12	26.25	2.88	9.12	8.15
VATS wedge	50	163.53	90.46	43.52	19.24	24.06	4.65	4.04	9.72
RATS segmentectomy	56	311.84	229.4	44.50	19.05	34.23	3.85	8.76	13.76
VATS segmentectomy	9	266.75	189.55	34.77	19.66	38.66	3.66	2.22	15.88
Total general	199	275.60	194.51	44.83	19.41	29.45	4.65	6.64	11.45

*All times reported in minutes

P-054

ASSESSMENT OF PATIENT BLOOD MANAGEMENT IN MAJOR THORACIC SURGERY ON POSTOPERATIVE BLOOD TRANSFUSIONS AND OUTCOME. MATCHED PAIR CASE-CONTROL STUDY

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OBJECTIVES

Patient Blood Management (PBM) by is a WHO recommend multidisciplinary approach to improve perioperative patient care, however no standard for thoracic surgery is described. The goal of this study was to evaluate the impact of preoperative PBM on outcome of patients undergoing major thoracic surgery after implementation of PBM protocol.

METHODS

Between 2018-2023, 75 patients undergoing major thoracic surgery (Conen D et al.1), (Fig. 1) experienced PBM and were were retrospectively compared to a 75 patients of a historical control (2015-2018) by 1:1 propensity score matching: age, ASA score, hemoglobin levels (Hb) level type of surgery and type of access. The resulting two cohort groups were analyzed for postoperative Hb-level, use of blood transfusions and their influence on perioperative outcome.

RESULTS

Among the 75 cases in each group were 21 female and 54 male aged 65.73 years in control group as well as 27 female and 48 male aged 65.97 in PBM group. Majority of surgical procedures (n=130, 86.7%) were conducted for malignant diseases, more than 50% anatomic resections. Shorter length of stay (LOS) in PBM group with 10.64 (SD 6.7) days vs. 15.96 (SD 11.93) in controls (p=0.003), Fig. 1 and lower rate of postoperative complications [95% confidence interval (CI), 0.138; 0.55], p<0.001 were independently associated with PBM treatment. Postoperative Hb, blood transfusions, 30-and 90-day mortality were similar between groups.

CONCLUSIONS

Implementation of preoperative PBM treatment revealed a significant reduction of the LOS in thoracic surgery patients. A prospective evaluation within randomized controlled trials may demonstrate the efficacy of PBM in patients scheduled for major thoracic surgery.

Reference:
1 Conen D, Ke Wang M, Popova E, et. Lancet. 2023 Nov 4;402(10413):1627-1635. doi: 10.1016/S0140-6736(23)01689-6. Epub 2023 Aug 25. PMID: 37640035.

Disclosure: No significant relationships.
Keywords: Patient Blood Management, Major Thoracic Surgery.

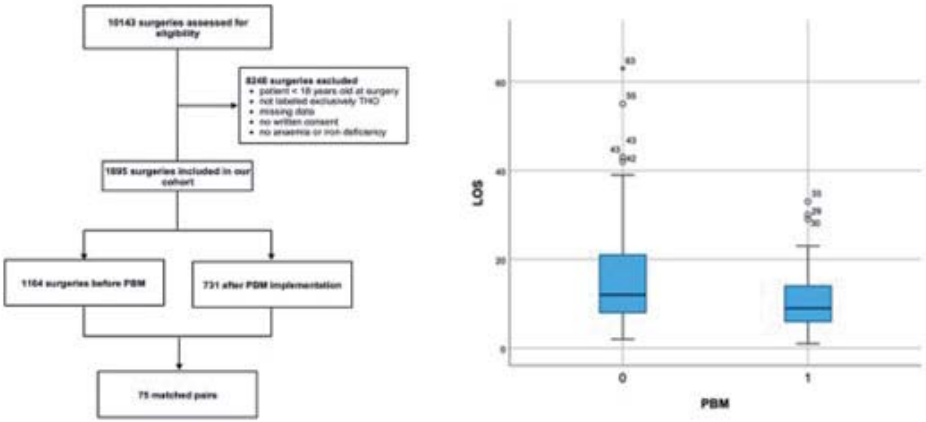

Fig.1

P-055

ASSOCIATION BETWEEN PSYCHOSOCIAL FACTORS AND OUTCOMES/ QUALITY OF LIFE IN PATIENTS UNDERGOING LUNG RESECTION FOR MALIGNANCY

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OBJECTIVES
The relationship between psychosocial factors and outcomes in patients undergoing thoracic surgery for lung cancer remains understudied. Our study examined whether psychosocial factors, including patient-reported social support and surgeon empathy, relate to outcomes and quality of life in patients after lung resection for cancer.

METHODS
We retrospectively identified all patients who underwent lung cancer resection between June 25, 2020, and September 25, 2022. Patients completed a REDCAP survey to report on sources of social support surrounding their surgery, their perception of surgeon empathy (CARE Measure), and their current quality of life (PROMIS-10).1-3 Generalized regression analyses were performed, controlling for age, gender, ethnicity, insurance type, area-level income, smoking history, alcohol use disorder, procedure (wedge, segmentectomy, lobectomy, pneumonectomy), approach (minimally invasive, open), Charlson Comorbidity Index, cancer stage, and primary surgeon's gender and years of practice.

RESULTS
Of the 832 patients identified and enrolled in the study, 143 completed the RECAP survey. Patients' psychosocial factors including social support and living arrangements, were found to be independently associated with their patient-reported quality of life (n=143) and outcomes (n=832) after surgery. History of a major psychiatric disorder was linked to decreased quality of life. Patients with a history of anxiety disorder experienced a shorter time until death following lung resection for primary lung cancer. A higher level of patient-perceived surgeon empathy was independently associated with improved patient-reported quality of life in physical and

mental health. Our analysis revealed no statistically significant differences in patient-reported empathy scores based on surgeon gender, years of experience, or specific provider.

CONCLUSIONS

Our results indicate that social support, whether from family members or empathetic healthcare providers, may be positively associated with patients' overall quality of life and post-surgery clinical outcomes. These results highlight the importance of further research on psychosocial factors that may influence outcomes in thoracic surgery for lung cancer.

Disclosure: No significant relationships.
Keywords: Psychosocial, Lung Cancer, Therapeutic Encounter, Quality of Life.

Table 1. Associations of Psychosocial Factors and Surgeon Empathy with Perioperative and Quality-of-Life Outcomes

	Physical Health QoL**		Mental Health QoL**	
Psychosocial Factors	**(95% CI)**	**p**	**(95% CI)**	**p**
Mood disorder	**-1.29 (-2.47, -0.10)**	**0.035***	**-1.75 (-3.00, -0.50)**	**0.007***
Anxiety disorder	**-0.48 (-1.72, 0.75)**	0.444	**-1.92 (-3.19, -0.66)**	**0.003***
Major psychiatric disorder	**-1.30 (-2.39, -0.21)**	**0.021***	**-1.98 (-3.10, -0.86)**	**0.001***
Living alone vs. others	1.54 (-0.13, 3.21)	0.073	0.58 (-1.18, 2.34)	0.518
Living with a significant other vs. others	**1.62 (0.32, 2.92)**	**0.035***	**1.52 (0.13, 2.91)**	**0.034***
Social support from a significant other	0.65 (-0.47, 1.76)	0.258	**1.30 (0.13, 2.47)**	**0.032***
Social support from children	0.51 (-0.49, 1.51)	0.322	**1.34 (0.32, 2.36)**	**0.011***
Social support from friend	0.44 (-0.62, 1.51)	0.416	0.30 (-0.80, 1.40)	0.592
Surgeon empathy	**0.14 (0.09, 0.19)**	**< 0.001***	**0.11 (0.05, 0.17)**	**0.001***
	Overall Complications		**Pulmonary Complications**	
Psychosocial Factors	**(95% CI)**	**p**	**(95% CI)**	p
Mood disorder	0.77 (0.48, 1.24)	0.286	0.97 (0.56, 1.67)	0.917
Anxiety disorder	0.83 (0.54, 1.26)	0.373	0.75 (0.45, 1.26)	0.276
Major psychiatric disorder	0.95 (0.65, 1.38)	0.788	1.00 (0.64, 1.56)	0.997
Living alone vs. others	0.63 (0.37, 1.06)	0.083	0.57 (0.31, 1.03)	0.062
Living with a significant other vs. others	**0.49 (0.31, 0.80)**	**0.004***	**0.43 (0.25, 0.73)**	**0.002***
Social support from a significant other	0.64 (0.23, 1.78)	0.388	0.60 (0.19, 1.92)	0.392
Social support from children	1.10 (0.43, 2.80)	0.837	0.89 (0.31, 2.56)	0.833
Social support from friend	0.82 (0.31, 2.12)	0.675	0.49 (0.16, 1.46)	0.202
Surgeon empathy	0.99 (0.94, 1.04)	0.580	0.98 (0.93, 1.03)	0.437
	Length of stay (HR > 1, longer)		**Time to death (HR > 1, harmful)**	
Psychosocial Factors	**(95% CI)**	**p**	**(95% CI)**	**p**
Mood disorder	1.10 (0.88, 1.38)	0.415	1.15 (0.32, 4.17)	0.833
Anxiety disorder	0.98 (0.81, 1.19)	0.836	**12.13 (2.60, 56.57)**	**0.001***
Major psychiatric disorder	0.94 (0.79, 1.12)	0.501	1.51 (0.43, 5.24)	0.518
Living alone vs. others	0.85 (0.66, 1.08)	0.182	0.55 (0.20, 1.53)	0.252
Living with significant other vs. others	**1.29 (1.04, 1.59)**	**0.020***	2.21 (0.77, 6.37)	0.140
Social support from significant other	**1.78 (1.16, 2.75)**	**0.009***	-	-
Social support from children	0.91 (0.62, 1.33)	0.635	-	-
Social support from friend	1.18 (0.80, 1.73)	0.414	-	-
Surgeon empathy	0.98 (0.96, 1.00)	0.125	-	-

All analyses included the following covariates: age, gender, race/ethnicity, insurance type, zip code, smoking history, alcohol use disorder, procedure (wedge, segmentectomy, lobectomy, pneumonectomy), approach (minimally invasive, open), Charlson Comorbidity Index, cancer stage, and primary surgeon's gender and years of practice.

β, beta coefficient; CI, confidence interval; OR, odds ratio; HR, hazard ratio.

**PROMIS (Patient-Reported Outcomes Measurement Information System) Global-10 Score.

P-056

ASSOCIATION BETWEEN THE PREOPERATIVE TIMED UP AND GO TEST AND SHORT- AND LONG-TERM OUTCOMES AFTER ANATOMICAL PULMONARY RESECTION

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OBJECTIVES
The Timed Up and Go (TUG) test is an easy-to-administer tool measuring motor functions with prognostic value in elderly. The aim of this study was to investigate the association between the TUG test and the short- and long-term outcomes after anatomical pulmonary resection.

METHODS
We retrospectively reviewed records of all patients who underwent anatomical pulmonary resection from 2021 to 2023. A TUG test taking more than 10 seconds was considered to be impaired. We compared cardiopulmonary complications at 30 days and long-term overall survival according to the TUG tests. Logistic regression was employed to analyze complications and the survival proportions were estimated using Kaplan-Meier curves. Hazard ratios were estimated using Cox proportional hazard models.

RESULTS
A total of 95 patients were included in the analysis, including 19% of patients with a TUG >10 seconds. Mean age was 68.9 ± 9.8 years. Lung cancer was the surgical indication in 81% of patients. A majority of patients underwent resection by VATS (90.5%), and a majority underwent segmentectomy (61.1%). The mean follow-up duration was 304 ± 124 days. An impaired TUG didn't predict an increased risk of cardiopulmonary complications at 30 days. In the long term, an impaired TUG was associated with a shorter overall survival (P<0.001). Multivariate analysis confirmed that an impaired TUG and age older than 80 years old were independent predictors of patient death in the long-term (hazard ratio, 11.7; P=0.030 and hazard ratio, 7.9; P=0.028, respectively).

CONCLUSIONS
In the long-term, an impaired TUG is associated with a shorter overall survival after anatomical pulmonary resection. It requires further investigation and whether interventions improving TUG such as rehabilitation could enhance long-term outcomes.

Disclosure: No significant relationships.
Keywords: Lung Resection, TUG Test, Risk Assessment.

P-057

AUTO-ESPANDABLE STENT FOR CENTRAL AIRWAYS MALIGNANT OBSTRUCTION FOR PALLIATIVE OR BRIDGING PURPOSES: A FIVE-YEAR'S EXPERIENCE

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OBJECTIVES
Malignant central airway obstruction, a life-threatening complication linked to intrathoracic and metastatic extrathoracic tumors, prompts acute emergency department visits. This study reviews clinical presentations, perioperative complications and post-bronchoscopic deobstruction treatments, emphasizing stent placement.

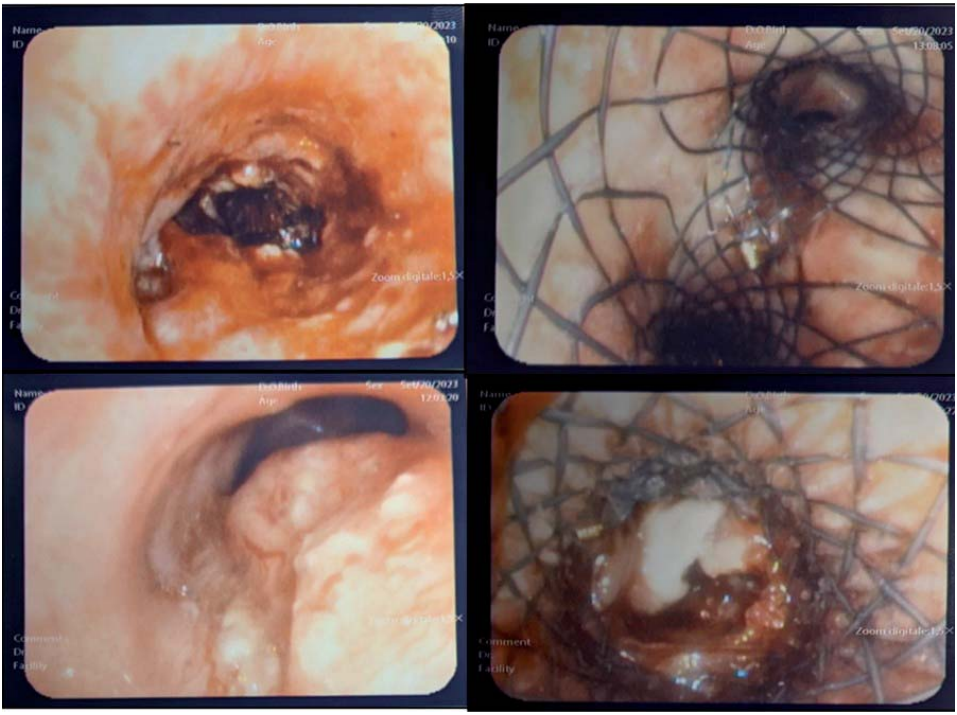
METHODS
A five-year retrospective analysis of clinical records for patients undergoing rigid bronchoscopy at our institution for malignant central airway obstruction was conducted.

RESULTS
Between 2019 and 2023, 168 patients underwent rigid bronchoscopy in the operating room under deep sedation. Urgent procedures accounted for 30.6%. Primary thoracic tumors exhibited predominant pulmonary squamous histology (31.5%), followed by adenocarcinoma, sarcomatoid-like tumors, and SCLS. Squamous histology prevailed for primary tracheal tumors, while bowel and renal metastases contributed to heterogeneity in metastatic tumors.
Deobstruction involved coring maneuvers (86.7%) and laser ablation (48%) for cytoreduction and hemostasis. After restoring airway patency, stent deployment feasibility was assessed. Auto-expandable stents, mainly the Y-shaped Innova Medica MicroTech (52%) were deemed suitable, with distal trachea (52%) and carina (47%) as common lesions sites. Linear prosthesis treated mid-distal tracheal and main bronchus lesions, avoiding the left main bronchus in 81% due to unfavorable anatomy.
No intraoperative mortality occurred despite two major bleedings; two critically ill patients died within 7 days from surgery and four displacements within the first five days necessitated repositioning. Additionally, 14 patients needed repositioning during a mean follow-up of 293 days.
Solid information after the first month was available for 67% of patients. Of these, 51 proceeded to further CT/RT treatment and in eight cases, stents were successfully removed after recanalization and disease control within an average of 193 days (27-882).

CONCLUSIONS

Recanalization maneuvers and stent placement effectively and safely treat locally advanced or metastatic airway malignancies, serving palliative or bridging purposes. High-volume endoscopic centers, led by thoracic surgeons or expert teams familiar with rigid bronchoscopy and central airway pathology, are recommended for deobstruction and stent placement.

Disclosure: No significant relationships.
Keywords: Airway, Obstruction, Malignant, Stent Placement, Laser Therapy.



P-058

AUTOLOGUS TISSUES CAN BE USEFULL TO REPLACE CERVICAL TRACHEAL WALL DEFICIT IN CRITICAL SITUATION

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OBJECTIVES
To present the outcomes of employing the inferiorly based rotated sternocleidomastoid muscle flap in complex tracheal reconstruction/repair scenarios, focusing on the key objectives of ensuring stable airway, functional digestive tract and patient survival.

METHODS
A retrospective analysis was performed for patients treated from 2011 to 2023, in which the sternocleidomastoid muscle flap, detached from the mastoid and basicranium, was rotated on the lower pivot directly onto the repair site, pedicled to the sternal origin. Average postoperative hospital stay, follow-up period and patient survival were analysed. Follow-up assessments encompassed bronchoscopies and CT-scans conducted at 15 and 28 postoperative days, and at 3 and 9 months.

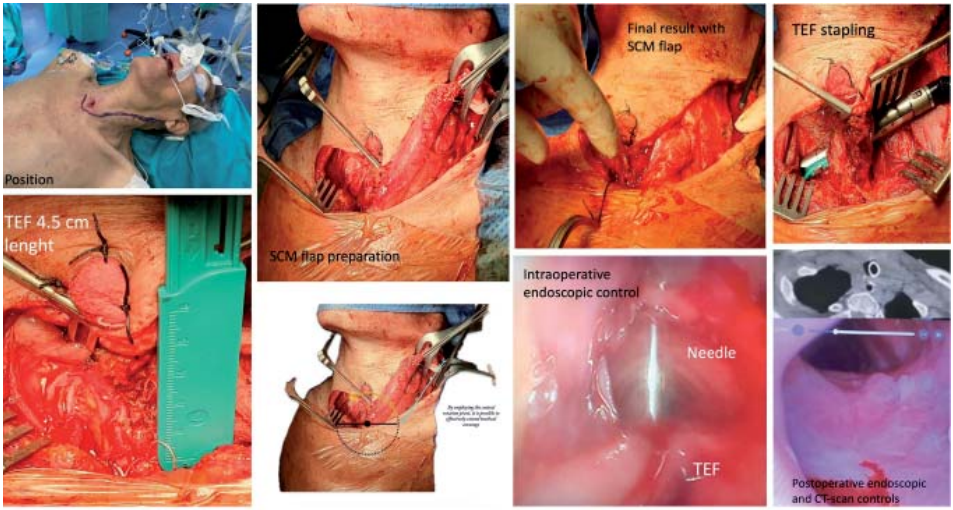
RESULTS
5 patients were enrolled, 1 patient presented large anterior tracheal wall lesion, 1 patient an anterior wall necrosis due to descending cervical mediastinitis, and 3 patients presented extra-long tracheoesophageal fistulas (TEF). In case of direct repair, the sternocleidomastoid muscle was used to reconstruct the tissue deficit. In case of repair through exclusion of the TEF, the sternocleidomastoid muscle was interposed between visceral sutures, in 1 case even substituting the membranous part of the tracheal wall. Our technique allows rotation on the sternal head of the sternocleidomastoid muscle with the lowest rotation radius, pedicled to the sternal origin, detached from the mastoid process and superior nuchal line, thus providing optimal vascularisation from the superior thyroid artery/external carotid artery and accessory vasculature from the suprascapular artery.
Patients exhibited uneventful postoperative recovery; the mean postoperative hospitalization duration was 41 days. Follow-up assessments resulted negative for post-operative complications.

CONCLUSIONS
The use of sternocleidomastoid muscle flap was proposed to ensure repair and protection of the suture margin or to constitute a portion, as scaffold, of the wall by leveraging the muscle's

vascularization and thickness. This technique may be considered a leading component in managing complex situations in tracheal surgery.

Disclosure: No significant relationships.
Keywords: Tracheoesophageal Fistula, Tracheal Defect, Sternocleidomastoids.

	Sex	Age	Cause	Diagnosis	Treatment	Tracheo	Hospital stay (days)
C.	M	65	Iatrogenic (post Iwor-Lewis esophagectomy)	Large TEF	Transtracheal fistulorrhaphy intertracheoesophageal apposition of SCM on the tracheal side	Yes	42
C.	M	46	Descendant cervicomediastinitis (initial tonsillitis)	Anterior tracheal wall necrosis	Right SCM flap rotated to cover the substance loss	Yes	52
I.	M	35	Iatrogenic (post-intubation)	Large tracheoesophageal fistula with loss of substance of the left lateral tracheal wall	TEF repair, resection and ETE tracheal anastomosis, left SCM flap to cover the substance loss (including membranous part of trachea)	Yes	46
T.	M	62	Chainsaw wound	Large lacerated-contused wound of the anterior neck region + anterior portion of the sternum with extensive tracheal lesion with loss of substance	Reconstruction of the large tracheal laceration and left SCM flap rotated to cover the substance loss	Yes	34
A.	M	72	Iatrogenic (post-tracheotomy)	TEF	Exclusion of TEF with mechanical stapler and intertracheoesophageal interposition using left SCM flap	Yes	30


Position
TEF 4.5 cm
lenght
SCM flap preparation
Final result with
SCM flap
TEF stapling
Intraoperative
endoscopic control
Needle
TEF
Postoperative endoscopic
and CT-scan controls

P-059

AWAKE EXTRACORPOREAL MEMBRANE OXYGENATION FOR A LARGE ANTERIOR MEDIASTINAL MASS RESECTION

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OBJECTIVES

Large anterior mediastinal masses can cause significant cardiorespiratory compression. Mass effect can worsen with induction of anesthesia due to supine positioning, loss of airway patency, reduced preload, and vasodilation. These factors make resection complex.

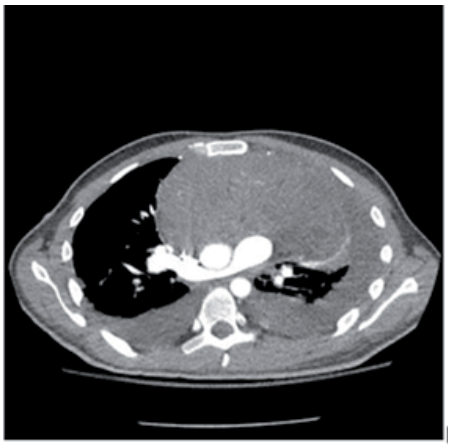
CASE DESCRIPTION

Here we present the case of a 32 year-old male who presented with abdominal pain and shortness of breath and was found to have a 15.3 x 10.1 x 7.3cm stage IIIC non-seminomatous germ cell tumor compressing the superior vena cava and right atrium (Figure 1A). After undergoing post-induction chemotherapy, to mitigate the risks of worsening cardiac compression on induction of anesthesia, awake cannulation of femoral-femoral veno-arterial extracorporeal membrane oxygenation was performed with dexmedetomidine. Positioning was confirmed with fluoroscopy and flow was gradually increased. Once full flow was achieved, induction of anesthesia was performed and transesophageal echocardiogram revealed significant right atrial compression, right ventricular outflow obstruction, and pulmonary artery narrowing. En bloc resection of the mass with pericardium and reconstruction with a polytetrafluoroethylene patch was achieved through a clamshell thoracotomy (Figure 1B). Bilateral lung wedges, dissection of stations 2R, 4R and 5, and left hemidiaphragm resection were also performed. The phrenic nerves were preserved bilaterally. Pathology revealed a teratoma with vasculogenic mesenchymal tumor and negative margins. The patient stayed in the intensive care unit for two days, had an uneventful recovery, and was discharged on post-operative day 10. At one year follow up the patient had no evidence of disease.

CONCLUSIONS

Extracorporeal membrane oxygenation is a key tool for managing high risk patients with large mediastinal tumors. When done while the patient is awake, it can reduce the risks associated with induction of anesthesia.

Disclosure: No significant relationships.
Keywords: ECMO, Awake ECMO, Mediastinal Mass.



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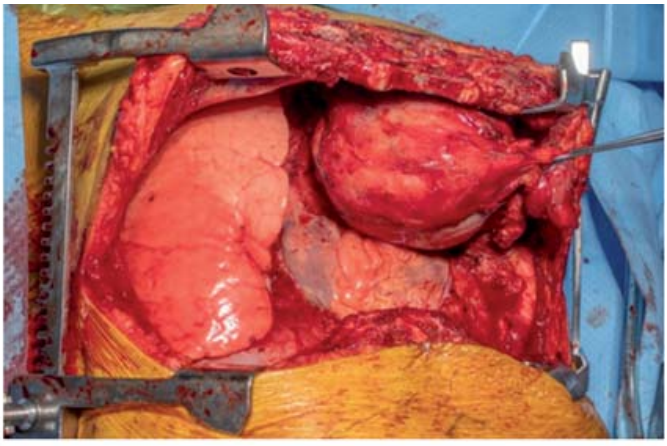

B

P-060

BEYOND THE INCISION: INVESTIGATING SURGICAL OUTCOMES IN ORGANIZING EMPYEMA THORACIC – A COMPARATIVE STUDY OF VIDEO ASSISTED THORACIC SURGERY (VATS) AND OPEN THORACOTOMY

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OBJECTIVES
This study compares surgical outcomes in managing organizing empyema thoracis using Video-Assisted Thoracoscopic Surgery (VATS) and Open Thoracotomy (OT)

METHODS
This is a non-randomized therapeutic research, all adult patients (age >20 years old) diagnosed with organizing empyema thoracis who underwent decortication at the Department of Surgery, Chiang Mai University hospital, Chiang Mai, Thailand, between January 1, 2017 and December 31, 2021, were divided into two groups: VATS and OT group. The primary outcome was lung expansion following decortication. Secondary outcomes were intraoperative blood loss, operative time, pain score, and post-operative complications. Multivariable regression analysis was employed to compare outcome variables between VATS and OT.

RESULTS
A total of 168 patients (147 in VATS and 21 in OT) were included in the study. Complete decortication rates were 94.56% for VATS and 90.48% for OT. Postoperative complications and pain scores did not differ between the groups. Intraoperative blood loss and postoperative PRC and FFP transfusions were significantly higher in the OT group. The proportion of fully expanded lungs after surgery was 90.48% for VATS and 80.96% for OT. In multivariable analysis, VATS patients had significantly lower intraoperative blood loss than OT patients (Mean Difference = -279.72, 95% CI -453.52, -105.92, p=0.002). Operative time in VATS showed a trend towards being shorter than OT. The fully expanded lung at discharge and at 2 weeks after discharge did not differ between the two groups (see Table 1).

CONCLUSIONS
VATS can be performed in organized stage of empyema thoracis and demonstrated comparable surgical outcomes across groups concerning postoperative complications, achievement of complete decortication, and the attainment of fully expanded lungs post-decortication. Additionally, VATS exhibited a favorable advantage over OT in minimizing intraoperative blood loss. Further studies with larger sample size are warranted to support these results.

Disclosure: No significant relationships.
Keywords: Organizing Empyema Thoracis, Stage III Pyothorax, VATS, MIS, Decortication.

Table 1 Multivariable regression analysis for outcome variables comparing between the two groups (VATS versus OT)

Outcome variables	Estimate	95 % CI	p-value
Intraoperative blood loss (ml)	MD*= -279.72	-453.52, -105.92	0.002
Operative time (min)	MD*-29.74	-64.58, 5.10	0.094
Fully expanded lung at discharge date	RR#=1.42	0.74, 2.73	0.292
Fully expanded lung at 2 weeks after discharge	RR#=1.11	0.67, 1.85	0.682

*Analyzed by multiple linear regression analysis adjusted by multi-loculation, and thick pleural peel, and presented with mean difference (MD) with 95 % confidence intervals.
#Analyzed by exponential risk regression analysis adjusted by multi-loculation, and thick pleural peel, and presented with risk ratio (RR) with 95 % confidence intervals.

P-061

ASSOCIATION OF WEARABLE ACTIVITY MONITORS AND DIGITAL DRAINAGE DEVICE WITH DAILY AMBULATION AND LENGTH OF STAY AMONG PULMONARY RESECTION PATIENTS- A PROSPECTIVE, RANDOMIZED CONTROLLED STUDY

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OBJECTIVES
Chest tubes have been used routinely for pleural space drainage, especially after lung surgery. Since the digital chest drainage was introduced and applied, there are many studies discussing digital chest drainage (DCD) and traditional chest drainage (TCD). Most of them discussing whether the DCD had benefit of shortening length of stay but few of them talking about quality of post-operative course. In this prospective, randomized controlled study in single center, we aimed to see if DCD has benefit of post-operative course.

METHODS
This was a prospective study in a single center. Total 253 patients who received lung surgery during 2018 to 2021 were recruited. Patients were grouped according to the category of chest drainage after surgery (DCD or TCD). The smartwatch was applied in our study to check the sleep duration and walking distance of each patient after surgery. Post-operative outcomes, duration and quality of sleep, and rehabilitation were taken into primary outcomes.

RESULTS
There were 128 patients in the DCD group and 125 patients in the TCD group. The baseline characteristics were similar between two groups. In the post-operative outcomes, the length of chest tube insertion time, length of hospitalization and number of chest X-ray were shorter in the DCD group, especially in patients receiving wedge resection and segmentectomy. There was no different of post-operative complications between two groups. In the aspect of physiological change, the duration of deep sleep and total sleep time during the first three days after surgery was longer in the DCD group. Moreover, the walking steps during the first three days after surgery were higher in the DCD group.

CONCLUSIONS
DCD had the benefit of not only shortening the post-operative course, it also improving the quality of life, especially in the filed of sleeping and ambulation.

Disclosure: No significant relationships.
Keywords: Digital Chest Drainage, Pulmonary Resection, Length Of Stay.

	Digital chest drainage	Traditional chest drainage	p value
Overall	**n= 128**	**n= 125**	
Operation time	164.70±62.05	150.84±63.77	0.081
Length of hospital stay(hour)	77.55±32.89	107.02±124.87	0.012
Length of chest tube insertion(hour)	50.52±28.73	73.80±115.90	0.028
Number of CXR after surgery	2.08±0.35	2.60±0.86	<0.001
Post-operative pulmonary complications	10	5	0.157
Wedge rection	**n= 43**	**n= 41**	
Operation time	125.35±42.75	104.05±38.53	0.019
Length of hospital stay(hour)	65.84±18.85	83.83±27.36	0.001
Length of chest tube insertion(hour)	38.88±15.37	55.39±25.23	<0.001
Number of CXR after surgery	2.02±0.15	2.51±0.71	<0.001
Post-operative pulmonary complications	1(2.3)	0(0)	0.326
Segmentectomy	**n= 42**	**n= 40**	
Operation time	167.90±53.50	166.38±47.56	0.892
Length of hospital stay(hour)	74.48±28.66	91.15±40.41	0.034
Length of chest tube(hour)	46.90±23.82	59.70±22.53	0.015
Number of CXR after surgery	2.07±0.34	2.48±0.85	0.005
Post-operative pulmonary complications	3(7.1)	2(5.0)	0.685
Lobectomy	**n= 43**	**n= 44**	
Operation time	200.91±63.91	180.32±71.36	0.160
Length of hospital stay(hour)	92.26±41.75	143.07±201.76	0.109
Length of chest tube(hour)	65.67±36.33	103.77±190.42	0.115
Number of CXR after surgery	2.14±0.47	2.80±0.98	<0.001
Post-operative pulmonary complications	6(14.0)	3(6.8)	0.275

P-062

BEYOND THE SCALPEL: EXPLORING SURGICAL EFFECTS ON CIRCULATING TUMOR DEOXYRIBONUCLEIC ACID (DNA) LEVELS IN NON SMALL CELL LUNG CANCER (NSCLC) PATIENTS

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OBJECTIVES
Although complete pathological resection has been achieved in patients with non-small cell lung cancer (NSCLC), high rates of cancer recurrence persist. Our study aimed to examine the concentration of circulating free tumor DNA (cfDNA) in the pulmonary and peripheral venous blood of patients with NSCLC undergoing surgery.

METHODS
Patients with NSCLC (n = 18) scheduled for lobectomy or segmentectomy were enrolled in this study. Blood samples were collected during surgery - right before resection, and after surgery. Intraoperative blood samples were collected from both a peripheral vein and the pulmonary vein that drains the tumor-containing lung segment. Quantitative real-time PCR was used to measure hTERT and GAPDH levels, enabling comparative analysis of cfDNA levels.

RESULTS
NSCLC patients demonstrated significantly higher pre-resection hTERT levels in peripheral blood (3.89 fg/ml) than healthy controls (0.72 fg/ml, $p < 0.001$). GAPDH levels were similarly elevated (NSCLC: 1.63 fg/ml, Controls: 0.21 fg/ml, $p < 0.001$). Pulmonary venous blood showed significantly higher concentrations of both hTERT (4.29 fg/ml) and GAPDH (1.78 fg/ml) than peripheral blood ($p < 0.001$). Postoperatively, peripheral levels of hTERT and GAPDH increased to 10.31 fg/ml and 5.03 fg/ml, respectively.

CONCLUSIONS
Our study shows that hTERT and GAPDH are promising biomarkers of cfDNA levels in patients with NSCLC undergoing surgery. Differences in cfDNA levels between pulmonary and peripheral venous blood suggest a varying tumor burden between different pulmonary segments. The increase in cfDNA levels after surgery may reflect surgical trauma or immune alterations. These insights lay the groundwork for more targeted studies that could ultimately refine surgical approaches and explore the role of neoadjuvant therapies, including immunotherapy, in NSCLC treatment.

Disclosure: No significant relationships.
Keywords: NSCLC, Lung Cancer, Surgery, Liquid Biopsy, CfDNA.

P-063

BILATERAL LUNG TRANSPLANTATION IN SEVERE CHEST ASYMMETRY: CASE SERIES FROM A SINGLE CENTER

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OBJECTIVES

Suppurative lung diseases leading to end-stage respiratory failure are typical indications for bilateral lung transplantation. Some cases may present severe chest asymmetry because of recurrent infections or previous surgical therapies, especially in patients with cystic fibrosis. To deal with this anatomical condition, the most used surgical options are single lung transplantation with contralateral pneumonectomy or bilateral transplantation with graft downsizing. The purpose of this study is to evaluate the treatment we practiced at our institution for this subset of patients and review surgical strategies and technical aspects reported by others.

METHODS

We reviewed the clinical data of patients with significant pleural cavities asymmetry who received bilateral lung transplantation at our center from 2017 to 2022. Clinical reports of all patients who underwent lung transplantation for end-stage suppurative lung disease in the same period were revised as control group.

RESULTS

During the study period, 74 patients underwent bilateral lung transplantation for suppurative disease; 7 of them presented severe thorax asymmetry. All patients in chest asymmetry group were extubated within the second postoperative day. Mean intensive care unit stay was 4 days. Postoperative radiological evaluation did not show clustering or atelectasis of graft implanted in the smaller hemithorax. No perioperative major complications were recorded, and the average length of hospital stay was 23 days. Peri-operative course appeared remarkably good and both short and long-term follow-up prove to be entirely similar to the reference population.

CONCLUSIONS

Bilateral lung transplantation in patients with severe chest asymmetry was feasible even without graft downsizing and could be considered as first option. In our experience, short- and medium-term results are not dissimilar to those obtained in patients without this serious problem of symmetry.

Disclosure: No significant relationships.
Keywords: Transplantation, Surgical Technique, Graft Reduction, Cystic Fibrosis.

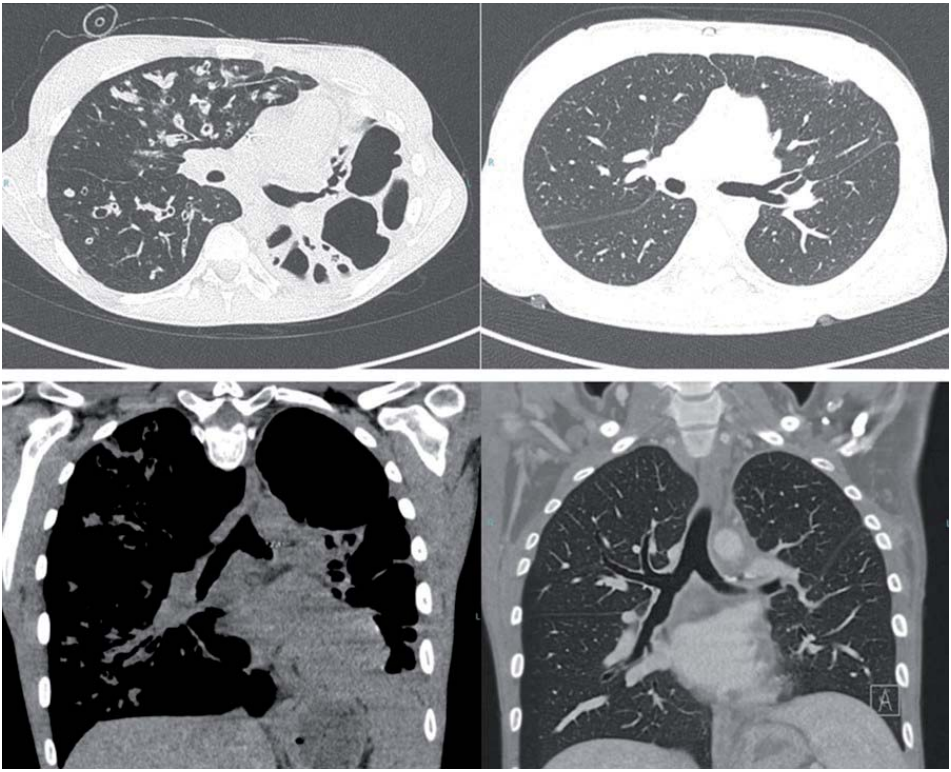

Table 1. Morphometric parameters focusing on size match, setting information and operative characteristics of the seven patients with chest asymmetry

Case number	1	2	3	4	5	6	7
Age (D/R)	36/40	51/17	17/27	28/48	52/28	53/41	64/38
Weight (D/R)	63/55	60/47	70/53	60/57	65/35	47/65	59/70
Height (D/R)	160/162	150/156	190/175	182/172	150/152	165/165	170/170
D/R Height ratio	0,98	0,96	1,08	1,06	0,98	1	1
LAS	62,11	40,81	34,43	81,16	67,63	40,99	36,09
National Urgency Program	Yes	No	No	Yes	Yes	No	No
Type of Transplant	BiLuTx	BiLuTX	BiLuTX	BiLuTX	BiLuTX	BiLuTX	BiLuTX
Mediastinal Shift	Left	Right	Left	Right	Left	Right	Left
Type Of Incision	Clamshell	Clamshell	Clamshell	Clamshell	Clamshell	Clamshell	Clamshell
Skin-To-Skin Time, min.	568	460	497	554	667	536	559
First Lung Ischemia, min.	378	445	384	451	677	337	309
Second Lung Ischemia, min.	584	618	620	641	423	557	555
Intraoperative ECMO	VA	N	VA	VV	VA	N	N
Post-Op ECMO	VV	N	N	VV	N	N	N
Graft Volume Reduction	N	N	N	N	Wedge LUL	N	N

Table 2. Transplantation features

	chest Asymmetry (n=7)	Control (n=67)
Recipient's Age, Mean (SD)	34.0 (9.7)	34 (16.0)
Female, N (%)	3 (42.9)	33 (49.3)
LAS (SD)	53.5 (15.8)	41.6 (9.1)
Pathology, N (%) Fi Br	 6 (85.7) 1 (14.3)	 63 (94.0) 4 (6.0)
National Urgent List, N (%)	3 (42.9)	4 (6.0)
Donor's Age, Mean (SD)	34.0 (9.7)	40.3 (16.5)
Donation, N (%) DBD DCD	 7 (100.0) 0 (0.0)	 57 (85.1) 10 (14.9)
Oto Score, Mean (SD)	4.7 (2.5)	2.5 (2.3)
Smoking History Yes, N (%)	2 (28.7)	12 (17.9)
Best PO2 at signaling, Mean (SD)	534.5 (57.6)	471.5 (88.1)
Ex Vivo Lung Perfusion (EVLP), N (%)	0 (0.0)	19 (28.4)
Surgical Incision, N (%) Clamshell Bilateral Thoracotomy	 7 (100.0) 0 (0.0)	 49 (73.1) 18 (26.9)
ECMO Support, N (%) Pre-Operative VV Intraoperative VA Post-Operative	 3 (42.9) 4 (57.1) 2 (28.7)	 3 (4.5) 34 (50.7) 9 (13.4)
Volume Reduction Performed, N (%) Wedge Resection, N (%) Lobectomy, N (%)	1 (14.3) 1 (14.3) 0 (0.0)	7 (10.4) 3 (4.5) 4 (6.0)

Table 3. Short and long-therm outcomes

	chest Asymmetry (7)	Control (N=67)
PGD Grade≥2 within 72h, N (%)	2 (28.6)	14 (21.0)
Prolonged Weaning, N (%)	0 (0.0)	4 (6.0)
Wound Infection, N (%)	0 (0.0)	6 (9.0)
Pleural Effusion, N (%)	0 (0.0)	7 (10.4)
Pneumothorax, N (%)	3 (42.9)	3 (4.5)
Major Bleeding , N (%)	0 (0.0)	2 (3.0)
Mechanical Ventilation (days), Mean (SD)	1.1 (0.6)	1.5 (1.8)
ICU Stay (Day), Mean (SD)	3.9 (1.4)	3.7 (2.7)
Hospital Stay (Days), Mean (Sd)	21.9 (7.6)	24.9 (10.1)
Cardiac Events N (%)	1 (14.3)	8 (11.9)
90-day perioperative mortality, N (%)	0 (0.0)	3 (4.5)
1-year Overall Survival, N (%)	7 (100.0)	63 (94.0)
Re-Tx Number, N (%)	0 (0.0)	3 (4.5)
AR within the first year, N (%)	1 (14.3)	14 (21.1)
Positive TBB for rejection 3 Months 6 Months 12 Months	 0 (0.0) 0 (0.0) 1 (14.3)	 3 (4.5) 1 (1.5) 3 (4.5)
CLAD N (%) Time After Transplant (Months) Mean (SD)	 1 (14.3) 23 (0.0)	 12 (17.9) 19.3 (9.8)

P-064

BONE MARROW MESENCHYMAL STEM CELLS (BMSCS) PRE-TREATED WITH MECHANICAL STRETCHING LOAD CAN PROMOTE REVASCULARIZATION OF THREE-DIMENSIONAL PRINTED TRACHEAL STENTS

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OBJECTIVES
The in vivo transplantation of artificial trachea requires revascularization to support the survival of the graft. In this study, we utilized 3D printing technology to construct a PCL tracheal scaffold. We then performed mechanical stretching preconditioning on bone marrow mesenchymal stem cells (BMSCs) and seeded them onto the HAMA hydrogel-modified tracheal scaffold. Subsequently, we evaluated the revascularization capability after ectopic and orthotopic transplantation in vivo, and investigated the biological mechanisms of mechanical stimulation promoting the revascularization of tracheal grafts by BMSCs.

METHODS
1.Evaluate the effects of mechanical stimulation intervention on the in vitro proliferation, migration, and vascular formation abilities of BMSCs through cyclic mechanical stretching; 2. Design a structurally standardized and functionally biomimetic PCL tracheal scaffold using 3D bioprinting technology, and build a system of good biocompatibility with HAMA hydrogel + PCL tracheal scaffold; 3. Construct an in vivo tracheal defect rat experimental model, perform ectopic and orthotopic transplantation surgeries in vivo, and conduct long-term vascularization efficacy evaluation; 4. Study the molecular biological mechanisms of mechanical stimulation promoting the revascularization of tracheal grafts by BMSCs.

RESULTS
The results of our study indicate that subjecting BMSCs to 10% physiological cyclic mechanical stretching enhances their proliferation, migration, and vascular formation capabilities. Following the implantation of mechanically pre-stretched BMSCs onto 3D printed tracheal scaffolds for in vivo transplantation, histological staining and immunofluorescence analysis of tissue sections show significantly increased neovascularization in the stretched treatment group compared to the control group. Additionally, RNA-Seq analysis revealed that mechanical stretching activates the RhoA and downstream YAP/TAZ pathways in BMSCs, thereby promoting blood vessel formation.

CONCLUSIONS
Mechanically pre-stretched BMSCs exhibited significantly enhanced vascular formation capabilities. The 3D-printed tracheal scaffold constructed with these pre-treated cells

demonstrated excellent revascularization ability in vivo, indicating that this pre-transplantation stretching preconditioning could present a novel approach for tracheal replacement research.

Disclosure: No significant relationships.
Keywords: Tissue Engineering Scaffold, 3D Bio-Printing, Tracheal Graft, Mechanical Stretching.

P-065

BRONCHIAL ANTHRACOFIBROSIS MIMICKING CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION

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OBJECTIVES
Bronchial anthracofibrosis causing pulmonary artery stenosis or occlusion is exceedingly rare. A condition resembling Chronic Thromboembolic Pulmonary Hypertension (CTEPH) due to extrinsic pulmonary artery compression from lymphadenopathy is also an exceptionally uncommon occurrence. This study aims to explore the clinical manifestations of patients with bronchial anthracofibrosis.

METHODS
We conducted a prospective data collection for consecutive patients who underwent pulmonary endarterectomy and received a diagnosis of bronchial anthracofibrosis during surgery. We reviewed the clinical presentations, radiographic features, and bronchoscopic findings of these patients.

RESULTS
We identified four patients (three females, mean age 63.11±11.68 years) with bronchial anthracofibrosis. All patients presented with exertional dyspnea as their primary symptom. The mean duration of the disease before pulmonary endarterectomy was 12±24.29 months. Initially, all patients were diagnosed as having CTEPH. The mean pulmonary artery pressure was 38.35 mmHg, and the mean pulmonary vascular resistance was 475 dyne·s·cm-5. During surgery, we observed firm, black masses in the aortopulmonary window and on the cranial aspect of the right pulmonary artery. Upon arteriotomy, we visualized intraluminal, black, firm, stenosing plaques at the orifices of the three right pulmonary branches, as well as the left lingular and lower lobar branches. Due to the inability to establish a dissection plane, the procedure was terminated. Subsequent bronchoscopy revealed submucosal dark, black-blue discoloration in both main bronchi, and pathological analysis confirmed anthracofibrosis. No further treatment was initiated.

CONCLUSIONS
Our cases suggest an extension of fibrosis with anthracotic pigment into the pulmonary artery wall. In the absence of a clear history of exposure to carbon smoke and, consequently, the absence of diagnostic bronchoscopy, anthracofibrosis of the lungs may mimic CTEPH not only

through external compression but also by extending into pulmonary vascular structures. We advise against attempting PEA-surgery in such cases.

Disclosure: No significant relationships.
Keywords: CTEPH, Pulmonary Endarterectomy, Anthracofibrosis.

P-066

CAN PERIOPERATIVE FLUIDS IMPROVE CLINICAL OUTCOMES IN PATIENTS FOLLOWING THORACIC SURGERY? A SINGLE-CENTRE PROPENSITY MATCHED RETROSPECTIVE STUDY

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OBJECTIVES
The optimal approach for fluid management continues to remain a subject of controversy amongst surgeons. A restrictive fluid regime can predispose to acute kidney injury (AKI) requiring haemofiltration and ICU admission. There is limited data regarding the benefits of perioperative fluids in minimising these adverse events. We aim to evaluate outcomes of patients receiving perioperative fluids following thoracic surgery.

METHODS
A retrospective observational study was performed on 250 patients undergoing thoracic surgery (2/03/2022-31/08/2022). Propensity matching (age, sex, and anatomical lung resection) identified an intervention group of patients who received perioperative fluids (POF) and a comparator group that did not (non-POF). Clinical outcomes were investigated including AKI, hemofiltration and in-hospital mortality. Statistical analysis was performed using SPSS.V.29.

RESULTS
125 patients were identified in both POF and non-POF groups. The median age at operation was 73 (IQR 68-77) years. Most patients had a performance status of 0-1 (88.7 vs 88.4% for POF and non-POF groups, respectively).
4 cases (3.2%) of stage 3 AKI were recorded in patients in the POF group. Of these, all 4 cases received post-operative fluids with zero compliance to receiving pre-operative fluid.
1 patient required haemofiltration who only received post-operative fluids. 7 cases of in-hospital mortality were observed in patients receiving perioperative fluids, none were attributed to AKI. There were no statistically significant differences in clinical outcomes between POF and non-POF groups (Table 1).

CONCLUSIONS
Whilst an improvement in clinical outcomes was observed following administration of POF, this did not reach statistical significance. Improvement is required to optimise compliance in patients requiring pre- and post-operative fluids. Further studies are required to ascertain the effectiveness of perioperative fluids in minimising adverse outcomes following thoracic surgery.

Disclosure: No significant relationships.
Keywords: Peri-Operative Fluids, AKI.

Table 1. Clinical Outcomes of POF and non-POF Groups

Clinical Outcomes	Perioperative Fluids (POF) Group n=125	Non-Perioperative Fluids (Non-POF) Group, n=125	p-value
Post-Operative Acute Kidney Injury (Stage 3)	4 (3.2%)	5 (4.0%)	0.823
Requirement of Hemofiltration	1 (0.8%)	2 (1.6%)	0.809
Intensive Care Unit (ICU) Admission	7 (5.6%)	11 (8.8%)	0.232
Length of Hospital Admission, days [median (IQR)]	3 (2 – 6)	3 (2 – 7)	0.327
In hospital mortality	3 (2.4%)	4 (3.2%)	0.558

Data presented as frequency (percentage, %). Categorical data analysed using Fisher's exact test and numerical data analysed using Mann Whitney U test. P-value <0.05 is deemed to be statistically significant. Missing data (number of patients (%)) for Pre-Protocol and Post-Protocol groups: post-operative acute kidney injury [6 (4.8%), 6 (4.8%)]; requirement of Haemofiltration [5 (4.0%), 6 (4.8%)].

P-067

CHANGES OF LUNG FUNCTION PARAMETERS AND LONG-TERM OUTCOMES AFTER LUNG TRANSPLANTATION FOR PATIENTS WITH INTERSTITIAL LUNG DISEASE

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OBJECTIVES
In patients with interstitial lung disease (ILD), the diaphragm typically rises as the lungs chronically shrink. However, the grade of restriction differs and some patients have a near normal total lung capacity whereas others have a severely restricted chest. It is currently unknown, how disparities between real and predicted recipient total lung capacity, impact changes in lung function parameters and long-term outcomes after lung transplantation (LTx).

METHODS
This retrospective study included 190 LTx for the patients with ILD performed between 09/2011 and 12/2022. The preoperative median ratio between recipient real and predicted TLC was 0.56 (median, 0.29 - 2). Patients were divided into two groups: low r/p TLC ratio, corresponding to a more contracted chest cavity size (< 0.56: n = 95) and high r/p TLC ratio, corresponding to a more preserved chest cavity size (> 0.56: n = 95). Short- and long-term outcomes were analyzed.

RESULTS
Preoperative r/p TLC ratio was associated with age (median; 57 vs. 61 years; P = 0.005), but not with sex (male; 70% vs. 71%). Between the two groups, tracheostomy rates (22% vs. 18%), median ICU-stay (8 days vs. 8 days) and hospital-stay (26 days vs. 24 days) were not significantly different. Although lung function results performed 1 month after LTx was better in the high r/p TLC ratio, long-term changes of lung function parameters were similar in both groups (Figure). 5-year overall survival was also not significantly different between low and high r/p TLC ratio (72.6% vs. 73.3%; P = 0.92).

CONCLUSIONS
Although transplantation for ILD patients with a severely contracted chest cavity is considered technically more challenging, the perioperative course and recovery are similar to ILD patients with a preserved chest cavity size. In addition, long-term lung function and survival are comparable pointing to a complete reversal of chest wall compliance.

Disclosure: No significant relationships.
Keywords: Transplantation, Lung, Interstitial Lung Disease, Lung Function.

Figure A

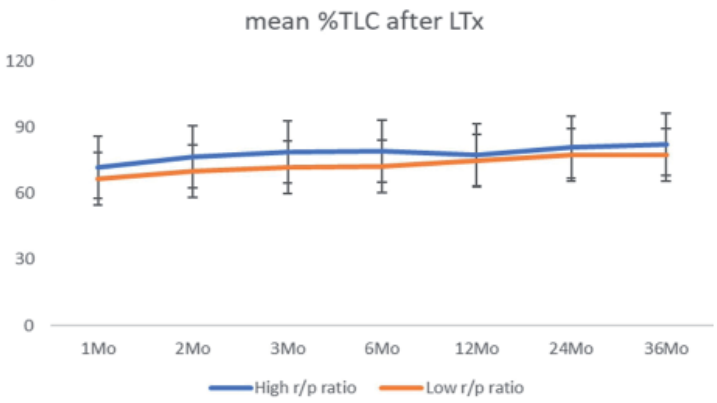
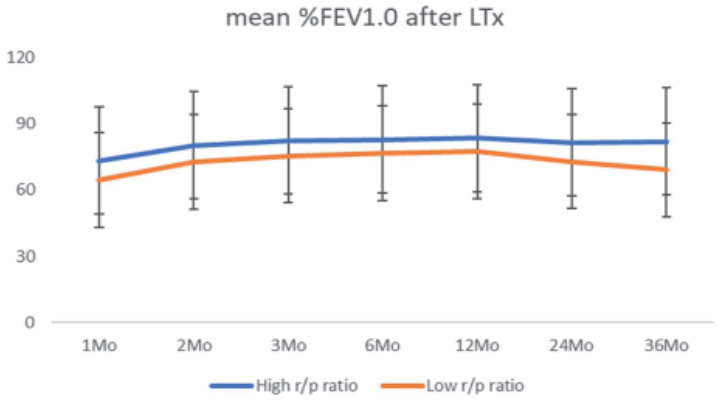


Figure B



P-068

CHEST TUBE DRAINAGE IN PATIENTS WITH CORONAVIRUS-19 (COVID-19) INFECTION: A SINGLE CENTRE RETROSPECTIVE COHORT STUDY

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OBJECTIVES
To assess the need, the effectiveness and the safety of chest tube drainage for Covid-19 patients suffering of barotrauma.

METHODS
All 175 patients with Covid-19 infection admitted to intensive care unit (ICU) from October 2020 till May 2021 were included and divided into 2 groups. Group A (n=134) without Barotrauma and Group B (n=41) with Barotrauma. Group B patients were managed by one or more chest tube insertion and were divided into 2 subgroups. Group B1 (n=8) had only subcutaneous emphysema and/or pneumomediastinum. Group B2 (n=33) had unilateral or bilateral pneumothorax with or without associated subcutaneous emphysema and pneumomediastinum

RESULTS
When comparing Group A versus Group B, the Mortality was not statistically significant [n= 123; 91.8% 95% CI (87.1-96.5%) vs n= 37; 90.2% 95% CI (80.8%-99.7%)].
In subgroup B1 (n=8), none of the subcutaneous emphysema and/or pneumomediastinum resolved after chest tube(s) placement. No one survived in this subgroup neither (Mortality 100%). In subgroup B2, 29 patients out of 33, had a complete resolution of the pneumothorax after chest tube(s) placement, but only 4 of those patients were discharged from the ICU after pneumothorax resolution and chest tube removal (Mortality 87.9%).
The only statistically significant predictor of High Mortality when looking into our patients was intubation. The rate of death among intubated patients was 95.7% (135/141) compared to 73.5% (25/34) ($p<0.001$).

CONCLUSIONS
Barotrauma in critically ill patients with Covid-19 infection is associated with a poor prognosis. Chest tube drainage is only indicated for pneumothorax and not for subcutaneous emphysema and/or pneumomediastinum.
Further and larger studies are mandatory in order to improve the management of this viral infection and its complications.

Disclosure: No significant relationships.
Keywords: Barotrauma, COVID-19, Pneumothorax, Subcutaneous Emphysema, Pneumomediastinum.

	Death (160)	Alive or survival (N=15)	p
Age, (median, IQR) , in years	73 [62-81]	65 [49-77]	0.3
Sex			1
Male	116 (72.5%)	11 (73.3%)	
Female	44 (27.5%	4 (26.7%)	
Smoking	40 (25%)	3 (20%)	1
Hypertension	88 (55%)	5 (33.3%)	0.1
Diabetes Mellitus	58 (36.3)	3 (20%)	0.26
Renal Failure	19 (11.9%)	1 (6.7%)	1
Coronary Artery Disease	34 (21.3%)	2 (13.3%)	0.7
A Fib	24 (15%)	2 (13.3%)	1
Heart Failure	19 (11.9%)	0	0.37
COPD	5 (3.1%)	1 (6.7%)	0.4
Dyslipidemia	32 (20%)	2 (13.3%)	0.7
Cancer of any type	12 (7.5%)	1 (6.7%)	1
Intubation	135 (84.4%)	6 (40%)	**<0.001**

P-069

CHEST WALL RECONSTRUCTION WITH FUNCTIONALLY DESIGNED THREE DIMENSIONAL (3D)-PRINTED FLEXIBLE PEEK PROSTHESIS IN DOGS: A NEW WAY TO PRESERVE LUNG FUNCTION

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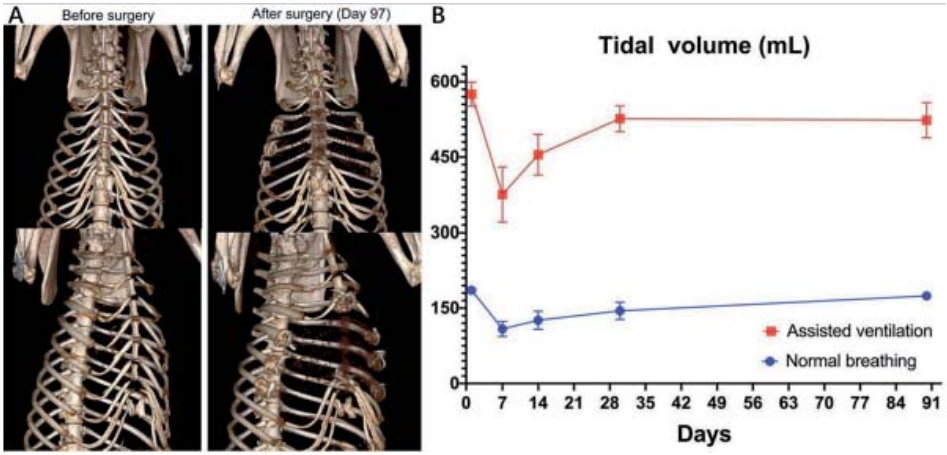
OBJECTIVES
There's lung function loss in patients with chest wall diseases after resection and reconstruction, partly due to the poor elasticity of current routinely used prostheses. A three-dimensional (3D) printed flexible polyether-ether-ketone (PEEK) prosthesis was designed to simulate the elastic modulus of the natural costal cartilage. This study aims to figure out its impact on lung function in vivo.

METHODS
The anterior 2/5 of the overal length of the 5th to 7th ribs, as well as adjacent cartilage and sternum were resected in 3 beagle dogs and repaired with customized 3D-printed flexible PEEK prostheses. Arterial blood and venous blood were collected for analysis before surgery (after anesthesia), at the end of surgery, and 1 week, 2 weeks, 1 month and 3 months postoperatively. The tidal volume, thoracic expansion, and dynamic compliance were also tested and recorded. After 3 months of postoperative observation, the PEEK prostheses were removed, and a micro-CT scan and VG staining were performed.

RESULTS
The prostheses were shown to be well connected to the autogenous stump without significant displacement through CT scanning. A large amount of regenerated bone tissue and well-arranged bone trabecular structures were observed at the joint between the prothesis and autogenous bone. Leukocytes, alanine aminotransferase, aspartate aminotransferase, and creatinine experienced varying degrees of fluctuations after surgery and then tended to stabilize within four weeks, then returning to the preoperative levels. Tidal volume and dynamic complicance decreased in the first week after surgery and then gradually returned to the preoperative levels. Thoracic expansion significantly decreased after surgery and then maintained a low value. PO2, PCO2, oxygenation index, respiratory index, PO2 (a-a), and PO2 (a/a) can basically recover to the preoperative levels after the surgery.

CONCLUSIONS
Functionally designed 3D-printed PEEK prostheses reconstruction show benefits in lung function preservation in dogs, which might be a promising strategy in the future.

Disclosure: No significant relationships.
Keywords: Chest Wall Reconstruction,3D-Print,Lung Function.


A
Before surgery
After surgery (Day 97)
B
Tidal volume (mL)
600
450
300
150
0
0 7 14 21 28 35 42 49 56 63 70 77 84 91
Days
Assisted ventilation
Normal breathing

P-070

ENHANCED RECOVER AFTER SURGERY (ERAS) PROJECT IN THORACIC COMPLEX PATIENTS: SINGLE-CENTRE PROSPECTIVE STUDY, PRELIMINARY RESULTS

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OBJECTIVES

This prospective case-control study is aimed at studying the effects of the ERAS protocol on complex patients with multiple comorbidities submitted to thoracic surgery.
The peculiarity of this protocol is that it includes a pre-habilitation period in the sports medicine unit in the weeks leading up to surgery.
The objectives under study are: VO2max variation before and after exercise, comparison between ERAS and STANDARD patients regarding postoperative complications rate, drainage permanence (liquid and air leakage) and postoperative length of stay (LOS)

METHODS

From November 2022 to December 2023, 36 patients with multiple comorbidities and poor functional reserve (Charlson Comorbidity Index >5) candidates for lung resection for cancer were randomised into ERAS (19) and STANDARD (17) groups and functionally assessed.
The ERAS patients followed a customised training program with adapted physical activity (bike or treadmill) for 3 sessions per week for at least 2 weeks prior to surgery. They were re-evaluated at the end of the preparation and followed in the post-operative course.

RESULTS

ERAS patients had an increase in vO2max from a mean value of 19.78 to 22.29 ($p=0.3$).
Complications (prolonged air leak, haemothorax, mucus retention, atrial fibrillation, re-intervention, ICU admission or transfusion) were observed in 5 (26%) ERAS patients and in 12 (77%) STANDARD patients ($p<0.05$).
The ERAS group had better results for: chest tubes duration in days 6.5 vs 7.5 ($p=0.6$); air leaks in days 1.71 vs 2.12 ($p=0.8$); total liquid leakage 1314.2 vs 1443.7 ($p=0.7$); postoperative LOS 6.75 vs 7.8 ($p=0.3$).

CONCLUSIONS

The ERAS protocol enhanced with pre-habilitation with controlled exercise is effective in improving the cardiopulmonary function of the complex patients before thoracic surgery. It also ensures a lower complication rate and a faster recovery.

Disclosure: No significant relationships.
Keywords: Eras Protocol, Fast-Track Surgery, Eras In Thoracic Surgery.

P-071

EVALUATION OF SURGICAL AND ONCOLOGIC OUTCOME AFTER VIDEO ASSISTED THORACIC SURGERY (VATS) SEGMENTECTOMY IN COMPARISON TO VIDEO ASSISTED THORACIC SURGERY (VATS) LOBECTOMY

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OBJECTIVES
Minimally invasive anatomic segmentectomy is increasingly performed as surgical treatment for early-stage lung cancer. Aim of this work is the retrospective evaluation of video-assisted thoracoscopic (VATS) segmentectomies in comparison to VATS lobectomies. VATS-segmentectomy and VATS-lobectomy were compared with respect to demographic data, perioperative outcomes, and oncologic outcomes. Two further subgroups were compared for VATS-segmentectomy regarding identification of the intersegmental plane: an inflation-deflation-group and an ICG-group.

METHODS
Our institutional database was queried for patients with primary surgical treatment for lung cancer or suspicion of lung cancer. Patients with extended resections or more complex surgery than lobectomy, and patients after neoadjuvant therapy were excluded. The study population consisted of 816 patients (VATS-segmentectomy n=91, VATS-lobectomy n=725). For comparison of oncologic results only patients with pT1a or pT1b and pN0 staging were analyzed.

RESULTS
The most common indication for surgical intervention was lung cancer (95.6 %), of which adenocarcinoma was predominant (65.2 %). Benign lesions (2.2 %) and metastases (2.2 %) were less frequent. Comparison of perioperative outcome showed significantly fewer postoperative complications (28.9 vs. 46.4 %, p=0.015) and less prolonged air fistulas (2.2 vs. 11 %, p=0.007) after VATS-segmentectomy. Chest tube duration was significantly shorter in the segmentectomy group (3 vs. 4 days, p=0.020). Postoperative stay was significantly shorter in the ICG group (5 vs. 7 days, p=0.039). Regarding oncologic outcome, VATS-segmentectomy was not inferior to VATS-lobectomy in terms of overall survival (lobectomy 100 vs. segmentectomy 117 months, p=0.213) and disease-free survival (lobectomy 89 vs. segmentectomy 108 months, p=0.312).

CONCLUSIONS
The results of this study confirm that VATS-segmentectomy, in a specific patient cohort, is superior to VATS-lobectomy in terms of postoperative complications, air fistula rate, and shorter drainage duration without compromising oncologic results.

Disclosure: No significant relationships
Keywords: VATS, Segmentectomy, ICG, Survival, DFS

P-072

EXPLORING BILATERAL PLEURAL RECURRENCE FOLLOWING SUBXIPHOID VIDEO-ASSISTED THORACOSCOPIC SURGERY THYMECTOMY: A CASE REPORT SERIES

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OBJECTIVES

This case report series investigates the occurrence of bilateral pleural metastasis following subxiphoid Video-Assisted Thoracoscopic Surgery (VATS) thymectomy for malignant thymic tumors. The objective is to draw attention to the phenomenon of subxiphoid approach-related metastasis.

CASE DESCRIPTION

Three patients who underwent subxiphoid procedures from other hospitals were identified manifesting bilateral pleural recurrence. Patient A, the patient was initially diagnosed with poorly differentiated squamous cell carcinoma, underwent subxiphoid surgery, and postoperatively staged as T3N0M0, involving the lung and pericardium. Following surgery, the patient received radiotherapy at a dosage of 50G/25fx. Five years later the patient experienced bilateral recurrence. Patient B, initially treated via subxiphoid approach for B2 thymoma, and postoperatively staged as T1N0M0, exhibited left pleural metastasis within one year, After a left-side pleurectomy and multiple cycles of chemotherapy, the patient experienced bilateral pleural recurrence within another year. Patient C, initially diagnosed with B1 thymoma, experienced in situ recurrence postoperatively. Following a second subxiphoid surgery followed by chemotherapy, the patient manifested bilateral pleural dissemination in three years. All three patients have been lost eligibility for further surgical interventions and are currently undergoing systemic treatment.

CONCLUSIONS

The observed cases of bilateral pleural recurrence, seen in patients who underwent subxiphoid procedures, who showed an earlier tendency to bilateral pleural dissemination compared to patients who underwent unilateral surgical protocols, indicate that the process of disrupting both pleural spaces during surgery may contribute to this unique manifestation. Further research is advocated to refine the safety profile and outcomes associated with subxiphoid procedures, especially when bilateral pleural recurrence poses greater treatment challenges.

Disclosure: No significant relationships.
Keywords: Thymectomy, Bilateral Pleural Recurrence, subxiphoid.

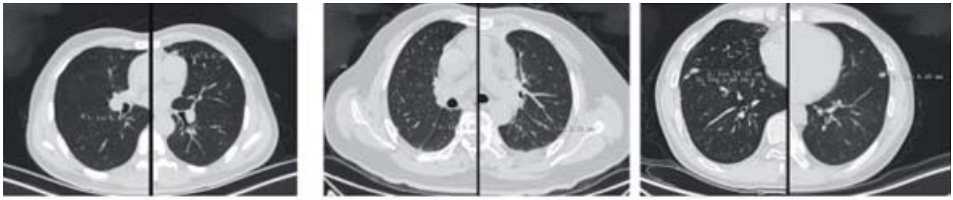

Figure: To illustrate bilateral recurrence, we integrated the images of different sections of the same CT scan, from left to right, the images sequencially diapaly partial recurrence of bilateral pleural and lobular fissures of three patients A,B,C respectively. (Patients' personal information is hidden)

P-073

EXTREME EARLY ORAL INTAKE AFTER ROBOTIC ANATOMICAL LUNG RESECTION

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OBJECTIVES
The development of minimally invasive approaches and the introduction of the enhanced recovery after surgery (ERAS)protocol have enhanced the early postoperative recovery for lung resection. We evaluated our ERAS protocol in robot assisted thoracic surgery (RATS), with particular emphasis on early oral intake.

METHODS
Consecutive 257 patients underwent RATS lobectomy or segmentectomy were evaluated. There were 129 male patients and 128 female patients. Age was 32-89 (median 73) years. Initial walking and food intake started within 150 minutes after surgery. Lunch or dinner was provided on the day of surgery. In principle, the chest tube was removed on the day of surgery or the next day, and patients were discharged the day after surgery.

RESULTS
The first walk started 54-294 (median 93) minutes after surgery. Seven patients were unable to get out of bed at the scheduled time. The duration of chest tube drainage was 0 days in 150 patients, 1 day in 89, and 2 days or more in 18. Postoperative hospital stay was 1 day in 208 patients, 2 days in 27, and 3 days or more in 22. Dinner intake on the day of surgery was 100% in 108 patients, 99-50% in 67, 49-1% in 44, 0% in 18 (unevaluable in 19). Multivariate analysis showed the number of patients who took less than half of their dinner was significantly higher among women, patients with longer surgical time, and patients with a shorter time between the end of surgery and the provision of dinner.

CONCLUSIONS
Walking and food intake within 150 minutes after surgery were achieved in 95% of patients who underwent RATS lobectomy and segmentectomy, and 74% of patients took more than half of their dinner on the day of surgery. Eighty-one percent of patients were discharged home the day after surgery.

Disclosure: No significant relationships.
Keywords: RATS, ERAS, Early Oral Intake.

P-074

CLINICAL OUTCOMES OF SALVAGE PLEURECTOMY/DECORTICATION FOLLOWING IPILIMUMAB / NIVOLUMAB FOR PLEURAL MESOTHELIOMA

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OBJECTIVES
As the Chakemate-743 trial showed the efficacy of Ipilimumab/Nivolumab (Ipi/Nivo) for chemotherapy-naive unresectable advanced pleural mesothelioma, Ipi/Nivo has recently been administered as a first-line therapy. We conduct the salvage pleurectomy/decortication (P/D) in patients with good response after Ipi/Nivo, here, this study aims to investigate the feasibility and oncological efficacy of salvage P/D following Ipi/Nivo.

METHODS
Between November 2021 and January 2024, a total of 11 patients who received salvage P/D following Ipi/Nivo in 3 institutions were enrolled in this study. Patient characteristics as follows; male in 9, median age as 68 years old, median cycle of Ipi/Nivo as 3. Therapeutic response before salvage P/D was confirmed as CR in 1, PR in 9, SD in1. Immune-mediated adverse event was observed in 5 patients.

RESULTS
Salvage P/D was undergone in all 11 patients, macroscopic complete resection was obtained in 10 cases. Median operation time, median amount of blood loss, and median postoperative hospital stays were 380 minutes, 1325ml, and 24 days. The operative mortality rate was 0 %. The complication except air leakage was observed in 1 patient (chylothorax). Of 10 patients in whom the pathological examination was completed, a major pathological response (MPR) was observed in 5. In the follow-up period, tumor recurrence was observed in 2. As shown in the figure, favorable oncological outcomes are obtained in patients with MPR.

CONCLUSIONS
The salvage surgery after Ipi/Nivo was safe and feasible. MPR in pathological examination would be potentially a good prognosticator in patients who underwent salvage P/D following Ipi/Nivo.

Disclosure: No significant relationships.
Keywords: Pleural Mesothelioma, Immune Checkpoint Inhibitor.

P-075

FACTORS AFFECTING SURVIVAL IN PATIENTS T1A AND T1B NON-SMALL CELL LUNG CANCER UNDERGOING SEGMENTECTOMY : A MULTICENTER STUDY

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OBJECTIVES
While a lobectomy was deemed to be the standard of care for early-stage NSCLC, segmentectomy was reported to be non-inferior operation for stage T1a and T1b NSCLC patients.In our study, we aimed to identify prognostic factors in patients who underwent segmentectomy for small-sized peripheral NSCLC.

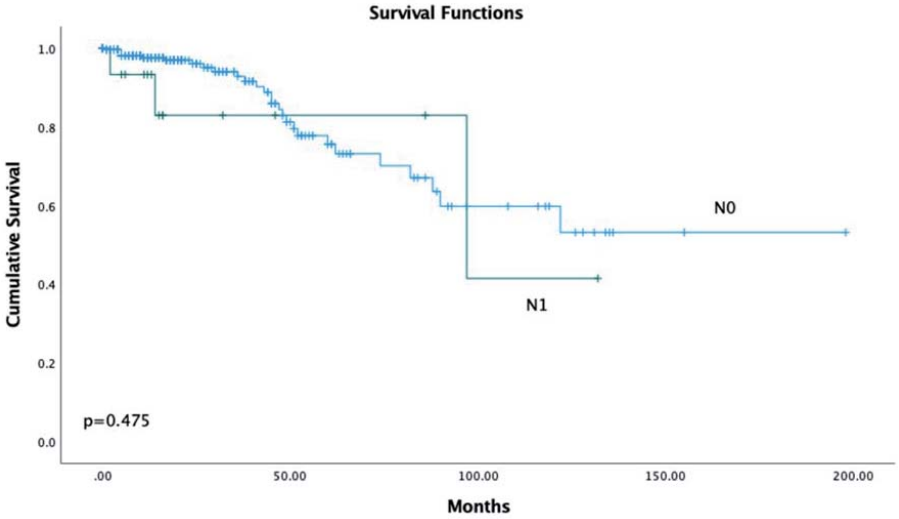
METHODS
We conducted a retrospective study at 6 institutions. 2006 and 2023. Patients who underwent surgery for NSCLC were included in the study. We analyzed patients with NSCLC with a diameter equal to or smaller than 2.5 cm.Patients who underwent lobectomy, bilobectomy, pneumonectomy and wedge resection were excluded from the study. Patients with a diagnosis of N2 and a diagnosis of carcinoid tumor were excluded.Differences in survival were determined using the log-rank test in the univariate analysis, and multivariate analysis was done using the Cox proportional hazards regression model.

RESULTS
Between January 2006 and November 2023, 307 patients.The mean age was 64.2 ± 9.2 (16-85) years.The mean tumor diameter was 1.4 ± 0.6 cm.There were 15 patients (0.5%) with N1 disease.The average surgical margin distance was 2.0 ± 1.5 cm.The average postoperative hospital stay was 5.1 ± 3.0 days (1-21 days).The mean predicted values for FEV1 and FVC were 89.1% ± 23.3% and 97.1% ± 21.5% respectively.
Mean survival time was 134.8 ± 10.1 months whereas 5-year survival rate was 89.9% in all patients. The mean follow-up time was 28.3 months.No statistically significant differences in survival were observed in terms of vascular invasion, lymphatic invasion status, STAS, N0 and N1 status, pleural invasion status, adenocarcinoma and non-adenocarcinoma status (p=0.358, p=0.235, p=0.315, p=0.475, p=0.726, p=0.140, respectively).

CONCLUSIONS

Segmentectomy is appropriate in terms of oncological principles in patients with peripheral T1a or T1b NSCLC . The presence of N1, the presence of lymphatic invasion and the presence of STAS do not seem to have impact on survival.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Segmentectomy, Survival.



Pathological Feature	5-Year Overall Survival	p Value
Vascular Invasion -Yes -No	 57.5 ± 5.1 (95% CI 47.5-67.6) 83.6 ± 5.2 Months (95% CI 73.5-93.7)	0.358
Lymphatic Invasion -Yes -No	 77.7 ± 8.0 (95% CI 62.0-93.4) 79.1 ± 4.3 (95% CI 70.7-87.6)	0.235
STAS -Yes -No	 57.7 ± 4.4 (95% CI 49.2-66.2) 82.3 ± 6.5 (95% CI 69.5-95.1)	0.315
N0 N1	135.9 ± 10.5 (95% CI 115.3-156.4) 96.6 ± 15.6 (95% CI 65.9-127.2)	0.475
Pathological Diagnosis -Adenocarcinoma -Non-Adenocarcinoma	 139.1 ± 12.8 (95% CI 114.0-164.1) 94.8 ± 9.0 (95% CI 77.2-112.5)	0.140

P-076

FEASABILITY OF MINIMAL INVASIVE SURGERY IN STAGE III NON-SMALL CELL LUNG CANCER AFTER NEOADJUVANT CHEMOIMMUNOTHERAPY

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OBJECTIVES
Neoadjuvant chemoimmunotherapy (ChIT) is being established as an optimal treatment for advanced stage III non-small cell lung cancer (NSCLC) patients. In the last decades, minimally invasive surgery (MIS) has established itself as the surgical technique of choice in the treatment of lung cancer. Our goal is to demonstrate the feasibility and safety of MIS in these cases compared with neoadjuvant chemotherapy treatment (QT).

METHODS
A retrospective, unicenter study was carried out. Patients treated with neoadjuvant therapy between January 2018 and December 2023 were included. They were divided into two groups: patients treated with ChT (ChTG) and with ChIT (ChITG) y. The main objective is to compare surgery technique, the conversion rate to open surgery, complications and postoperative outcomes. The chi-squared test was chosen for categorical variables and the student's t-test for continuous variables after the normality was proven with the Shapiro-Wilk test

RESULTS
Thirty-two patients were included in the study: 15 (46.9%) in the chemoimmunotherapy group and 17 (53.1%) in the chemotherapy group. No differences were observed between groups in MIS, type of resection, conversion to open surgery, ICU or hospitalization length of stay (Table 1). ChTG presented more surgical revisions due to postoperative bleeding (23.5% vs. 0.0%, p=0.04) and ChITG showed an increase in the percentage of >5days air leaks (26.7% vs. 0%, p=0.022). No differences were observed in pathological stages (IIIA 31.3% vs 37.5%,IIIB 9.4% vs. 15.6%, IIB 6.2% vs. 0%, p=0,27). Radical resection (R0) was achieved in all patients.

CONCLUSIONS
Our study shows that minimally invasive surgery is a safe and viable technique for surgical salvage in locally advanced stages after chemoimmunotherapy neoadjuvant.

Disclosure: No significant relationships.
Keywords: Immunotherapy, Non-Small Cell Lung Cancer, Neoadjuvant Therapy, Minimally Invasive Surgery.

		CT + IT (n=15)	No IT (n=17)	P
Characteristics				
	IMC (kg/m2+sd)	25.53	25.74	0.89
	Diabetes (%)	33.3	29.4	0.81
	IRC (%)	0.0	17.6	0.08
	HTA (%)	53.3	17.6	0.03
	MPOC (%)	33.3	23.5	0.53
	Heart disease (%)	13.3	11.8	0.89
	FEV1 (%+sd)	86.2 (± 19.88)	80.88 (± 12.61)	0.38
	FVC (%+sd)	95.8 (± 15.84)	94.11 (± 15.89)	0.76
	DLCO (%+sd)	80.4 (± 20)	73.82 (± 18.87)	0.34
	Smoking history			0.19
	Nonsmoker (%)	0	11.7	
	History of smoking (%)	80	52.9	
	Current (%)	20	35.4	
Surgery				
	MiS (%)	86.7	52.9	0.03
	VATS (%)	53.8	88.9	0.08
	RATS (%)	46.2	11.1	0.08
	Thoracotomy (%)	13.3	47.1	
	Conversion ratio (%)	6.7	17.6	0.34
	Type of resection			0.39
	Lobectomy (%)	37.5	34.4	
	Bilobectomy (%)	3.1	0	
	Pneumonectomy (%)	0	6.2	
	Segmentectomy (%)	0	3.1	
	Extended resection (%)	0	9.3	
Pathological staging				
	ypTNM			0.27
	IIB (%)	6.2	0	
	IIIA (%)	31.3	37.5	
	IIIB (%)	9.4	15.6	
	cN			0.7
	Viable cells (%)	29.46 (± 42.03)	47.6 (± 30.23)	0.19
	Tumoral necrosis (%)	16.66 (± 26.63)	16.07 (± 22.8)	0.94

		CT + IT (n=15)	No IT (n=17)	P
Complications				
	Airleak (%)	26.7	0	0.022
	Atrial fibrillation (%)	6.7	5.9	0.92
	Bleeding (%)	0	23.5	0.04
	Pneumonia (%)	0	11.8	0.17
	Respiratory failure (%)	0	5.9	0.33
	Other (%)	6.7	0	0.27
Outcomes				
	ICU stay (days+sd)	1 (± 1.83)	1.3 (±3.82)	0.42
	Hospitalization (days+sd)	6.13 (± 4.88)	5.64 (± 1.93)	0.72
	90 day mortality	0	0	1

P-077

FEASIBILITY OF THE LUNG BASE-FLIP APPROACH FOR SEGMENTECTOMY OF THE LOWER LOBE

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OBJECTIVES

Segmentectomy of the lower lobe is typically approached from the interlobar area. The interlobar approach necessitates dissection of lung parenchyma to identify the corresponding basal segmental branches of the pulmonary artery and bronchus. Additionally, intraoperative access to the basilar intersegmental veins is challenging. The lung base-flip approach, coupled with intraoperative navigation using flipped 3D-CT images, may offer improved access to the respective segmental branches of vessels and bronchi.

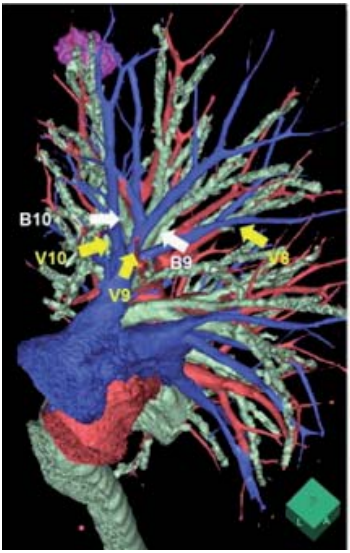
CASE DESCRIPTION

[Case 1] A 56-year-old woman underwent video-assisted left S10 segmentectomy for a 0.5 cm lesion located in the left S10. By flipping the lower lobe, V10 was initially divided, and the divisions of B10 and A10 were easily followed.
[Case 2] A robot-assisted right S9+S10 segmentectomy was performed for an 83-year-old man with a 2.0 cm tumor (see Figure). The lung base was retracted toward the ceiling chest wall using the third arm. V10 and V9 were divided first, followed by the division of B9+B10 with the assistance of bronchoscopy. Since identifying A8a branching from A9+A10 was difficult via the lung base-flipped approach, A8a was confirmed using the interlobar approach, after which A9+A10 was divided.
[Case 3] Video-assisted left basal segmentectomy was performed for an 18-year-old man with intralobar pulmonary sequestration. The aberrant artery branching from the descending aorta was divided first. As the interlobar fissure was incomplete, the lower lobe was flipped. The basal vein, basal bronchus, and basal artery were divided in sequence. Finally, the basal segment was separated from the lingula and S6 segment using staplers.

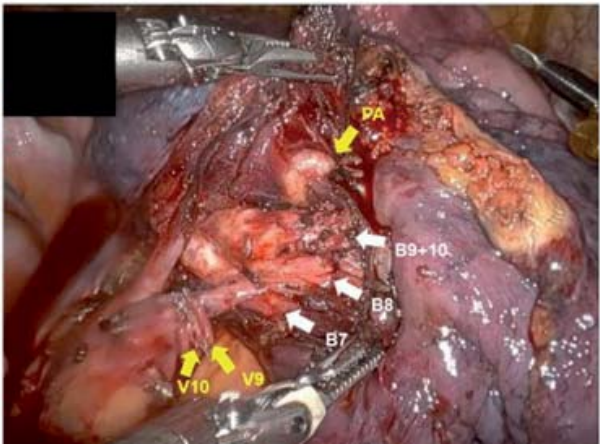
CONCLUSIONS

In lung base segmentectomy, the lung base-flip approach provided superior access to corresponding vessels and bronchi without the need to divide the lung parenchyma. Intraoperative navigation with flipped 3D-CT images proved useful for identifying segmental structures to be divided and preserved.

Disclosure: No significant relationships.
Keywords: Base-Flip Approach, Segmentectomy.



Base-flip approach for robotic right S9+S10 segmentectomy



P-078

FEATURES AND EPIDEMIOLOGY OF ISOLATED CHEST TRAUMA: GENERAL THORACIC INJURIES IN THE JAPAN TRAUMA DATA BANK

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[9]*Department of General Thoracic Surgery, Dokkyo Medical University, Tochigi, Japan*
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OBJECTIVES
General thoracic surgeons encounter isolated chest trauma patients in emergency setting where heart and vessel injuries are not the main focus. However, nationwide studies of their characteristics and outcomes are lacking. The study aims to analyze their clinical features and identify key areas of attention for general thoracic surgeons using the Japan Trauma Data Bank (JTDB).

METHODS
We extracted 9,475 patients with isolated chest trauma from 361,706 JTDB entries between January 2004 and May 2019. Among them, 8,132 patients with the highest Abbreviated Injury Scale score in the general thoracic region (trachea and bronchus, lung, pleura, thoracic cavity, diaphragm, esophagus, ribs, and sternum) were selected. Univariate and multivariate analyses were used to identify risk factors for in-hospital mortality.

RESULTS
The in-hospital mortality rate was 7.9%. Notably, the survival group had a significantly lower rate of coexisting heart and vessel injury compared to the death group (2.0% vs. 13.7%, p <0.001). Multivariable analysis revealed that penetrating trauma had a better outcome than

blunt trauma (odds ratio: 0.346, 95% confidence interval [CI] 0.223-0.538, p <0.001). Within general thoracic injuries, trachea and bronchus (odds ratio: 8.286, 95%CI 4.820-14.24, p <0.001), thoracic cavity (odds ratio: 1.959, 95%CI 1.485-2.584, p <0.001), and diaphragm (odds ratio: 2.083, 95%CI 1.073-4.045, p=0.03) were independent risk factors for worse outcomes. Notably, coexisting heart and vessel injury also significantly worsened outcomes (odds ratio: 8.128, 95%CI 6.004-11.00, p <0.001).

CONCLUSIONS

When general thoracic injuries are the most severe, tracheal and bronchus injuries significantly contribute to worse contributes, regardless of coexisting heart and vessel injuries. Therefore, general thoracic surgeons should prioritize careful evaluation for trachea and bronchus involvement in such cases.

Disclosure: No significant relationships.
Keywords: Japan Trauma Data Bank, Isolated Chest Trauma, General Thoracic Injuries, Nationwide Study.

	Survival (N=7,489)	**Death (N=643)**	***P* value**
Age, median(IQR), years	62 (46-62)	64 (44-77)	0.05
Sex			
Male/Female, n(%)	5462 (72.9) / 2027 (27.1)	465 (72.3) / 178 (27.7)	0.736
Mechanism of the injury			
Penetrate/Blunt, n(%)	297 (4.0) / 7192 (96.0)	35 (5.4) / 608 (94.6)	0.069
Coincidence of heart and vessel injury			
+/-, n(%)	152 (2.0) / 7337 (98)	88 (13.7) / 555 (86.3)	**<0.001**
AIS severity score, max			**<0.001**
1, n(%)	167 (2.2)	5 (0.8)	
2, n(%)	536 (7.2)	13 (2.0)	
3, n(%)	4141 (55.3)	139 (21.6)	
4, n(%)	2420 (32.3)	191 (29.7)	
5, n(%)	225 (3.0)	295 (45.9)	
6, n(%)	0	0	
NISS, median(IQR)	10 (9-16)	25 (16-32)	**<0.001**
Signs of life on admission			
+/-, n(%)	7470 (99.7) / 19 (0.3)	164 (25.5) / 479 (74.5)	**<0.001**
Vital signs on admission			
Systolic blood pressure, median (IQR), mmHg	140 (121-160)	0 (0-40)	**<0.001**
Respiratory rate, median (IQR), n/min.	21 (18-25)	0 (0-10)	**<0.001**
Heart rate, median (IQR), n/min	83 (72-96)	0 (0-67)	**<0.001**
GCS, median (IQR)	15 (15-15)	3 (3-3)	**<0.001**

IQR, Interquartile range; AIS, Abbreviated Injury Scale; NISS, New Injury Severe Scale; GCS, Glasgow coma scale.

P-079

WITHDRAWN

P-080

HEMOGLOBIN-ALBUMIN-LYMPHOCYTE-PLATELET (HALP) SCORE AS A CLINICAL AND SURVIVAL MARKER IN PATIENTS WITH NON-SMALL CELL LUNG CARCINOMA

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OBJECTIVES
In non-small cell lung carcinomas, patients benefit from surgical treatment with TNM staging and clinical evaluation, but there are still factors that affect prognosis. Hemoglobin, albumin, lymphocyte and platelet (HALP) score is a prognostic factor in many tumors, but there are few studies on NSCLC. In our study, we aimed to reveal the relationship of HALP score with the development of postoperative complications and its effect on survival.

METHODS
Patients with a diagnosis of NSCLC who underwent lobectomy and systematic lymph node dissection due to in our clinic between January 2018 and 2023 were evaluated. HALP (hemoglobin(g/L)×albumin(g/L)×lymphocyte(/L)/platelet(/L)) values of the patients were calculated. The mean value of the HALP score was 41.6.HALP score was calculated as 36.5 cut-off value for postoperative pulmonary complications in the ROC curve. Patients are divided into 2 groups as below (Group 1) or above (Group 2) 36,5.

RESULTS
Postoperative pulmonary complications were calculated to be related with the HALP score between group 1 and 2 (AUC on ROC curve:59.4%). Tumor diameter, T stage, TNM stage and ICU admission were statistically significantly higher in the group 1 ($p<0.001$, $p<0.001$, $p=0.009$, $p=0.008$). Among the two groups, group 1 had a statistically significantly worse survival (Figure 1, $p=0.034$) (Group 1: 50.5 ± 2.6 Months; Group 2: 61.5 ± 2.4 Months).

CONCLUSIONS
For surgically treated NSCLC, HALP score can be used as a marker for postoperative pulmonary complications and thus effects on overall survival. In our study group cut off value is 36,5. So necessary replacements in those patients within the preoperative period would prevent postoperative complications and overall survival can be improved. The calculate the best cut off levels would need larger patients groups.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer (NSCLC), Hemoglobin-Albumin-Lymphocytes-Platelet Score (HALP Score), Overall Survival (OS), Prognosis, Risk Factors.

P-081

HIGH ENDOTHELIAL VENULE NEOGENESIS IN HUMAN LUNG ADENOCARCINOMA IS CONTROLLED BY A UNIQUE MECHANISM OF INTRATUMORAL LYMPHOCYTE AGGREGATION

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OBJECTIVES
The dynamic interplay between cancer cells and the microenvironment exhibits a wide range of intricate relationships that evolve during different stages of tumor progression. Attention has been focused on a specialized endothelial cell called "high endothelial venules (HEV)," which have a unique cuboidal shape similar to those seen in lymph nodes and are also found within tumors. There are limited reports regarding the relationship of HEVs with pre-existing blood vessels or interstitial fibers. We attempted histopathological examination using resected specimens of lung adenocarcinoma.

METHODS
The subjects were 109 cases of pathological stage I lung adenocarcinoma who underwent curative lung resection at our institute between 2012 and 2016. HEVs were identified by anti-peripheral node addressin (PNAd) staining. Immunostaining and Elastica-Masson-Goldner-stained sections of the tumors were quantitatively evaluated for the PNAd positivity, microvessel density, and interstitial fiber density.

RESULTS
PNAd-positive cells were identified in 102 (93.6%) cases. Almost all PNAd-positive cells were present within or near the immune cell clusters. Tumors with abundant PNAd-positive cells tended to have a lower risk of recurrence, but the difference did not reach statistical significance (5-year recurrence-free survival 94.7% v.s.82.9%, p=0.18). We investigated the correlation between microvessel structures or interstitial fibers and the number density of PNAd-positive vessels, but no significant relationship could be found. Since PNAd-positive cells are concentrated in the aggregates of immune cells, we extracted only these regions and examined them. It was shown that immune cell aggregates with abundant PNAd-positive vessels had a higher density of microvessels. They were accompanied by rich collagen fiber production and a more mature morphological phenotype of HEVs.

CONCLUSIONS
Generation of PNAd-positive cells in tumors is governed by a different angiogenetic mechanism from a whole tumor microenvironment. Enhanced immune cell accumulation was accompanied by mature HEV neogenesis.

Disclosure: No significant relationships.

Keywords: High Endothelial Venules, Tumor Immunity, Tumor Angiogenesis, Vascular Normalization.

	HEV rich tumor	**HEV poor tumor**
Microvessel density in the whole tumor	Equivalent	
Maturity of tumor vessels in the whole tumor	Equivalent	
Microvessel density in the immune cell cluster	Abundant	Poor
Maturity of vasculature in immune cell cluster	Mature	Immature
Endothelial cell height in immune cell cluster	High	Low

P-082

HIGH RESOLUTION PHASE-CONTRAST TOMOGRAPHY OF ARTERIAL COMMUNICATION FROM VISCERAL PLEURA TO PULMONARY PARENCHYMA IN PLEUROPARENCHYMAL FIBROELASTOSIS

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OBJECTIVES

Based on previous studies we hypothesised that idiopathic pleuroparenchymal fibroelastosis (iPPFE) is associated with vascular remodeling and the development of collateral blood vessels. Our aim was to investigate the three-dimensional arterial system morphology in iPPFE using high-resolution synchrotron-based tomographic imaging to test this hypothesis.

METHODS

We conducted phase-contrast synchrotron tomography imaging of a lung biopsy sample from a patient diagnosed with iPPFE at lung transplantation. The imaging was performed at the European Synchrotron Radiation Facility (ESRF) BM05 beamline, using a polychromatic beam with an 8µm coherence length at 38keV energy. The tomographic images, covering a 2.25µm of pixel size, were obtained from 6,000 projections. Three-dimensional reconstructions were performed using the filtered back-projection algorithm in ESRF's PyHST2 software, with preprocessing for artifact removal. Segmentation was conducted manually by a trained annotator using 3D Slicer.

RESULTS

The reconstructed tomographic data revealed changes characteristic of iPPFE, interpreted as subpleural fibroelastosis beneath the thickened visceral pleura, along with alveolar septal and intra-alveolar collagen deposition, Figure 1a. In addition, the 3D reconstruction and segmentation allowed the identification of enlarged, tortuous superficial arteries within the altered visceral pleural layers Figure 1b. These small vessels penetrated the adjacent fibroelastotic zones, extending into the interstitium and forming connections with the internal arteries (Figure 1). The vascular walls of pulmonary and bronchial arteries exhibited signs of fibrosis and elastosis.

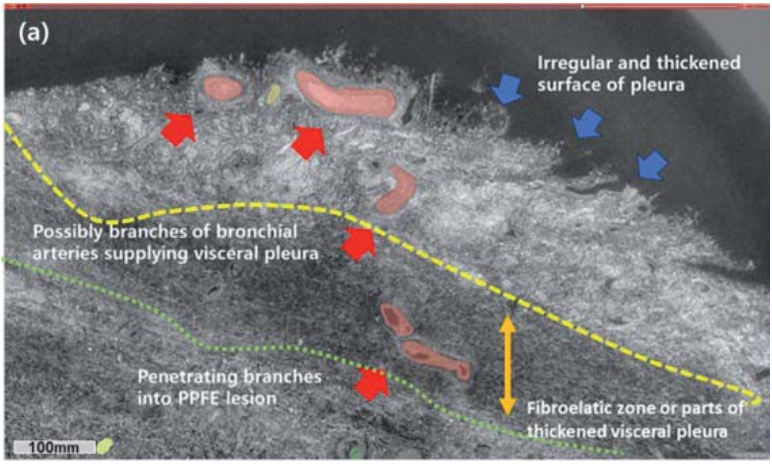
Evidence of intra-alveolar fibrosis, indicative of alveolar collapse and septal fibrosis, was also observed. These three-dimensional arterial deformations and connections were only discernible through the 3D nature of the technique and vascular segmentation.

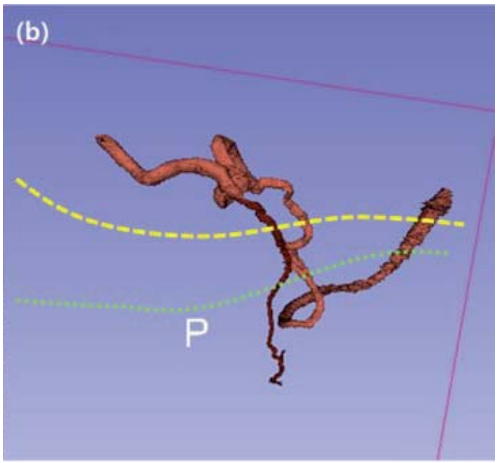
CONCLUSIONS

Phase-contrast tomographic imaging techniques enable the detailed observation of arterial remodeling and interconnections within the pulmonary parenchyma in three dimensions. This is crucial for a deeper understanding of the pathophysiology of PPFE particularly for elucidating associated vascular changes.

Disclosure: No significant relationships.
Keywords: Tomography, Artery, Pleural Fibrosis.

Variables	Experimental Condition
Donor	GLE698
Organ type	lung
Date	29/05/2020
Pixel Size	2.25µm
Beamline	BM05
Proposal number	md1252
Energy	38KeV
Distance (mm)	605
Comment	Al 1mm SiO2rod 3*4 PSHO 23
Scintillator	LuAG 100 with meniscus
Scan Range	360
Half acqusition value	800
TOMO_Number	6000
Accu	3
Count_time	0.025
AccExposureTime	0.075
delta z	3.8


(a)
Irregular and thickened surface of pleura
Possibly branches of bronchial arteries supplying visceral pleura
Penetrating branches into PPFE lesion
Fibroelatic zone or parts of thickened visceral pleura
100mm


(b)
P

P-083

HIGH SUCCESS RATE, SAFE AND SHORT LEARNING CURVE WITH SHAPE-SENSING ROBOTIC ASSISTED BRONCHOSCOPY AND CONE BEAM COMPUTED TOMOGRAPHY (CT) FOR BIOPSY OF PERIPHERAL LUNG NODULES

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OBJECTIVES
Shape-sensing Robotic Assisted Bronchoscopy (ssRAB) allows accurate access to small peripheral pulmonary nodules (PPN) for biopsy. The precision could be enhanced by cross-sectional-imaging with cone beam CT (CBCT). We evaluate the effectiveness of the Ion endoluminal system (Intuitive Surgical, Sunnyvale, CA) with CBCT in the first multi-center European setting, at reaching and obtaining biopsies from PPN.

METHODS
This multicenter, prospective, single arm study plans to enroll 200 patients with 6-30 mm lung nodules for ssRAB and CBCT. The primary outcome is radiological confirmation of tool in nodule. We report the interim results of the first 100 patients. (NCT05867953)

RESULTS
108 nodules in 100 patients (mean 68 years, 71% female) underwent biopsy in 2 robotic bronchoscopy naïve centres. Median nodule size was 13mm; 83% were solid and 29% had a positive bronchus sign. Nodules were a median 20mm and 22mm from the chest wall and nearest fissure, respectively; 9 (8%) nodules were subpleural.

Median procedure time was 48 minutes; median procedure time decreased 21 (36%) minutes over the series, from 59 minutes in the first 10 cases, to 38 minutes in the last 10 cases at each site. The nodule was visible on radial-EBUS (rEBUS) in all 67 cases (100%) rEBUS was used. Tool in nodule was confirmed in 107/108 (99%) with CBCT, with a median distance from catheter tip to nodule edge of 2mm. Number (and rates) of serious adverse events, pneumothorax requiring chest tube and bleeding requiring intervention were 5 (4%), 1 (1%) and 2 (2%), respectively.

CONCLUSIONS
The initial experience of ssRAB with cone beam CT is highly successful with a good safety profile and short learning curve. Results show SSRAB enables precise localisation to small PPNs, which may impact lung cancer management in light of increased lung cancer screening.

Disclosure: No significant relationships.
Keywords: Robotic Assisted Bronchoscopy, Lung Cancer, Biopsy.

P-084

HOW DOES THE 9TH TNM CLASSIFICATION FOR LUNG CANCER AFFECTS N2 PATIENTS? A STUDY FROM THE BRONCHOGENIC CARCINOMA COOPERATIVE GROUP OF THE SPANISH SOCIETY OF PNEUMOLOGY AND THORACIC SURGERY (GCCB-III) DATABASE

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OBJECTIVES
The 9th TNM edition for lung cancer proposes a split in the N2 category that promotes a modification affecting three stages. We aim to analyze the percentage of patients that we could propose a different treatment according to changes in the staging.

METHODS
A total of 1342 patients diagnosed with lung cancer were recruited in the Bronchogenic Carcinoma Cooperative Group of the Spanish Society of Pneumology and Thoracic Surgery (GCCB-III) database from 2017 to 2021. After discarding those with incomplete data or clinical stage IV, 832 patients were eligible, 230 were deemed non-surgical and 602 were surgically treated. All cases were restaged using the 9th TNM and compared with the 8th TNM edition.

RESULTS
In the non-surgical cohort, clinical TNM (cTNM) was applied, resulting in a reduction of 6.52% of the IIIA stage. 61 (26.5%) patients were classified as IIIA following the 8th TNM edition, and 14 were re-classified as IIIB, 6 as IIB and 41 remained as IIIA. Within this cohort, 14 patients could have been potentially resectable regarding only lymph node involvement (2 T1bN2aM0, 3 T1cN2aM0, 6 T2aN2aM0, 3 T2bN2aM0). In the surgical cohort both cTNM and pathological TNM (pTNM) were applied, presenting similar tendencies towards reducing the proportion of patients staged as IIIA (-0.67% IIIA in cTNM; -1.66% IIIA in pTNM). 62 (10.3%) patients were classified as cIIIA following the 8th TNM, 2 were reclassified as cIIIB, 8 as cIIB and 52 remained as cIIIA. 18 surgically-treated patients were classified as cN2a and 11 were pathological restaged as pN0, 3 as pN1, 4 as pN2b and 8 remained as pN2a.

CONCLUSIONS

The 9th TNM classification opens new questions about the importance of accurate mediastinal staging and surgical treatment in N2 patients, since some of them considered non-surgical due to lymph node involvement may benefit from surgery in a multimodal setting.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Mediastinal Lymph Nodes, Stage IIIA.

Table 1. Non-surgical patients categorized as cIIIA stage by the 8th TNM edition, divided by 9th TNM edition stages, cTNM and proportion of patients in each category

Stage 8th edition	N (% of total)	Stage 9th edition	N (% of total cIIIA patients)	TNM 9th edition	N
cIIIA	61 (26.5%)	cIIB	6 (9.8%)	cT1aN2aM0	0
				cT1bN2aM0	2
				cT1cN2aM0	3
		cIIIA	41 (67.2%)	cT0N2bM0	1
				cT1aN2bM0	1
				cT1bN2bM0	1
				cT1cN2bM0	1
				cT2aN2aM0	6
				cT2bN2aM0	3
				cT3N1M0	5
				cT4N0M0	19
				cT4N1M0	5
		cIIIB	14 (23%)	cT2aN2bM0	11
				cT2bN2bM0	3

P-085

CLINICOPATHOLOGIC FEATURES AND SURGICAL TREATMENT PROGNOSIS OF ESOPHAGEAL CARCINOSARCOMA

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OBJECTIVES
Carcinosarcoma is a rare esophageal tumor, accounting for approximately 0.27-2.8% of malignant esophageal tumors. This study aims to investigate the clinical pathological characteristics, surgical treatment outcomes, and analysis of prognostic factors in esophageal carcinosarcoma (ECS).

METHODS
Clinical data from sixteen patients diagnosed with esophageal sarcomatoid carcinoma who underwent surgical interventions were retrospectively analyzed. Clinical and pathological features, treatment modalities, and postoperative outcomes were systematically examined.

RESULTS
Out of the 1261 patients who underwent surgical treatment for esophageal cancer, 16 cases were pathologically confirmed as carcinosarcoma. Among them, two underwent neoadjuvant chemotherapy, six received postoperative chemotherapy. Carcinosarcomas predominantly occurred in the middle (43.75%) and lower (50%) segments of the esophagus. Among the 16 cases, 10 presented as polypoid, 4 as ulcerative, and 2 as medullary types. Microscopic examination revealed coexistence and transitional transitions between sarcomatous and carcinoma components. Pathological staging showed 5 cases in stage T1, 2 in stage T2, and 9 in stage T3, with lymph node metastasis observed in 8 cases (50%). TNM staging revealed 2 cases in stage I, 9 in stage II, and 5 in stage III. The overall 1, 3, and 5-year survival rates were 86.67%, 62.5%, and 57.14%, respectively. Univariate analysis indicated that pathological N staging influenced survival rates, while multivariate analysis demonstrated that pathological N staging was an independent prognostic factor.

CONCLUSIONS
Carcinosarcoma is a rare esophageal tumor, accounting for approximately 0.27-2.8% of malignant esophageal tumors. Histologically, the biphasic pattern is a crucial diagnostic feature, although the carcinomatous component may not always be evident, especially in limited biopsies, leading to potential misclassification as pure sarcoma or squamous cell carcinoma. Despite its large volume and cellular atypia, carcinosarcoma carries a favorable prognosis. Complete surgical resection of the tumor and regional lymph node dissection is the preferred treatment approach for esophageal carcinosarcoma.

Disclosure: No significant relationships.
Keywords: Esophageal Carcinosarcoma, Clinical Pathology, Surgical Treatment, Prognosis Analysis.

P-086

IMPACT FACTORS ON LENGTH OF STAY AFTER LARYNGOTRACHEAL SURGERY

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OBJECTIVES
Review and analyze impact factors on the length of stay of patients submitted to laryngotracheal surgery

METHODS
Data review of patients who underwent Laryngotracheal surgery at our university hospital, referral center for Thoracic and Airway Surgery, from January 2010 to June 2023. Data of 136 patients were included: demographic, previous tracheostomy, stenosis grading (Myer-Cotton scale), length of stenosis, distance from vocal folds, need for supra-hyoid release (Montgomery Maneuver), length of stay in the ICU and ward, complications (divided into tracheal and non-tracheal), the need for tracheostomy or T-tube at the end of surgery, and the final outcome measured as decannulation.

RESULTS
The mean age was 39.2 years, with 85 men (63.4%). Average days in ICU were 2.24 and 3.04 in the ward. 89 patients received tracheal resection(TR) (66.4%), 33 cricotracheal(CTR) resection (24.6%), and laryngotracheal reconstruction(LTR) with costal graft interposition in 12 (9.0%). In our routine, we do not leave the Guardian Stitch between chin and chest. CTR stayed longer than TR (6.33 days vs 4.95; $p<0.05$). CTR also had more chance of tracheostomy at the end of surgery ($p=0.0165$). 31 patients received a supra-hyoid release with impact on post-operative days (6.94 days vs 4.75 days, $p=0.0010$). Despite this longer time, none of them remained with swallowing issues at follow-up. Longer tracheal resections did not impact the days (longer than 4cm - 4.64 days vs 5.4 days – shorter 4cm; $p=0.0911$). 23 patients discharged with tracheostomy. Of those, 14 were decannulated in the follow-up, resulting in a total decannulation rate of 93.3%.

CONCLUSIONS
Cricotracheal resection (Pearson Operation) will have a longer hospitalization. A supra-hyoid release for a longer segmental resection will also impact the length of stay. At the end of surgery, patients who need a tracheostomy usually stay longer in the hospital. Mainly because of the attempts to decannulate before discharge.

Disclosure: No significant relationships.
Keywords: Airway, Laryngotracheal Surgery, Complications, Length Of Stay.

	MORE DAYS	LESS DAYS	p
Type of Surgery	CTR – 6.33	TR – 4.95	0.0155
Tracheostomy at the end	Yes – 7.61	No – 4.68	0.0044
Montgomery Maneuver (supra-hyoid release)	Yes – 6.94	No – 4.75	0.0010
Dysphonia	Yes – 3.04	No – 2.68	0.2348
Resection longer 4cm	No – 5.40	Yes – 4.64	0.0911
Reoperations	Total: 16 (11.9%); In the same hospitalization: 5 (3.7%)		
Decannulation rate	127 (93.3%		

P-087

IMPACT OF CONCOMITANT LEFT ATRIAL APPENDAGE LIGATION ON THE DEVELOPMENT OF ATRIAL FIBRILLATION IN HEART TRANSPLANT PATIENTS

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OBJECTIVES
There have been several reports in the literature investigating the impact of left atrial appendage (LAA) ligation on the development of postoperative atrial fibrillation (A Fib) in patients undergoing cardiac surgery. However, there is a paucity of reports investigating this impact in heart transplant (HTx) patients. The objective of our study is to assess the impact of concomitant LAA ligation (LAAL) on the development of A Fib, transient ischemic attack (TIA), stroke and mortality after HTx.

METHODS
We conducted a retrospective analysis of the medical records of HTx recipients at our institution between 2001 and 2022 and compared those who underwent concomitant LAAL versus recipients who did not undergo LAA ligation (No LAAL). Outcomes were post-operative A Fib, TIA, ischemic and hemorrhagic stroke, and one-year mortality. Chi-square, and Mann Whitney tests were used.

RESULTS
511 recipients were included [LAAL: 285 (55.8%) and No-LAAL: 226 (44.2%)].
There has been no statistically significant difference in the incidence of A Fib between the two groups, [LAAL, 29 patients (10.2%) vs No-LAAL, 26 patients (11.5%); p-value = 0.67]. Similarly, there has been no significant difference in the incidence of ischemic stroke [LAAL, 15 patients (5.3%) vs No-LAAL, 6 patients (2.7%), p-value = 0.18], hemorrhagic stroke [2 patients (0.7%) vs 3 patients (1.3%), p-value = 0.66], or TIA [0 patients (0.0%) vs 2 patients (0.9%), p-value =0.2]. Within a one-year period of follow up, there has been no significant difference in mortality between the two groups [LAAL, 20 patients (7.0%) vs No-LAAL, 21 patients (9.3%), p-value = 0.41] (table 1).

CONCLUSIONS
Our data show that concomitant LAA ligation during HTx has no significant impact on the development of A Fib, TIA, ischemic stroke, and mortality among HTx recipients.

Disclosure: No significant relationships.
Keywords: Left Atrial Appendage Ligation, Atrial Fibrillation, Heart Transplant, Transient Ischemic Attack, Stroke.

	LAAL (N= 285)	No-LAAL (N=226)	P-value
Age in years (median/range)	57 (16,75)	57 (19,73)	0.60
Female (%)	88 (30.9%)	47 (20.8%)	0.014
Diabetes	109 (38.2%)	105 (46.5%)	0.071
Smokers	136 (47.7%)	111 (49.1%)	0.79
Hypertension	28 (9.8%)	19 (8.4%)	0.64
Body mass index (median/range)	27.00 (16.3,42)	27.80 (16.4,39.8)	0.59
Peripheral vascular disease	16 (5.6%)	16 (7.1%)	0.58
COPD	16 (5.6%)	17 (7.5%)	0.47
Chronic kidney disease	214 (75.1%)	184 (81.4%)	0.11
Outcomes			
Postoperative			
• Atrial fibrillation	29 (10.2%)	26 (11.5%)	0.67
• Transient ischemic attack	0 (0.0%)	2 (0.9%)	0.20
• Ischemic stroke	15 (5.3%)	6 (2.7%)	0.18
• Haemorrhagic stroke	2 (0.7%)	3 (1.3%)	0.66
1-year			
• 1 year mortality	20 (7.0%)	21 (9.3%)	0.41

P-088

IMPACT OF CONVERSION TO OPEN SURGERY DURING VATS LOBECTOMY WITH EMPHASIS ON SURGEON EXPERIENCE

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OBJECTIVES

Video-assisted thoracoscopic surgery (VATS) is known for its benefits such as reduced pain and early hospital discharge. This study aims to investigate the reasons for conversion to open surgery during VATS lobectomy, postoperative complications, and identify independent risk factors.

METHODS

This retrospective study extracted data from a prospectively maintained institutional database, including all patients who underwent elective VATS lobectomy between 2016 and 2022. In order to evaluate how surgical experience influenced the surgical outcome, we divided the surgeons' experience into ''senior consultant'' and ''junior consultant/trainee'' according to the respective surgeon's previous surgical activity and the surgeon's professional status at the time of the operation.

RESULTS

A total of 882 patients were included in the study, with the majority undergoing the procedure for non-small cell lung cancer (NSCLC) (n=751, 95.1%). In 102 cases (11.6%), a conversion to thoracotomy was necessary. Reasons for conversion included patient anatomy (n=58, 56.9%), lymphadenectomy (n=5, 4.9%), vascular problems (n=24, 23.5%), or technical issues (n=12, 11.8%). Following conversion to open surgery, there was a higher incidence of major cardiopulmonary complications (6% vs 14.7%, p <0.01), acute respiratory distress syndrome (ARDS) (0.4% vs 2.0%, p=0.04), postoperative ventricular arrhythmia (1.0% vs 4.9%, p <0.01), and unplanned admission to the ICU (1.5% vs 2.9%, p <0.01). Independent factors for conversion to thoracotomy included patient male gender (OR: 0.540, 95% CI: 0.347-0.842, p <0.01), surgeon's experience (OR: 4.087, 95% CI: 2.508-6.662, p <0.01), NSCLC tumor stage greater than IIA (OR: 0.443, 95% CI: 0.275-0.716), and hypertension (OR: 1.579,

95% CI: 1.011-2.467). While 30-day mortality showed an increase, it did not reach statistical significance (1.5% vs 3.6%, p=0.16).

CONCLUSIONS

Conversion to open thoracotomy during VATS lobectomy is associated with increased postoperative morbidity. The surgeon's experience and careful preoperative evaluation are crucial to avoid conversion to open thoracotomy.

Disclosure: No significant relationships.
Keywords: Surgeon Experience, Video-Assisted Thoracic Surgery, Thoracotomy, Lobectomy.

P-089

IMPACT OF INDOCYANIN GREEN ON PERIOPERATIVE RESULTS IN MINIMALLY INVASIVE SEGMENTECTOMY

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OBJECTIVES
Video-assisted thoracoscopic segmentectomies became the gold standard for the treatment of early-stage non-small cell lung cancer less than two centimeters. Its main difficulty is the identification of intersegmental boundary lines, dictating the postoperative morbidities. We conducted a retrospective study to compare the perioperative outcomes of patients who underwent minimally invasive segmentectomy using the traditional deflation-inflation method or the novel indocyanin green technique.

METHODS
Using a prospectively maintained database, we performed a retrospective analysis of 197 consecutive anatomical segmentectomies, from 2020 to 2023. Clinical effectiveness, post-operative complications and histological data were evaluated, depending on the method use to demonstrate the intersegmental boundary line. An additional statistical analysis was also performed on complex segmentectomies.

RESULTS
One hundreed and ninety-seven were included, with 73 (37 %) patients having the inflation - deflation method and 124 (63 %) the intravenous indocyanin green method. There were no significant differences in chest tube duration, prolonged air leak, postoperative complications, and postoperative hospital stays. Surgical margin width was also similar between the two groups. The multivarious analysis confirmed these results. Lastly, intravenous indocyanin green brought no additional value in complex segmentectomies.

CONCLUSIONS
This monocentric and retrospective analysis, along a literature review, found no add-value of the intravenous indocyanin green on the peri-operative results of minimally invasive segmentectomies. The place of this novel technique in the surgical armamentarium remains to be defined. Specific indications such as complex segmentectomy or patients with chronic pulmonary disease should be further studied.

Disclosure: No significant relationships.
Keywords: Indocyanine Green, Inflation-Deflation Method, Pulmonary Segmentectomy, Minimally Invasive Surgery, Video thoracoscopy.

P-090

IMPACT OF MICROBIAL ENVIRONMENT AND CLINICAL RISK FACTORS ON MORBIDITY AND EARLY MORTALITY FOLLOWING SURGICAL TREATMENT FOR STAGE II AND III PLEURAL EMPYEMA

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OBJECTIVES

This study aims to identify risk factors associated with increased postoperative morbidity and mortality in patients undergoing surgical treatment for stage II and III pleural empyema at a tertiary referral center.

METHODS

We conducted a retrospective analysis of prospectively collected data, encompassing all patients who underwent surgical treatment for stage II and III pleural empyema from 2016 to 2022.

RESULTS

The study included 634 patients. Pneumonia accounted for 94% of cases, with 0.7% diagnosed after lung resections, 0.9% after chemotherapy, 0.9% after bronchus stump insufficiency, and 0.6% due to immunosuppression after lung transplantation. 2.3% of patients had prior surgical treatment in an external hospital.

Patients with pleural empyema caused by Staphylococcus (0.6% vs 3.3%, p=0.01), Enterococcus (0.8% vs 6.7%, p=0.02), and Klebsiella (0.8% vs 9.1%, p <0.01) were more frequently admitted to ICU unexpectedly. Multiorgan-system failure occurred more frequently in cases involving more than two bacterial types (1.5% vs 7.7%, p=0.01). Recurrent pleural empyema after surgery was more common in the presence of Streptococcus bacteria (1.2% vs 5%, p=0.02). Major cardiopulmonary complications were more frequent in Staphylococcus aureus (4.1% vs 13.8%, p=0.01) and Klebsiella (4.3% vs 18.2%, p=0.02) pleural empyema. Wound infections were more prevalent in cases of E. coli (1.1% vs 10%, p=0.01).

The 30-day mortality rate was 5.4% (n=34). Age >70 years (OR: 15.071, 95%CI: 3.170-71.644, p=0.01), previous malignancy (OR: 7.173, 95%CI: 1.980-25.990, p=0.01), postoperative pneumonia (OR: 4061.93, 95%CI: 4.773-345675.312, p=0.01), and unexpected admission to ICU (OR: 178.074, 95%CI: 4.327-7328.679, p=0.01) were identified as independent factors for early mortality.

CONCLUSIONS

Pleural empyema remains a disease associated with increased morbidity and mortality. The microbial agent responsible for the infection plays a crucial role in the postoperative course. Early detection of the microbial agent, coupled with the management of associated risk factors, is paramount for achieving successful treatment outcomes.

Disclosure: No significant relationships.
Keywords: Pleural Empyema, Morbidity, Mortality.

P-091

IMPACT OF NEOADJUVANT IMMUNOTHERAPY ON PERIOPERATIVE OUTCOME IN PATIENTS SCHEDULED FOR ANATOMIC VIDEO ASSISTED THORACIC SURGERY (VATS) RESECTION

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OBJECTIVES
Neoadjuvant immunotherapy has become standard of care in treatment of lung cancer. Many surgeons worry about local treatment effects such as fibrosis, which might increase intraoperative complications, conversion rates, postoperative complications and length of stay. This study aims to analyze changes in perioperative outcomes in patients scheduled for VATS anatomic resections with or without neoadjuvant chemo +/- immunotherapy.

METHODS
Our institutional database was queried for patients receiving surgery for lung cancer. Patients treated between 01/2019 and 12/2023 were included for further analysis.

RESULTS
479 patients were scheduled for a VATS anatomic resection between 2019 and 2023, 52 patients received neoadjuvant treatment, including 23 with neoadjuvant chemoimmunotherapy and 9 with neoadjuvant immunotherapy. Median duration of surgery and length of stay was 152 minutes and 6 days, respectively. Duration of surgery was significantly increased after neoadjuvant treatment (158.8 vs. 171.5min, p=0.024), however, there was no increase in postoperative complications or LOS after neoadjuvant treatment. Overall, 23 patients (4.8%) were converted to open thoracotomy, with no significant difference between patients undergoing neoadjuvant treatment or primary surgery (8.3% vs. 4.7%, p=0.298). Conversion to thoracotomy translated into prolonged duration of surgery, increased perioperative complications and prolonged length of stay.
Finally, there was no effect of neoadjuvant immunotherapy on perioperative outcomes in comparison to neoadjuvant chemotherapy alone (duration of surgery, conversion rate, length of stay and postoperative complications).

CONCLUSIONS
In a well-established minimally invasive lung cancer surgery program, neoadjuvant immunotherapy does not alter perioperative results. Even though the rate is low, conversions to thoracotomy impact early postoperative results.

Disclosure: No significant relationships.
Keywords: Neoadjuvant Therapy, Immunotherapy, Chemotherapy, VATS, Postoperative Outcome.

P-092

IMPACT OF PREVIOUS EXPERIENCE IN MINIMALLY INVASIVE SURGERY ON THE ROBOTIC PULMONARY LOBECTOMY LEARNING CURVE

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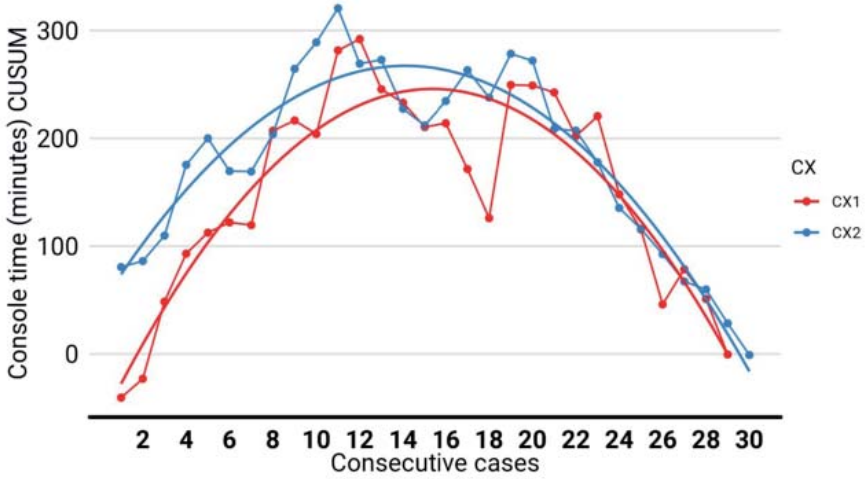
OBJECTIVES
Robotic assisted thoracic surgery (RATS) has emerged as a promising technique for the treatment of lung diseases. The acquisition of skills to perform this intervention, especially in the context of previous experience in minimally invasive surgery, is a topic of clinical and scientific interest. In this study, we seek to identify the influence of previous experience in minimally invasive surgery by comparing the learning curves of robotic lung lobectomy between surgeons with (VATStoRATS) or without (THOtoRATS) previous experience in videothoracoscopy.

METHODS
Prospective, multicenter and analytical design, was carried out in two centers. First consecutive robotic lung resections performed in both centers were included for analysis. Demographic and clinical data were collected and comparisons were made of the variables of interest, including surgical time, days of pleural drainage, days of hospital stay, and the incidence of complications. Statistical analysis was performed using significance tests, and a threshold of $p < 0.05$ was established. The learning curve was assessed using the CUSUM method.

RESULTS
60 patients were included during the study period, 30 VATStoRATS Group and 30 THOtoRATS Group, displayed no significant differences. The average surgical time was 162.5 minutes (±47.5) in the VATStoRATS Group and 159.4 minutes (±36.3) in the THOtoRATS Group ($p = 0.778$). The RATS learning curve for lobectomies was completed at 23 procedures for VATStoRATS Group, while THOtoRATS Group required 21 interventions. No statistically significant differences were found among groups in terms of days of pleural drainage ($p = 0.772$), days of hospital stay ($p = 0.066$) and incidence of postoperative complications ($p = 0.504$).

CONCLUSIONS
Based on the results observed in this study, we can conclude that previous experience in videothoracoscopy does not seem to significantly influence the learning curve of robotic lung lobectomy.

Disclosure: No significant relationships.
Keywords: Robotic Assisted Thoracic Surgery, Video Assisted Thoracic Surgery, LLearning Curve, Lobectomy.



CX1 VATStoRATS Group
CX2 THOtoRATS Group

Figure. CUSUM curve, for the surgery time of the lobectomies. The RATS learning curve was completed at 23 procedures for VATStoRATS Group, while THOtoRATS Group required 21 interventions. Abbreviations: RATS: robot-assisted thoracic surgery; VATS: video-assisted thoracic surgery.

Table. Patient demographics and characteristics. Surgical outcomes

	VATStoRATS (N=30)	THOtoVATS (N=30)	p value
Age; years	65.69 (9.85)	65.83 (8.65)	0.953
Gender; n (%)			0.439
Female	16 (53.3%)	13 (43.3%)	
Male	14 (46.7%)	17 (56.7%)	
Smoker; n (%)			0.521
Active	11 (36.6)	9 (30.0)	
Former	6 (20)	7 (23.3)	
Never	11 (36.6)	14 (46.7)	
Unknown	2 (6.6)	0 (0.0)	
COPD; n (%)	5 (16.6)	10 (33.3)	0.233
HT; n (%)	16 (53.3)	15 (50.0)	0.796
DM; n (%)	5 (16.6)	8 (26.7)	0.532
CRI; n (%)	4 (13.3)	3 (10.0)	0.706
CV; n (%)	9 (30)	6 (20.0)	0.382
Anticoagulant; n (%)	6 (20)	4 (13.3%)	0.506
FEV1_%	88 (17.87)	85.33 (27.20)	0.661
FVC_%	91 (15.81)	91.34 (18.88)	0.664
DLCO %	83 (12.83)	86.93 (19.97)	0.192
Tumoral_size; cm (SD)	1.70 (1.30, 2.50)	2.35 (1.50, 3.08)	0.106
Induction; n	0 (0.0%)	2 (6.7%)	0.492
Centrality; n	2 (6.6%)	2 (6.7%)	1
Console time	162.5 (47.5)	159.4 (36.3)	0.778
Days of Chest Drainage; days (range)	3(2, 5)	3 (2, 4)	0.772
Length of Stay; days (range)	4 (3, 6)	4 (3.2, 7.5)	0.066
Complications_y; n (%)	4 (13.3%)	7 (24.1%)	0.504

Abbreviations: VATS: video-assisted thoracic surgery; COPD: chronic obstructive pulmonary disease; HT: hypertension; DM: diabetes mellitus; CRI: chronic renal insufficiency; CV: cardiovascular disease; FEV1: forced expiratory volume in one second; FVC: forced vital capacity; DLCO: diffusing capacity for carbon monoxide; SD: standard deviation.

P-093

INCIDENCE OF EARLY PERSISTENT PAIN AFTER VIDEO-ASSISTED THORACOSCOPIC SURGERY: A SINGLE-CENTER PROSPECTIVE COHORT STUDY

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OBJECTIVES
Despite the benefits of video-assisted thoracoscopic surgery, postoperative acute pain and nerve injury are still present and contribute to early persistent and chronic pain. The purpose of this study is to describe the incidence of early persistent pain after video-assisted thoracoscopic surgery, which remains unexplored, to enhance patient care and promote awareness among clinicians regarding this clinical condition.

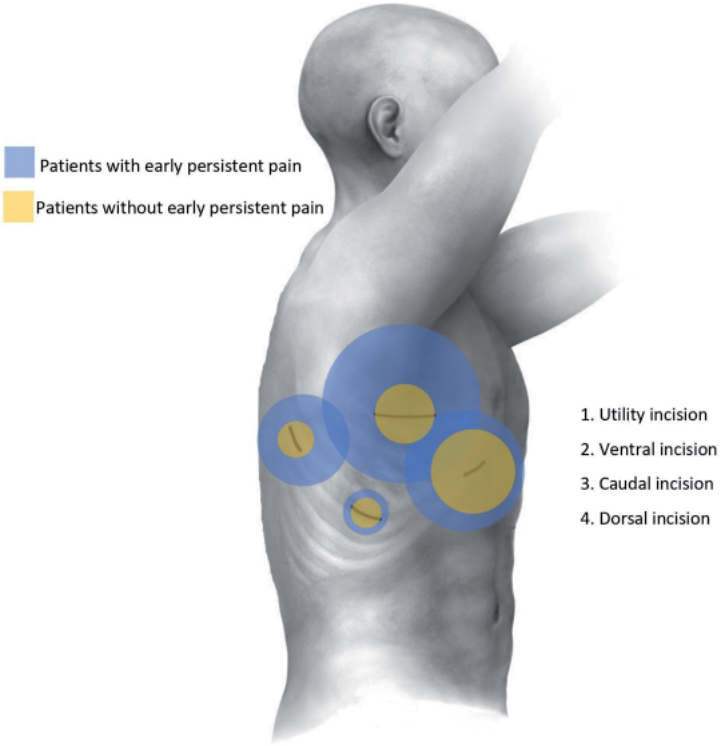
METHODS
A single-center prospective cohort study that included consecutive patients undergoing video-assisted thoracoscopic surgery between January 2021 and March 2023. The primary outcome was the incidence of early persistent pain, defined as pain (numerical rating scale ≥4) experienced at 3 to 4 weeks follow-up. Secondary outcomes were risk factors associated with early persistent pain, characteristics during physical examination, acute postoperative pain scores, the use of additional analgesia and complications compared between patients with and without early persistent pain.

RESULTS
Of 117 patients, 16.2% (95% CI 9-23) developed early persistent pain. The presence of acute postoperative pain was the only risk factor for early persistent pain. The pain was mostly localized at the utility and ventral incision. Hyperesthesia, hypoesthesia and a positive pinch test were the most common sensory disturbances. Patients with early persistent pain showed significantly higher acute pain scores until postoperative day 4, more frequently used additional opioids until postoperative day 2, and had comparable complications.

CONCLUSIONS
Early persistent postoperative pain is present in 16.2% of patients after video-assisted thoracoscopic surgery. Acute postoperative pain is the strongest risk factor of developing such persistent pain. This underlines that awareness of clinicians for strategies that optimize postoperative pain management is of utmost importance.

Disclosure: No significant relationships.
Keywords: Persistent Postsurgical Pain, VATS, Acute Postoperative Pain, Neuropathic Pain.

Figure Visualization of the proportion of patients with discomfort (numerical rating scale < 4) or pain (numerical rating scale ≥ 4) at the incisional locations of video-assisted thoracoscopic surgery



P-094

INCIDENTAL DIAGNOSIS OF DIFFUSE IDIOPATHIC PULMONARY NEUROENDOCRINE CELL HYPERPLASIA (DIPNECH) AFTER LUNG SURGERY: A SINGLE-CENTER ANALYSIS

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OBJECTIVES

Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) is a rare and poorly understood pre-neoplastic lesion in the spectrum of pulmonary neuroendocrine tumors, often incidentally found on histological examination. The aim of this study was to identify predictive factors, focusing on clinico-pathological and radiological characteristics.

METHODS

A retrospective single-center cohort study was conducted. Clinical, radiological and pathological data of patients underwent pulmonary resection with DIPNECH diagnosis on the surgical specimen were collected. Patients' pre-operative imaging was retrospectively reviewed to identify pathognomonic features for DIPNECH.

RESULTS

Among 2341 patients who underwent lung surgery at our center from January 2016 to December 2023, twenty-six had incidental pathological finding of DIPNECH (F/M: 22/4, mean age: 69.4±9.4 years). There were 8 current smokers (30.8%), 10 former-smokers (38.4%) and 8 never-smokers (30.8%). Surgical procedure consisted of 10 lobectomies (38.4%), 4 segmentectomies (15.4%) and 12 wedge resections (46.2%). The mean pathologic lesions' size was 17±10.5mm (maximum diameter). There were 8 benign lesions (30.8%) and 18 malignant (69.2%): thirteen carcinoids (3 atypical and 10 typical), 4 adenocarcinomas and 1 ovarian cancer metastasis. Pathologic exam revealed at least one tumorlet in 65.4% of patients. Re-examination of pre-operative chest CT-scans showed bilateral nodules and micronodules suggestive of DIPNECH in 21 patients (80.8%), and the incidental lesions found on histological examination were identified in 14 patients (53.9%). The presence of one or more tumorlets in surgical specimen was significantly associated with diffuse micronodules at chest CT-scan (OR 0.119, 95% CI: 0.018-0.785; p=0.027).

CONCLUSIONS

Radiological finding of bilateral micronodules associated with a main pulmonary lesion may be a pathognomonic sign for predicting DIPNECH, nonetheless the absence of such characteristic cannot exclude the diagnosis. The presence of incidental pre-cancerous lesions in patients with

benign lung disease suggests the need for follow-up protocols, although further studies are needed to deeper investigate DIPNECH syndrome.

Disclosure: No significant relationships.
Keywords: Dipnech, Neuroendocrine Cell Hyperplasia, Lung Surgery, Carcinoid.

Characteristic	Statistics n (%)
Gender	
M	4 (15,4)
F	22 (84,6)
Hypothyroidism	
Yes	7 (26,9)
No	19 (73,1)
Pathology	
Tumor	18 (69,2)
Benign	8 (30,8)
Histology of tumor lesions	
Typical carcinoid	10 (38,5)
Atypical carcinoid	3 (11,5)
Adenocarcinoma	4 (15,3)
Metastasis from other tumor	1 (3,8)
Lesion localization	
Upper lobe	11 (42,3)
Medium lobe	5 (19,2)
Lower lobe	10 (38,5)
Side	
Right	15 (57,7)
Left	11 (42,3)
Type of resection	
Wedge	12 (46,2)
Segmentectomy	4 (15,4)
Lobectomy	10 (38,4)
Stage of primary tumor	
1a	14 (53,8)
1b	3 (11,5)
2b	1 (3,8)
Smoking history	
Former	10 (38,4)
Current	8 (30,8)
Never	8 (30,8)
Tumorlets number on surgical specimen	
No evidence of tumorlets	9 (34,6)
1	8 (30,8)
2	2 (7,7)
≥3	7 (26,9)
DIPNECH pattern on pre-operative CT scan	
Yes	14 (53,8)
No	12 (46,2)
Micronodules reported on pre-operative CT scan	
Yes	11 (42,3)
No	15 (57,7)
Radiological findings on pre-operative CT scan (excluding the main lesion)	
Nothing reported	6 (23,1)
Bilateral GGO	3 (11,5)
Bilateral micronodules	13 (50)
Bilateral micronodules and GGO	3 (11,5)
ONE-sided micronodules and GGO	1 (3,8)
Previous surgery result	1 (3,8)

P-095

INFLUENCE OF GODDARD SCORE ON THE DURATION OF POSTOPERATIVE AIRLEAKAGE IN LUNG SEGMENTAL RESECTION

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OBJECTIVES
Considering the growing age of patients, their comorbidities, and the increasing incidence of small lung tumors due to lung-cancer-screening, there is a growing significance and frequency of segmental resections. Preoperative 3D visualization allows to quantify pulmonary emphysema, computing Goddard score. The objective is to assess Goddard score and other parameters in predecting the duration of postoperative fistulas.

METHODS
All patients with anatomical segment resections between 01.01.2022 and 30.06.2023 were analysed. They were included if segmentectomy was intended to be performed by VATS and if a recent, sufficient preoperative CT was available for emphysema analysis. The Goddard-Score was determined on the preoperative CT using Fuji 3D software. Primary endpoint was postoperative air-leakage.

RESULTS
Of 144 patients, 131 fulfilled the inclusion criteria; mean age 69±9 years, BMI 26±6kg/m², packyears 34±28, FEV1 80±18%, DLCO 61±17%, median Goddard-Score 1 [0;12]. 2% were pre-radiated, 8% pre-operated. A mean of 1.7 segments was removed. 40% of the operations were complex segment resections. The parenchyma was removed with stapler only in 87%, partially with stapler in 10% and without stapler in 3%. Adhesiolysis was performed in 39%. Mean operative time was 146±53min, postoperative length of stay 7.5±4.2 days, air-leakage duration 4.1±5.0 days. 16% had a prolonged air-leak over 7 days. 6.1% of patients were discharged with an indwelled chest tube.
The Goddard-Score does not correlate with air-leakage duration (r=-0.04).
The logistic regression for prolonged fistula duration for more than 7 days (dichotomous outcome) yields significant Odd's ratios for the need for adhesiolysis (OR=4.8 [1.3, 17.1], p=0.05), lower BMI (OR=0.7 [0.6, 0.8], p<0.01), immunosuppression (OR=7.1 [1.0, 51.2], p=0.05), packyears (OR 1.02 [1.00, 1.04], p=0.05), and longer surgery duration (OR=1.02 [1.00, 1.03], p<0.05).

CONCLUSIONS
The Goddard-Score alone is not suitable for predicting prolonged air-leakage after anatomical segmentectomy. In this population, the strongest independent predictors were need for adhesiolysis and preoperative immunosuppression.

Disclosure: No significant relationships.
Keywords: Segment Resection, AirLeakage, Complications, Lung Emphysema, Goddard Score.

P-096

COLORECTAL METASTASECTOMY: A SINGLE CENTRE RETROSPECTIVE ANALYSIS

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OBJECTIVES
The utility of pulmonary metastasectomy for colorectal cancer remains controversial. The only randomised data to date has shown no survival benefit, whilst large observational studies demonstrate prolonged survival. However, these series typically contain patients with favourable prognostic characteristics and the question remains; is the demonstrated benefit due to selection bias alone? We performed a retrospective analysis to examine the postoperative outcomes in the face of the current controversy and new alternatives therapies.

METHODS
Patients were identified from a prospectively completed surgical dataset. Primary tumour, perioperative, recurrence and mortality data were collected.

RESULTS
176 patients were identified from Jan 2012-Dec 2021. 12 patients presented with liver metastases at the time of presentation, all but one of these patients underwent liver resection for colorectal metastases prior to thoracic surgery. Seven patients presented with synchronous metastases which were operated on in stages. Mortality at 90 days, 1 year and 2 years from resection was 1.1%, 8% and 14.8% respectively. Postoperative complications were 12% and average length of stay was 4.3 days. Median was survival 61.3 months (95% CI 52.1-70.5.) At the time of this analysis, 81 patients (45.7%) remain alive. 27.6% of cases (49 patients) had further recurrence within the lung, of those patients, 37 went on to have further surgery; including repeat mastectomy, lymph node staging or rib resection.

CONCLUSIONS
Our series demonstrates prolonged survival with low postoperative morbidity and mortality. In the face of such uncertainty, surgical metastasectomy remains a valid option until more definitive randomised data is available.

Disclosure: No significant relationships.
Keywords: Metastasectomy, Colorectal.

P-097

INFLUENCE OF THE IMPLEMENTATION OF A PERIOPERATIVE MANAGEMENT PROGRAM IN THORACIC SURGERY

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OBJECTIVES
The implementation of a POMTS program (Perioperative Management in Thoracic Surgery) can lead to an improvement in the quality of patient care. The goal of POMTS is to decrease the risk of complications, and accelerate recovery by combining evidence-based interventions before, during, and after surgery.

METHODS
All patients who underwent surgery in our clinic from January to the end of February 2023 were included in the POMTS protocol. Perioperative outcomes were compared with patients from January to February 2022.

RESULTS
A total of n = 73 patients were included into the POMTS group. This included n = 14 thoracotomies and n = 59 uniportal thoracoscopies (uVATS). The procedures comprised of n = 19 anatomical resections, n = 15 atypical wedge resections, n = 17 empyema evacuations, n = 13 effusion evacuations, and n = 9 LVRS. For comparison, all patients who underwent surgery in January and February 2022 (non-POMTS group) were included in the analysis. A total of n = 71 patients were identified. This included 18 thoracotomies and 53 uVATS. Surgeries were n = 19 anatomical resections, n = 14 empyema evacuations, n = 14 atypical wedge resections, n = 17 effusion evacuations and n = 7 LVRS. In the POMTS group, 24 Charr chest tubes were placed and suction of -8 cm H2O was applied. In the non-POMTS group, 28 Charr chest tubes were placed with a standard suction of -10 cm H2O. In the POMTS group, a significantly shorter duration of drainage therapy (days) (5 POMTS vs. 8.3 non-POMTS, p = 0.0001) and significantly shorter hospital stay (days) (7.9 POMTS vs. 10.7 non-POMTS, p = 0.0012) were observed. Overall patient satisfaction was higher in the POMTS group.

CONCLUSIONS
By implementing a POMTS protocol, patients undergoing thoracic surgery may experience faster recovery times, fewer complications, and improved overall outcomes.

Disclosure: No significant relationships.
Keywords: Perioperative Management, Thoracic Surgery.

P-098

INITIAL LEARNING CURVE INCLUDING ALL-TYPE SEGMENTECTOMIES IN A VIDEO ASSISTED THORACIC SURGERY (VATS) EXPERIENCED DEPARTMENT

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OBJECTIVES
The aim of this study is to assess the initial experience of all-type anatomical segmentectomies (simple and complex) for cIA NSCLC < 3 cm, in a VATS experienced department.

METHODS
46 patients with cIA NSCLC <3 cm who underwent VATS anatomical segmentectomy between January 2017 and December 2020 were retrospectively reviewed. Patients with multiple synchronous nodules, previous ipsilateral lung resection, previous malignancy within the former five years (excluding non-melanoma skin cancer), inadequate tissue and lack of follow-up were excluded. We defined quality criteria based on final tumor size, margin-to-tumor (M/T) ratio, total lymph nodes and stations, conversion to thoracotomy or lobectomy, unnoticed injury to remaining bronchovascular structures, and intraoperative bleeding or deaths.

RESULTS
52.1% were combined segmentectomies, and 58.6% were complex segmentectomies. There were no conversions to thoracotomy, no unnoticed injury to remaining segments, and no intraoperative deaths. There was 1 conversion to lobectomy (arterial bleeding) and 2 intraoperative bleedings. Only 8.6% patients presented postoperative complications Clavien-Dindo>2. There were no reinterventions nor readmissions.
Mean tumor size was 16 mm, mean lymph nodes removed 7.5 and mean lymph node stations resected 4.4. Adenocarcinoma was the most common histology (89%) and most common pathological stage was pIA2 (39%), with 65.3% classified as uncertain resection (Run) due to lymph node dissection not achieving IASLC criteria for R0, and no R1-2.
We performed an analysis per periods of 2 years (2017-18, 2019-20) and there were no statistically significant differences in terms of proportion of tumors less than 2 cm (p=0.801), M/T>1 (0.883), total lymph nodes removed (p=0.059), lymph node stations (p=0.366) or intraoperative bleeding (p=0.71).

CONCLUSIONS
Initiation of a program of all-type segmentectomies has proven safe and oncologically accurate in a VATS experienced unit. Before the completion of 50 procedures we have not found significant differences in performance within these parameters.

Disclosure: No significant relationships.
Keywords: Segmentectomy; NSCLC; VATS.

P-099

INNITIAL RESULTS OF UNIPORTAL AND ROBOT-ASSISTED SUBXIPHOID THYMECTOMY

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OBJECTIVES
We investigated the initial results and evaluated the safety of the subxiphoid approach for uniportal and robot-assisted thymectomy, which we have previously reported.

METHODS
From March 2011 to December 2022, 269 patients underwent subxiphoid thymectomy. In cases had not invaded other organs, subxiphoid uniportal thymectomy (SUT) was selected due to its minimally invasiveness. For cases in which the tumor was in contact with innominate vein or in which invasion into other organs was suspected, subxiphoid robot-assisted thymectomy (SRT) with additional intercostal ports was selected due to the good operability of the robot system.

RESULTS
SUT was performed in 208 patients and SRT in 61 patients. Seventeen of the patients who underwent SUT required conversion (6.32%). Fourteen of the 17 cases required an additional port. Three of the 17 cases required a median sternotomy. 191 patients completed with SUT had a median operative time of 114.0 ± 45.40 minutes and blood loss of 4.0 ± 3.28 ml. Combined resection of adjacent organs was performed in 8 patients (4.5%), and all of the resected organs involved were the lungs. Postoperative complications (hemorrhage, atrial fibrillation, diaphragmatic nerve palsy, and chylothorax) were observed in 4 patients (2.1%). There were no cases requiring conversion in the SRT group. The median operative time was 203.0±116.53 minutes, and blood loss was 5.0±472.67 ml. Combined resection of adjacent organs (lungs, pericardium, phrenic nerves, innominate vein, and superior vena cava) was performed in 14 patients (22.9%). Postoperative complications (hemorrhage, atrial fibrillation, recurrent nerve palsy, diaphragmatic nerve palsy, and chylothorax) were observed in 5 patients (8.19%). There was no in-hospital death in both groups.

CONCLUSIONS
Subxiphoid thymectomy is a safe and feasible technique for both early and advanced stages of disease requiring complex surgical procedures.

Disclosure: No significant relationships.
Keywords: Uniportal VATS, RATS, Subxiphoid, Thymectomy.

P-100

INTEGRATED COMPUTATIONAL SCREENING AND LIQUID BIOPSY APPROACH TO UNCOVER THE ROLE OF BIOMARKERS FOR LUNG CANCER LYMPH NODE METASTASIS

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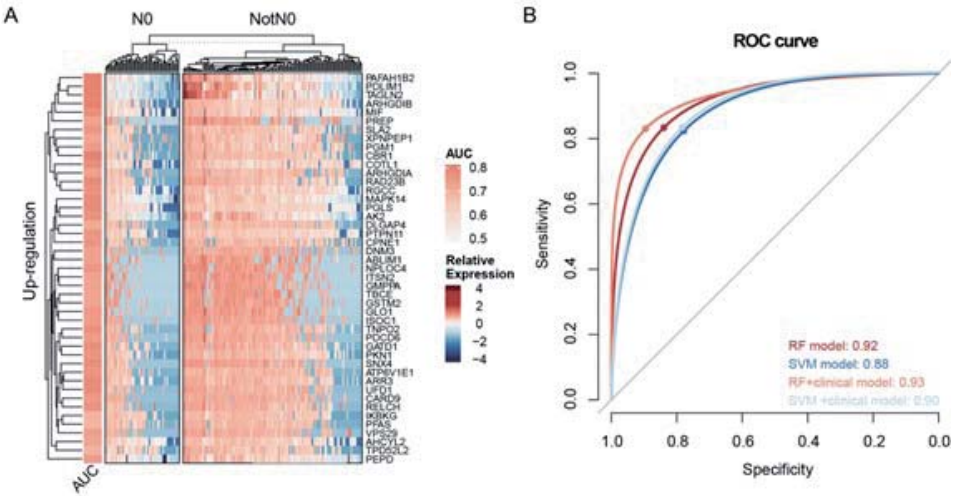
OBJECTIVES
There are no reliable molecular predictors of lymph node metastasis (LNM) in lung cancer. In this study, we aimed to identify meaningful plasma proteins associated with LNM, and shed on light on the precise treatment for lung cancer patients.

METHODS
We analyzed 181 plasma samples using mass spectrometry (MS)-based, data-independent acquisition (DIA) quantitative proteomics. It incorporated advanced machine learning algorithms, Random Forest (RF) and Support Vector Machine (SVM), for biomarker evaluation.

RESULTS
Comparative heatmaps of N0 (n=53) and non-N0 (n=128) patient biomarkers highlighted differential expression among a total of 237 proteins (Figure 1A). In total, 28 proteins exhibited significant expression variations. The predictive accuracy of these proteins was quantified using area under the curve (AUC) metrics. The Random Forest (RF) model achieved an AUC of 0.92, while the Support Vector Machine (SVM) model displayed an AUC of 0.88. Integration of clinical data with these models further improved their predictive performance, with the RF combined with clinical data reaching an AUC of 0.93 and the SVM combined with clinical data achieving an AUC of 0.90.

CONCLUSIONS
By employing progressive algorithms, we have unveiled the potential of these proteomic profiles in predicting lymph node metastasis in lung cancer. This could lead to more personalized treatment options for patients.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Plasma Protein, Biomarker, Lymph Node Metastasis.


A
N0
NotN0
Up-regulation
AUC
AUC
0.8
0.7
0.6
0.5
Relative Expression
4
2
0
−2
−4
B
ROC curve
Sensitivity
1.0
0.8
0.6
0.4
0.2
0.0
Specificity
1.0
0.8
0.6
0.4
0.2
0.0
RF model: 0.92
SVM model: 0.88
RF+clinical model: 0.93
SVM +clinical model: 0.90

P-101

INTRAVENOUS INDOCYANINE GREEN ADMINISTRATION CAN ACCURATELY DESCRIBE INTERSEGMENTAL PLANE

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OBJECTIVES
The usefulness of intravenous indocyanine green (ICG) administration for detecting referred pulmonary segments was retrospectively investigated. However, errors with preoperative planning and accuracy comparisons with other existing methods, such as the inflation-deflation method, have not been fully validated.

METHODS
In total, 140 lesions (138 patients) underwent curative intended segmentectomy from January 2020 to December 2022. Segmental plane was detected by the inflation-deflation method in 88 lesions (86 patients) (I-D group) or by the intravenous ICG administration method in 52 lesions (52 patients) (ICG group). The distance between the tumor rim and resection edge was calculated (Surgical margin: S) in the resected specimen. The planned margin (P), as a control, was decided by preoperative 3D-image produced by Ziostation®□ (Ziosoft, Tokyo, Japan) and the ratio of S and P (S/P ratio) was examined. In addition, we confirmed the accuracy using Root Mean Squared Logarithmic Error (RMSLE), which is used to express the error between measured and predicted values as a ratio: the smaller the RMSLE, the more accurate.

RESULTS
Complete resection was achieved in all lesions. There were no significant differences in the backgrounds except for more complex segmentectomies in the ICG group than in the Inflation group (p=0.0008). Still, the median S/P ratio was 0.912 in the ICG group and 0.886 in the Infiltration group. The RMSLE was 0.258 in the Infiltration group and 0.229 in the ICG group. Among the ICG group, eight patients had poor staining of intersegmental identification. Comparing the patient characteristics between the good staining (n=44) and poor staining group (n=8), the poor staining group showed significantly more patients with COPD (p=0.035).

CONCLUSIONS

The ICG intravenous administration method showed the potential for the identification of an accurate intersegmental plane. Still, there is a concern about poor intersegmental staining in patients with COPD.

Disclosure: No significant relationships.
Keywords: Pulmonary Segmentectomy, Intravenous Indocyanine Green Administration, Margin.

P-102

IS COMPLEX SEGMENTECTOMY SAFE OR NECESSARY?

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Yedikule Gögüs Hastaliklari Ve Gögüs Cerrahisi Egitim Arastirma Hastanesi, Zeytinburnu, Türkiye

OBJECTIVES
This study aimed to evaluate the early results of patients with non-small cell lung cancer (NSCLC) who underwent complex segmentectomy with VATS.

METHODS
Between 2013 and 2023, 129 NSCLC patients who were operated with VATS due to clinical T1A and T1B were retrospectively evaluated. In the study, tumors above clinical stage 1A that were returned to thoracotomy with benign pathology were excluded from the study. The study was divided into two groups: complex segmentectomy and lobectomy. The study evaluated early surgical results, complications in the first 30 days, and mortality in the first 30 days.

RESULTS
There were 91 male (70.5%) and 38 female (29.5%) patients. Lobectomy was performed in 93 patients (72.1%) and segmentectomy in 36 patients (27.9%). Sixty-seven patients (51.9%) underwent right-sided resection, and 62 (48.1%) underwent left-sided resection.The mean length of hospitalization was 5.26±2.87 days. The most common resection was the right upper lobectomy. Among segmentectomies, S2 resections were the most common. 19 complications occurred in 16 patients (12.4%). Complications occurred in 10 patients (10.8%) who underwent lobectomy and in 6 patients (16.7%) who underwent complex segmentectomy (p=0.380). 4 patients had wound site infection requiring revision. Eight patients had prolonged air leakage. Air leakage was repaired by revision in 1 of these patients, while air leakage control was provided with blood pleurodesis in 6 patients. In 1 patient, air leakage control improved spontaneously. In 1 patient who underwent lobectomy, sleeve lobectomy was performed in revision due to fistula formation. Pneumonia occurred in 4 patients. In 2 patients (1.6%) who underwent complex segmentectomy in the first 30 days, mortality was detected due to the development of early postoperative ARDS.

CONCLUSIONS
As a result of the study, the complication rates of complex segmentectomies were similar to those of lobectomies. Therefore, complex segmentectomy is a safe method.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Lobectomy, Vats.

FACTORS THAT AFFECT COMPLICATIONS						
VARIABLES		NO COMPLICATION		COMPLICATION		P-VALUE
		N	(%)	N	(%)	
GENDER	MALE	79	69,9	12	75	0,676
	FEMALE	34	30,1	4	25	
AGE(YEARS)	<65	71	62,8	11	68,8	0,645
	>65	42	37,2	5	31,3	
SIDE	RIGHT	61	54	6	37,5	0,217
	LEFT	52	46	10	62,5	
CHARLSON COMORBIDITY INDEX	2-3	42	37,2	0	0	0,003
	>4	71	62,8	16	100	
T-STAGE	T1A	23	20,4	3	18,8	1
	T1B	90	79,6	13	81,3	
RESECTION TYPE	LOBECTOMY	83	73,5	10	62,5	0,380
	KOMPLEX SEGMENTECTOMY	30	26,5	6	37,5	

P-103

IS FROZEN SECTION ON LYMPH NODES DURING PULMONARY SEGMENTECTOMY MANDATORY? A MULTICENTRE RETROSPECTIVE COHORT STUDY

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[2]*Department of Thoracic Surgery, St. James's University Hospital, Leeds, United Kingdom*
[3]*Service of Thoracic Surgery, University Hospital of Lausanne, Lausanne, Switzerland*

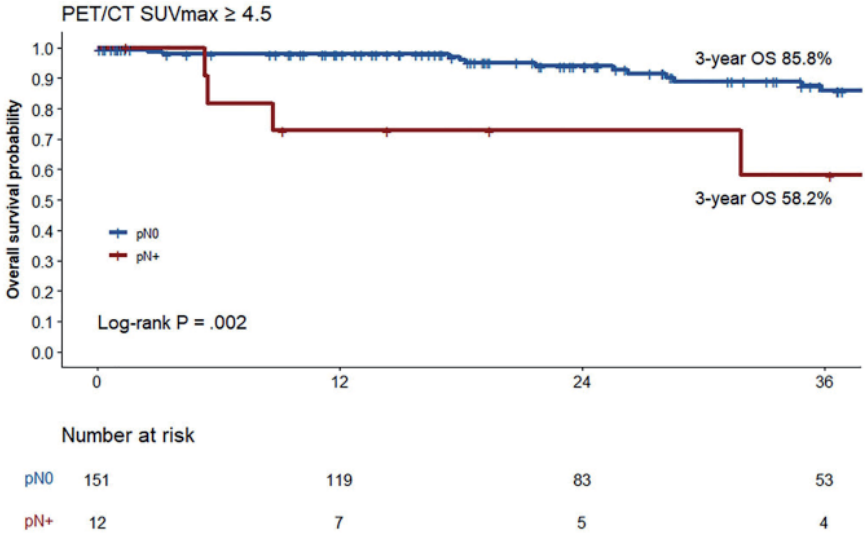
OBJECTIVES
This study aimed to evaluate the risk of lymph node upstaging (pN+) after pulmonary segmentectomy without intraoperative frozen section on lymph nodes.

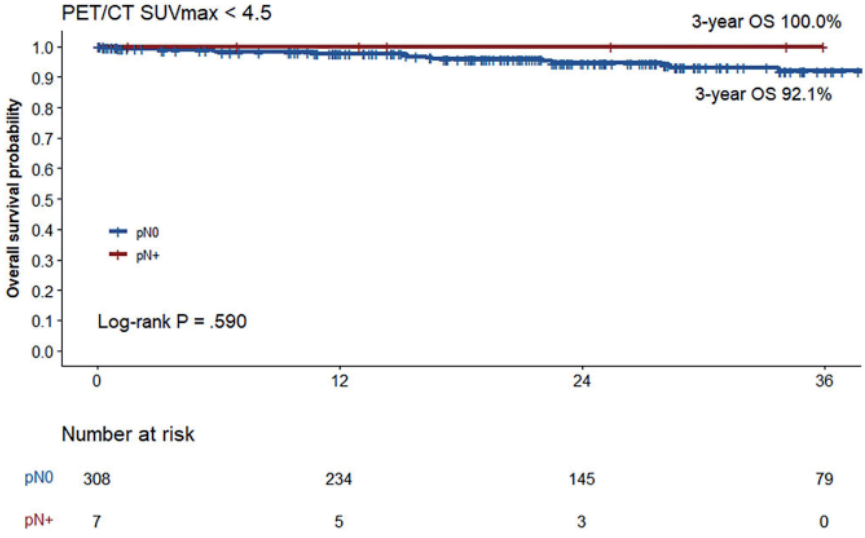
METHODS
We retrospectively reviewed medical records of consecutive patients who underwent segmentectomy for clinical stage IA1-2 non-small cell lung cancer (cIA1-2 NSCLC) in three centres between January 2017 and December 2022. Intraoperative frozen section was not used. We conducted backward stepwise logistic regression analysis for variables with $p < 0.1$ in univariable analysis. Continuous variables significant in the univariate analysis were categorized using C-statistics derived thresholds. Kaplan-Meier analysis with log-rank test evaluated the discrepancy for overall survival (OS).

RESULTS
Segmentectomy was performed in 478 patients and 19 (4.0%) patients were upstaged to pN+. Surgical approach was VATS 98.7%, RATS 1.0% and open 0.2%. Conversion to open 1.7%. Of tumours 79.5% were located peripherally and 56.5 % were GGO lesions. Median tumour size was 14mm (IQR 10-18), margin length 15mm (IQR 6-25), number of lymph nodes dissected 6 (IQR 4-19) and PET/CT SUVmax 3.0 (1.9-5.8). Median length of stay 4.0 days (IQR 3-6). PET/CT SUVmax ≥ 4.5 was the only independent risk for pN+ (OR 3.50, 95% CI 1.35 to 9.06, $p = .010$). In patients with PET/CT SUVmax ≥ 4.5, there was a 7.3% (12/163) incidence of pN+, which was associated with a lower 3-year OS compared to pN0 (58.2% vs 85.8%, $p = .002$). For patients with PET/CT SUVmax < 4.5, the incidence of pN+ was 2.2% (7/315), and no significant difference in 3-year OS was observed between pN+ and pN0 patients, as shown in Figure 1.

CONCLUSIONS
Lymph node upstaging after segmentectomy for cIA1-2 NSCLC is rare. In patients with low metabolic tumours intraoperative frozen section of lymph nodes may not be mandatory.

Disclosure: No significant relationships.
Keywords: Lymph Node Upstaging, Segmentectomy, Frozen Section, Non-Small Cell Lung Cancer, PET/CT SUVmax.





P-104

IS INTENSIVE CARE UNIT (ICU) NECESSARY AFTER ROBOTIC RADICAL THYMECTOMY IN PATIENTS AFFECTED BY MYASTHENIA GRAVIS?

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[2]*Fondazione IRCCS Istituto Neurologico Carlo Besta, Milano, Italy*

OBJECTIVES
Radical Thymectomy is a standard treatment for patients with generalised Myasthenia Gravis (MG). Historically, it has been common practice to admit patients to the Intensive Care Unit (ICU) after surgery, due to the increased risk of postoperative respiratory complications. With the introduction of robotic techniques and advancements in preoperative treatments, the ideal context for extubation—whether in the ICU or the Operating Room (OR)—is currently uncertain. The goal of this study is to analyse the perioperative outcomes of patients who underwent robotic radical thymectomy at a high-volume tertiary university hospital.

METHODS
We included 32 myasthenic patients who underwent robotic radical thymectomy between 2020 and 2023. We analysed the Myasthenia Gravis Foundation of America (MGFA) classification, the need of ICU admission and Non-Invasive Ventilation (NIV) post-surgery, perioperative and neurological outcomes.
All patients were managed by a neurologist specialized in MG to ensure optimal compensation in accordance with current guidelines. Comprehensive anesthesiological evaluation was conducted as well.

RESULTS
Thirty-two patients (17F/15M) underwent robotic thymectomy. Preoperative MGFA classification was: stage I in 10 patients (31,3%), stage II in 18 patients (56,3%), stage III in 4 patients (12,5%). None of the patients required ICU postoperative admission, nor experienced myasthenic crisis. All patients were successfully extubated in the OR. Only one patient required NIV after surgery (3,1%). Postoperative complication rate was 3,1% (one postoperative bleeding surgically resolved). Median postoperative hospital stay was 3 (IQR 3-4) days. No mortality was registered at 90 days, and 20 patients (62, 5%) exhibited neurological improvement and reduced need of steroids.

CONCLUSIONS
Considering the uneventful perioperative course observed, routine ICU admission seems unwarranted in myasthenic patients undergoing robotic thymectomy. The presence of

specialized surgeons, neurologists, and anesthesiologists allows the implementation of a fast-track approach, enabling timely extubation in the OR even within this high-risk population.

Disclosure: No significant relationships.
Keywords: Myasthenia Gravis, Robotic Thymectomy, Intensive Care Unit.

P-105

IS IT SAFE TO OMIT ANY CHEST X-RAY BEFORE REMOVING THE CHEST DRAIN AFTER ELECTIVE, NON-CARDIAC THORACIC SURGERY? A SINGLE-CENTER, RETROSPECTIVE, CASE-CONTROL STUDY

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OBJECTIVES
Every patient undergoing non-cardiac thoracic surgery is likely to receive several chest x-rays through the perioperative period. Depending on the hospital, the patient might receive a preoperative x-ray as a baseline, several postoperative x-rays till the removal of the chest drain as well as x-rays after the removal. This routine has been established in the thoracic surgical practice but has several disadvantages, for the patient, the health care system and the medical staff. Purpose of this study was to examine if all x-rays before removal of the drain can be omitted.

METHODS
255 patients who underwent elective thoracic surgery over an 18-month period were included in this retrospective analysis. Patients undergoing urgent procedures, patients with symptoms necessitating an x-ray, patients undergoing surgery for pleural empyema as well as underage patients were excluded. Endpoint of the study was to define the postoperative complication rate between the two groups.

RESULTS
45 patients received an x-ray before removal of the drain (x-ray group) and 210 patients did not (no x-ray group). Significantly more minor complications were observed in the x-ray group. 46.7% of the x-rays before drain removal in the x-ray group were reported with abnormalities. However, these abnormalities never led to a change in patient care. Drainage time and postoperative hospital stay was significantly longer in the x-ray group.

CONCLUSIONS
Omitting any x-ray between surgery and removal of the chest drain appears to be safe in our retrospective patient cohort. The proposed benefits of omitting the x-ray are very relevant for the health care system, the medical and nursing teams but more importantly for the patients. Evidence suggesting to x-ray the patients regularly does not exist. It is therefore reasonable to consider exploring this question in a formal prospective trial.

Disclosure: No significant relationships.
Keywords: Postoperative X-Ray, Thoracic Surgery, Lung Surgery, Preoperative Care.

P-106

COMBINATION OF A MODIFIED MINI-ROBICSEK AND INTERNAL FIXATION WITH TITANIUM PLATES: PRELIMINARY RESULTS OF A NEW TECHNIQUE FOR SURGICAL REPAIR OF SYMPTOMATIC TRANSVERSE STERNAL MALUNIONS

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OBJECTIVES
Sternal fractures are rare and successfully managed conservatively in most cases. Failure of conservative management is very rare but it can result in chronic pain and disabling discomfort. Treatment of this condition retains several difficulties and challenges. We present our novel type of repair combining a limited modified mini-Robicsek and internal fixation with titanium plates.

METHODS
Four patients with simple and one patient with complex post traumatic transverse sternal malunion were treated with our novel technique. All patients had at least one risk factor for impaired bone healing [Table]. Following exposure of the malunion, two transverse osteotomies were performed to fully mobilize the fractured edges and remove the fibrotic tissue. The sternal margins were then refashioned to allow apposition of new, healthier bone. A modified mini-Robicsek was constructed by placing two vertical and two horizontal wires and one or two vertical titanium plates ZIMMER BIOMET® were fashioned over the fracture and fixed with bicortical screws. In the simple cases, minimal residual gap was filled with Cerament® bone void filler (Figure 1). In the complex case (4x2cm sternal body defect post-osteomyelitis) the gap was filled with autologous bone graft from iliac crest.

RESULTS
Mean operative time was 121 minutes (range 80-180) and mean blood loss was 142 mls (range 10-200). The mean length of stay was 5.6 days (2-11 days) and only one patient developed a postoperatve complication (chest infection). At 6 months follow up, there was clinical and radiological confirmation of successful repair in all cases with mean pain score decreasing from 7.4 to 0.8.

CONCLUSIONS
This novel technique combining 2 existing techniques contrasts both vertical and horizontal forces, thus providing multi-directional stability of the transverse sternal malunion with very promisting results. If confirmed in larger studies, it may have the potential to become a new standard.

Disclosure: No significant relationships.

Keywords: Thoracic Trauma, Sternal Fracture, Sternal Malunion.

Patient No.	Age (y)	Gender	History of Smoking	Previous failed repairs	DM	BMI	Osteo-porosis	Arthritis	Osteo-myelitis	Use of Steroids	Pre-operative pain score	Post-operative pain score
1	34	Male	No	No	No	21	No	Yes	No	Yes	6	0
2	62	Female	Yes	Yes	Yes	49	Yes	No	No	No	8	2
3	76	Male	No	Yes	No	32	No	Yes	No	No	9	0
4	60	Female	No	No	No	31	Yes	No	No	No	8	0
5	55	Male	Yes	No	No	34	No	No	Yes	No	6	2

P-107

IS PNEUMONECTOMY JUSTIFIED FOR PULMONARY METASTASIS?- CAUTION IS THE WORD

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OBJECTIVES
Pulmonary metastatectomy for solid tumours is one of the most commonly performed surgery in a thoracic unit, however pneumonectomy with its attendant morbidity is rarely performed for pulmonary metastasis. Literature in this regard is sparse.

METHODS
Retrospective analysis of a prospective database of pulmonary metastatectomy done at a tertiary referral cancer hospital. Pneumonectomy done for pulmonary metastases done between 2007 and 2021 were included for analysis. Data with respect to demographics, treatment profile, peri operative outcomes and follow up were collected from electronic records and analyzed using SPSS 26.0.

RESULTS
1424 pulmonary metastatectomies were done in the said period of which 1.2% (n=17) were pneumonectomies. Mean age was 30.2 years (range 11-63 years). All but 1 metastasis were metachronous with a median DFI of 29 months from the primary surgery. Extremity bone sarcoma was the most common histology (n=7,41.1%) followed by soft tissue sarcoma (n=3,17.5%), colon cancer (n=2, 11.8%) and othertumours (1 each of carcinoma breast, cervix, kidney, testicular germ cell tumour & phyllodes tumour). The surgical approach was through a thoracotomy in 82.4% (n=14) and median sternotomy in the rest. Left sided pneumonectomies were more commonly performed (10 vs 7).Pneumonectomy was performed for hilar involvement in 9 and significant parenchymal involvement in the remaining. More than 1 ipsilateral metastasis was found in 3 patients. Major complications (Clavien Dindo ≥IIIa) were seen in 23.5% (n=4) of the patients with a 30-day mortality of 5.8% (n=1). R0 resection was 100%. Post pneumonectomy median recurrence free interval was 15 months. The median overall survival (OS) was 24 months and 3-year OS was 42.5%.

CONCLUSIONS
Pneumonectomy for pulmonary metastasis offers disease control in a carefully selected group of patients with metachronous metastasis with acceptable perioperative morbidity& marginally higher mortality.

Disclosure: No significant relationships.
Keywords: Pulmonary Metastasis, Penumonectomy, Metachronous.

	N
Pulmonary metastatectomy Pneumonectomy	1424 17 (1.2%)
Metachronous Synchronous	16 1
Mean age	30.2 years (11-63 years)
Men : women	12:5
Histology	
Bone sarcoma Soft tissue sarcoma Colon carcinoma Carcinoma cervix Renal cell carcinoma Testicular germ cell tumour Carcinoma breast Phyllodes tumour	7 3 2 1 1 1 1 1
Operative outcomes	
Thoracotomy Median sternotomy	13 4
Mean blood loss	788 ml
Mean operative time	182 minutes
Post operative outcomes	
Recurrent laryngeal nerve palsy	2 (11.7%)
Cardiac arrythmia	1 (5.8%)
Pulmonary complications	3 (17.6%)
Surgical site infection	2 (11.7%)
Bronchopleural fistula	1 (5.8%)
Clavien Dindo score	
I II IIIa IIIb IV V	0 3 3 0 0 1
Mean hospital stay	5.5 days
Post pneumonectomy outcomes	
Recurrence free survival	15 months
Site of recurrence: Thoracic Extra thoracic	 3 9
Median overall survival	24 months
3-year overall survival	42.5%

P-108

IS ROBOTIC LUNG RESECTION SAFE FOR PATIENTS WITH SHORT STATURE?

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OBJECTIVES
This study aimed to investigate whether robot-assisted thoracic surgery (RATS) can be safely performed in shorter-statured Japanese individuals, considering concerns such as intrathoracic space and arm clearance, as compared to their Western counterparts.

METHODS
A total of 332 cases of RATS for lung malignancies performed at two affiliated institutions from February 2019 to August 2023 were included. Patients were categorized into Low Height (L group, height less than 1.54m) and High Height (H group, height 1.54m or more), and their background and perioperative factors were analyzed

RESULTS
There were 76 cases in the L group and 256 cases in the H group. ① Background Factors: There were significant differences in height (1.50 vs. 1.64 cm, both medians, $p < .0001$) and gender (male/female, 76/9 vs. 180/76, $p < .0001$), but no significant difference in BMI (22.4 vs. 22.6, $p = 0.26$). ② Surgical Factors: No significant differences were observed in the type of robot used (Si/Xi, 4/73 vs. 27/229, $p = 0.19$), surgical approach (lobectomy/segmentectomy, 56/20 vs. 209/47, $p = 0.14$), lymph node dissection extent (ND2/ND1, 57/19 vs. 202/54, $p = 0.52$), conversion to thoracotomy (Yes/No, 1/75 vs. 7/249, $p = 0.69$), and intraoperative complications (Yes/No, 2/74 vs. 20/236, $p = 0.19$). Console time (123 vs. 144 mins, $p = 0.0033$) was significantly shorter in the L group, with less blood loss (20 vs. 30 ml, $p = 0.0006$). ③ Perioperative Outcomes: There were no significant differences in chest tube duration (3 vs. 3 days, $p = 0.35$) and postoperative complications (Yes/No, 7/69 vs. 46/210, $p = 0.08$). Adjustments, such as slightly narrowing port distances and modifying the positions of rib spaces to gain distance, were made for individuals with shorter stature, leading to comparable perioperative outcomes.

CONCLUSIONS
This study demonstrated that RATS can be safely performed even in cases of shorter stature.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Robotic, Short Stature.

P-109

IS SEGMENTECTOMY INDICATIVE FOR NON-SMALL LUNG CANCER >2-3 CENTIMETERS (CM)?

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OBJECTIVES
Although the large Japanese randomized trial (JCOG0802) suggested similar postoperative outcomes for lobectomy and segmentectomy in solid-dominant (consolidation-to-tumor ratio [CTR] >0.5-1) non-small cell lung cancer (NSCLC) ≤2 cm, the indication for segmentectomy in NSCLC >2-3 cm is still controversial.

METHODS
We retrospectively reviewed 307 patients with c-Stage IA NSCLC <3 cm who underwent segmentectomy. According to our institutional policy, segmentectomy was performed in patients with a tumor ≤2 cm, and also in patients with a tumor >2-3 cm who were considered ineligible for lobectomy. Patients were stratified by the CTR 0.5. Recurrence-free survival (RFS) was calculated using the Kaplan-Meier method and compared between patients with a tumor ≤2 cm and >2-3 cm using the log-rank test.

RESULTS
Of the 307 eligible patients, 162 were male and 145 were female. The median age was 70 years. Median whole tumor size, solid size, and CTR were 1.6 cm, 1.1 cm, and 0.7, respectively. Two hundred and fifty-five patients (83%) had adenocarcinoma, 46 (15%) had squamous cell carcinoma, and 6 (2%) had other cell types. Two hundred and three patients (66%) with a solid-dominant tumor showed significantly worse RFS than those with a CTR ≤0.5 (5y-RFS: 80% vs. 93%, respectively; p = 0.018). However, solely in 203 patients with a solid-dominant tumor, there were no significant differences in RFPs between patients with a tumor ≤2 cm (n = 165) and >2-3 cm (n = 38; 5y-RFS: 83% vs. 68%, respectively; 10y-RFS: 73% vs. 68%, respectively; p = 0.185), with median follow-up of 57 and 47 months, respectively.

CONCLUSIONS
Even in solid-dominant NSCLC, a tumor >2-3 cm had a non-inferior postoperative outcome to those with ≤2 cm after segmentectomy. NSCLCs >2-3 cm may be a potential target for a comparative study of lobectomy and segmentectomy, regardless of CTR.

Disclosure: No significant relationships.
Keywords: Segmentectomy, NSCLC.

P-110

IS THE EXPECTANCE OF A LOW DOSE CT SCAN ASSOCIATED WITH PSYCHOLOGICAL DISTRESS IN LUNG CANCER SCREENING?

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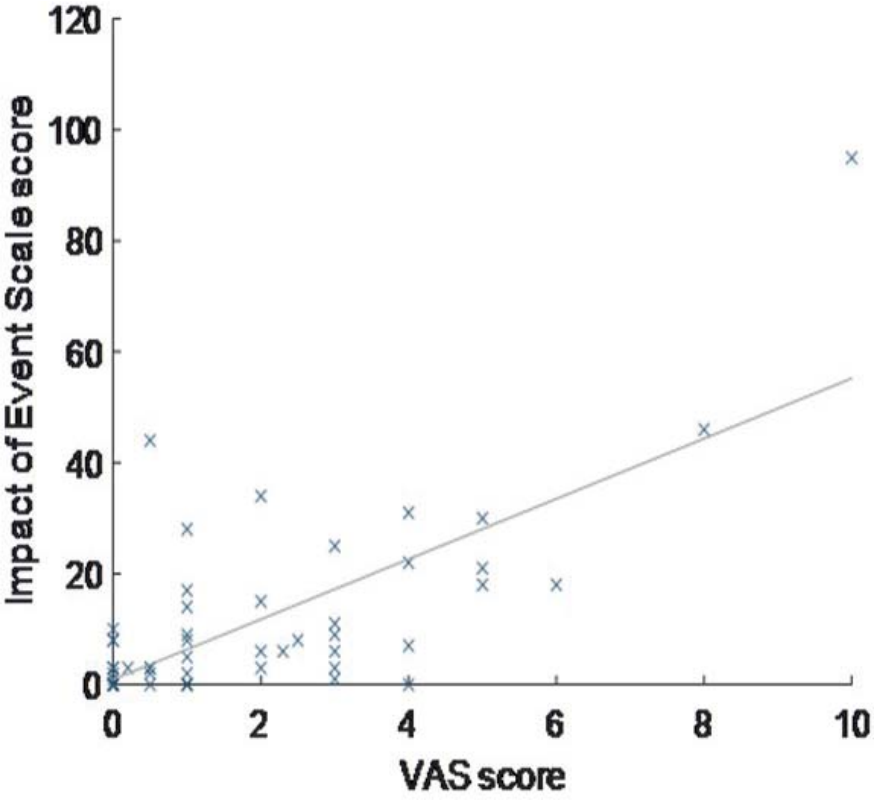
OBJECTIVES
Lung cancer constitutes the leading cause of cancer-related deaths in Switzerland. There is evidence, that early detection trough screening programs could reduce morality. One potential risk associated with screening programs, is the psychological burden of the participants. Since 2019, a study evaluating the feasibility and efficacy of low-dose CT lung cancer screening (LCS) program in Switzerland is ongoing.

METHODS
204 Subjects (125 males, median age: 62 years) smokers or ex-smokers were included in the lung cancer screening consisting of a interview and a low-dose CT. CTs were assessed according to the LungRAD 1.1. In a subset of 59 participants (38 males, median age: 61 years) psychological distress was assessed using a visual analog scale (Range: 0-10) and the Impact of Event Scale (Score: 0-120).

RESULTS
Negative screening (LungRADs 1) results were seen in 46.04% of participants (n=93). Benign (LungRADs 2) or probably begnin (LungRADs 3) nodules occurred in 38.61% and 12.38% of participants (n = 78 and 25). Suspicious (LungRADs 4A) or very suspicious nodules (LungRADs 4B) were observed in 3.96% (n = 8) of participants. Seven patients (3.43 %) had malignancies (four adenocarcinomas, one squamous cell carcinoma, one thymoma, one thyroid cancer).
In the visual analogue scale, a psychological distress of 1.7 ± 2.14 was reported. In the Impact of Event Scale a value of 10.14 ± 15.93 was observed. Higher psychological distress values were occasionally reported, see Figure 1. A significant correlation between both scales was observed ($p < 0.001$, $R2 = 0.53$, Figure 1).

CONCLUSIONS
In this investigation, it was observed that employing low-dose CT scans for screening led to the detection of multiple malignancies. A majority of the subjects experienced minor psychological distress. Nonetheless, instances of significant stress were reported. Additional studies are warranted to quantify the magnitude and determinants of psychological distress associated with this screening process.

Disclosure: No significant relationships.
Keywords: Lung Cancer Screening; Early Detection; Psychological Distress.


Impact of Event Scale score
120
100
80
60
40
20
0
0
2
4
6
8
10
VAS score

P-111

IS THE PROGNOSIS OF PURE SOLID NON SMALL CELL LUNG CANCER (NSCLC) WORSE IN THE SUPERIOR SEGMENT COMPARED TO THE BASAL SEGMENTS?

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OBJECTIVES
The study aims to determine whether there is a difference in the prognosis between non-small cell lung cancer (NSCLC) in the superior segment (S6) and basal segments, focusing on pure solid NSCLC in the lower lobe through a retrospective review.

METHODS
Between 2009 and 2021, 174 patients with cN0M0 solid NSCLC who underwent lower lobectomy with hilar and mediastinal lymph node dissection were included. The cases were categorized into the two groups: S6 (61 cases) and the basal segments (113 cases). Clinicopathological characteristics and prognosis were compared.

RESULTS
No significant differences were found in patient background, including age, gender, smoking history, respiratory function, and laterality between the groups. There was also no significant difference in radiological tumor size (27 mm (10-80) vs. 26 mm (7-111), p=0.48). Histological types (adenocarcinoma/squamous cell carcinoma/others: 38/18/5 vs. 70/33/10, p=1), pathological lymph node metastasis (pN0/1-2: 49/12 vs. 86/27, p=0.572), and lymphatic/venous invasion showed no significant differences between the groups. However, pleural invasion was pathologically confirmed in 29 patients (47.5%) in the S6 group, which was significantly more frequent than 31 patients (27.4%) in the basal segments group (P=0.012). There were no significant differences in median follow-up (45 months (2-162) vs. 54 months (0-167), p=0.261), recurrence rate (27.9% vs. 28.3%, p=1), and lung cancer-related deaths (19.7% vs. 15.0%, p=0.523). The 5-year recurrence-free survival rate was 55.8% vs. 65.0%, and the 5-year overall survival rate was 66.6% vs. 67.9%, with no significant differences (p=0.568 and p=0.602, respectively).

CONCLUSIONS
No significant difference in the prognosis was observed between patients with cN0M0 solid NSCLC in S6 and the basal segments undergoing lower lobectomy with hilar and mediastinal lymph node dissection. However, the higher degree of pleural invasion in the S6 group suggests the desirability of early surgical intervention.

Disclosure: No significant relationships.
Keywords: Solid, NSCLC, Superior Segment, Basal Segments, Prognosis.

P-112

IS THE RECURRENCE RATE AFTER SUPERIOR SEGMENTECTOMY FOR NON-SMALL CELL LUNG CANCER HIGHER THAN FOR OTHER SEGMENTECTOMIES?

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OBJECTIVES
This study aims to explore differences between recurrence and survival after thoracoscopic superior segmentectomy (S6) and non-S6 for NSCLC.

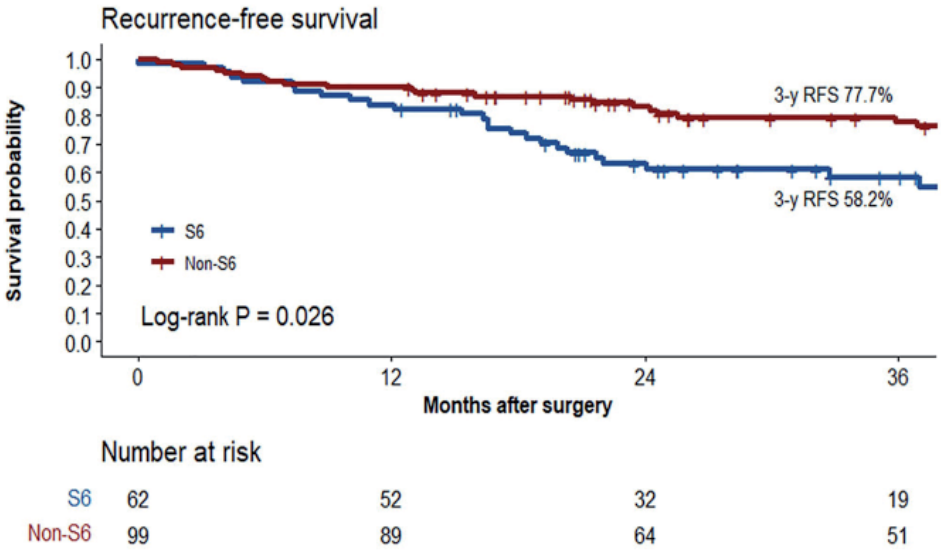
METHODS
Analysis of consecutive cases of NSCLC resected by video-assisted thoracoscopic surgery (VATS) segmentectomy at a single center from January 2008 to December 2022. Univariable and multivariable logistic regression analysis identified independent factors associated with recurrences after S6 compared to non-S6. The recurrence-free survival (RFS) and overall survival (OS) of the two groups were compared using Kaplan-Meier analysis with a log-rank test.

RESULTS
Among 161 included patients with VATS segmentectomy for NSCLC, there were 62 S6 and 99 non-S6. The S6 group demonstrated similar length of stay (3 days), shorter surgical duration (100 vs 110 min), smaller margins (13 vs 20mm), and fewer N1 lymph nodes resected (2 vs 3), and higher recurrence rate (31.0% vs. 13.7%, p = .030). Locoregional, distant and both recurrences after S6 were 17.7% (n = 11), 8.1% (n = 5) and 4.8% (n = 3), respectively, while those after non-S6 were 9.1% (n = 9), 6.1% (n = 6) and 1.0% (n = 1). In univariable and multivariable analysis, S6 was a significant risk factor for recurrence (OR 2.29, p = .032; adjusted OR 2.47, p = .040). With the median follow-up of 35.9 months (IQR 21.5-65.7), the 3-year RFS after S6 was significantly lower than that after non-S6 (54.8% vs. 68.9%, p = .026) while no significant difference in OS (72.3% vs 86.4%, p= .440) was observed between the two groups (Figure 1).

CONCLUSIONS
In this study, recurrence more frequently occurred after S6 with a lower 3-year DFS. Margins were shorter and fewer N1 lymph nodes were removed in the S6 group.

Disclosure: No significant relationships.
Keywords: Recurrence, Segmentectomy, Superior Segment, Tumor Localization, Non-Small Cell Lung Cancer.

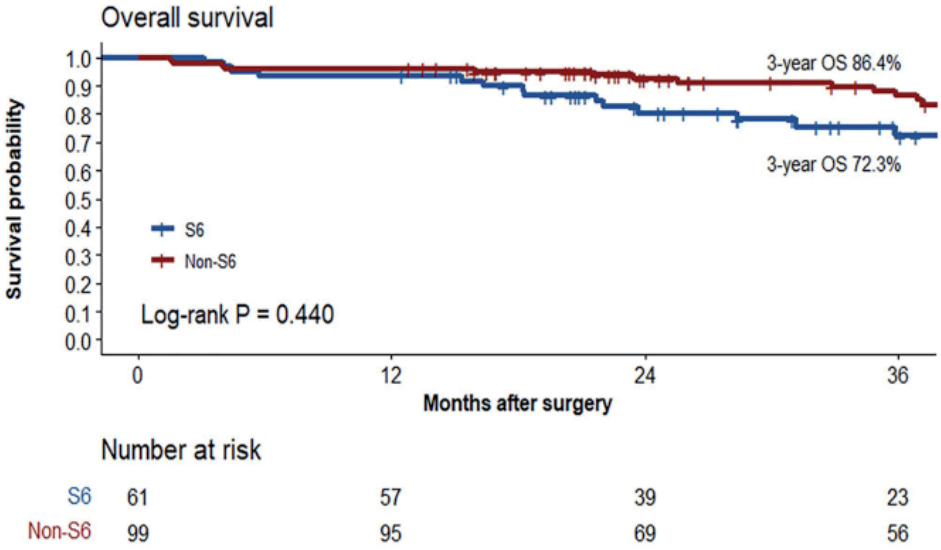
A



Number at risk

S6	62	52	32	19
Non-S6	99	89	64	51

B



Number at risk

S6	61	57	39	23
Non-S6	99	95	69	56

P-113

IS THE THYMUS REACTIVATED BY LUNG CANCER? PRELIMINARY RESULTS FROM THE ADULT THYMUS PROJECT (ATP). A MONOCENTRIC STUDY

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OBJECTIVES

Thymus is considered a non-functional remnant in adults. Nevertheless, thymoma is the proof that thymic epithelial cells persist over time. These cells may eventually regenerate in case of injury. The hypothesis of the study is that the presence of lung cancer may coexist with active thymus in some adult cases.

METHODS

After ethical committee approval, from November 2023 thymic biopsy were systematically performed in 12 lung cancer patients undergoing lobectomy, regardless of radiological mediastinal features, in order to verify the presence of histologically proven active thymic tissue. All samples were analysed by a lung pathologist and classified according to the presence and the amount of thymic tissue (absent, rare, moderate, diffuse). Clinical characteristics were compared in patients with and without thymic activity.

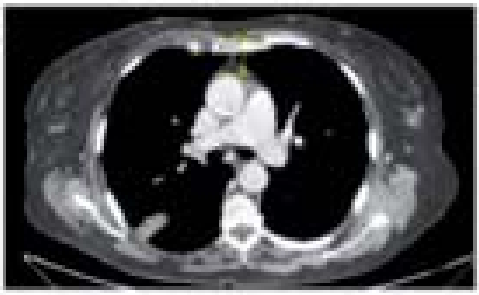
RESULTS

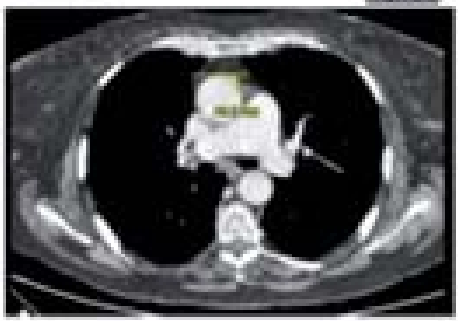
The presence of active thymic tissue was detected in 9 patients (75%). All negative cases (3) were aged 70 or more. According to histological grading, in one patients (11%) the presence of diffuse thymic tissue was detected and in 6 cases (67%) signs of moderate activity was present. Males were more likely to have an active thymus (7/9, 78%), as compares to females and patients aged of 70 or more (67% and 57% respectively). In the single case of the series having complete response after induction chemo-immunotherapy, radiological signs of the thymic presence were detectable before surgery (figure 1) and moderate thymic tissue was found at histology.

CONCLUSIONS

In lung cancer patients, thymus is active in 75% of cases at the time of surgery. Despite the fact that it may represents a residual activity from younger age, it is possible that lung cancer acts like a trigger reactivating the persistent thymic epithelial cells.

Disclosure: No significant relationships.
Keywords: Thymus; Lung Cancer; Thymus Re-Activation.





P-114

IS THERE A ROLE FOR PRE-OPERATIVE TISSUE DIAGNOSIS OF PERIPHERALLY LOCATED T1 TUMOR SUSPECTED TO BE PRIMARY LUNG CANCER? A SINGLE INSTITUTION EXPERIENCE

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OBJECTIVES
We hypothesize that pre-operative biopsy of peripheral T1 lung nodules highly suspicious being primary lung cancer and amenable to thoracoscopic wedge resection for histologic confirmation prior to anatomic resection is unnecessary.

METHODS
We performed a retrospective analysis of a prospectively maintained database of elective robotic pulmonary resections between 1/1/2017 to 9/30/2023. Inclusion criteria include: T1 part-solid/solid tumors located in outer third of lung amenable to intraoperative diagnostic wedge resection; intention-to-treat with anatomic resection (segmentectomy, lobectomy). Exclusion criteria are benign indication, completion anatomic resection, induction therapy, intention-to-treat wedge resection. Demographics, radiographic features, pre-operative biopsy (justification independently judged by two Board-certified thoracic surgeons), operative details, postoperative outcomes, discordance of preliminary intraoperative and final postoperative pathologic diagnosis.

RESULTS
569 cases fulfilled the inclusion criteria: 122 (21.4%) anatomic resections with preoperative biopsy (group A), 447 wedge resections for intraoperative tissue diagnosis; 347 (77.6%) of which had immediate completion anatomic resection (group B), 100 did not have anatomic resection due to benign diagnosis in 71 (false positive of preoperative suspect cancer diagnosis of 71/447 – 15.8%) and contra-indications for anatomic resection in 29 (secondary lung cancer: 15, lymphoma: 2, advanced primary lung cancer: 9, equivocal: 3). There were 9 (9/347 – 2.6%) discordant intraoperative / postoperative cancer diagnosis (Table 1A). Table 1B summarized data of groups A and B which were very similar in many aspects. However, 66% of preoperative biopsy in group A was not justified. Group A had larger tumor and concordantly higher % of lobectomy. Group B had a higher number of reload utilized yet was more cost-effective. Complications related to preoperative biopsy were documented in 10% of case.

CONCLUSIONS
In this patient population, preoperative tissue diagnosis is justified for surgical planning in patients with prior history of carcinoma. Otherwise, it is futile as intra-operative tissue diagnosis had 97.4% accuracy while being more cost-effective.

Disclosure: No significant relationships.

Keywords: Lung Cancer, Preoperative Biopsy, Intraoperative Tissue Diagnosis, Peri-Operative Outcomes.

Table 1
A. Discordant intra-operative / post-operative pathologic diagnosis
B. Comparative analysis of anatomic resections for cT1 lung cancers with or without preoperative biopsy

A

Patient	History prior adenocarcinoma	wedge intra-operative diagnosis	Surgical procedure	Final pathology diagnosis	Follow-up surgical procedure	comment on first operation
1	endometrium, > 20 years; lung > 4.5 years	lung adenocarcinoma	Lingular segmentectomy	endometrial carcinoma metastasis	none	potentially over-treated
2	uterine cervix, 5 years	lung adenocarcinoma	right upper lobectomy	breast cancer metastasis	none	potentially over-treated
3	parotid gland, 5 years	lung adenocarcinoma	right upper lobectomy	parotid adenocarcinoma metastasis	none	potentially over-treated
4	breast, 6 years	breast cancer metastasis	wedge	lung adenocarcinoma	completion lobectomy	undertreated
5	no	neuroendocrine tumor	lower lobe superior segmentectomy	MALT lymphoma	none	potentially over-treated
6	no	equivocal tissue diagnosis	wedge	Stage I typical neuroendocrine tumor	none (<1 cm, adequate margin)	
7	breast, 5 years	breast cancer metastasis	wedge	Stage I typical neuroendocrine tumor	none (<1 cm, adequate margin)	
8	breast, 3 years	equivocal adenocarcinoma	wedge	Stage I primary lung adenocarcinoma	completion lobectomy	undertreated
9	Chromophobe renal cell cancer, 1 year	Renal cell cancer metastasis	wedge	Stage I typical neuroendocrine tumor	None (1.5 cm, adequate margin)	

MALT: mucosa-associated lymphoid tissue
PET/CT SUV: positron-emission tomography standard uptake value
C-D: Clavien-Dindo classification of operative complications
LOS: length of hospital stay; EBL: estimated blood loss
Cost related to tissue diagnosis and resection: estimated median cost of preoperative lung biopsy and cost of robotic staplers and reloads (Intuitive Xi platform) adjusted to 2023 $US

B

	Pre-Op Dx → Resection (n=122) (Group A)	Intra-Op Dx → anatomic resection (n=347) (Group B)	p
Age	69.0 [62.0 - 75.0]	70.0 [63.0 -75.0]	0.99
Gender (F/M)	85 / 37	199 / 148	**0.01**
FEV1 (%Normal)	89.0 [74.1 – 101.0]	88.0 [76.0 - 100.0]	0.99
DLCO (%Normal)	77.0 [67.0 – 93.0]	79.0 [66.0 - 91.0]	0.58
BMI (Kg/M2)	27.7 [24.7 - 30.9]	27.0 [23.6 - 30.8]	0.50
Preop biopsy (n)	121	39	
Justified	41	24	
Not Justified	80 (66.1%)	15 (38.4%)	**0.002**
Non-Diagnostic	0	29	
Size pre-op imaging (cm)	**2.3 [1.6 – 2.7]**	**1.8 [1.3 - 2.2]**	**<0.0001**
PET/CT SUV	3.8 [2.5 - 7.0]	3.0 [1.9 - 5.2]	0.21
Hx of previous carcinoma	23 (18.8%)	63 (18.1%)	0.84
Operating time (min)	188.0 [158.2 – 212.5]	189.0 [163.0 – 220.0]	0.38
EBL (ml)	50.0 [20.0 – 100.0]	50.0 [30.0 – 100.0]	0.28
Lobectomy (n,%)	**92 (75.4%)**	**216 (62.3%)**	**0.0004**
Segmentectomy	**30 (24.6%)**	**131 (37.7%)**	
# Stapler reloads	**9 [8 - 11]**	**11 [9 – 14]**	**<0.0001**
Cost of Dx and resection	**US$ 4,056 [3,573 – 5,155]**	**US$ 3,112 [2,505 – 4,414]**	**<0.0001**
Complication (C-D) (n,%)			
0	103 (84.4%)	293 (84.4%)	0.99
1-2	16 (13.1%)	47 (13.6%)	
3-4	3 (2.5%)	7 (2.0%)	
LOS (days)	2.0 [1.0 - 3.0]	2.0 [1.0 - 3.0]	0.50
Primary	119 (97.5%)	323 (93.1%)	0.068
Secondary/Other	3 (2.5%)	24 (6.9%)	
Stage 1	99 (83.2%)	290 (89.8%)	0.068
Stage 2-3	20 (16.8%)	33 (10.2%)	

P-115

IS THERE A SYMPHONY WITH CURRENT GUIDELINES FOR TREATMENT OF EARLY-STAGE PRIMARY NSCLC DIAGNOSED IN HYBRID THEATRES AND THE TYPE OF PERFORMED RESECTION?

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[2]*Second Department of Radiology, University of Athens Medical School, Attikon University Hospital, Athens, Greece., Athens, Greece*
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OBJECTIVES

Thoracic surgeons progressively gain ground in hybrid theatres as numerous studies prove the advantage of simultaneous localization, diagnosis and resection of pulmonary nodules by iVATS. Current studies provide limited data on histology and types of performed resections. We analyzed the latest studies to investigate if lung cancer treatment standards are followed in hybrid rooms for early-stage NSCLC.

METHODS

A comprehensive systematic review for eligible studies identified through a PubMed search between 2018-23. Analyzed parameters are: marking approach, nodule size, pleural surface distance, radiation dose, localization time, successful VATS resection rate, complications and length of hospital stay. We focused on analysis of reported histology and the type of resection. (Anatomical or non-anatomical).

RESULTS

A total of 15 included studies yielded a cumulative cohort of 724 patients. Localization techniques were: T-bar, hookwire, coils, dye and lipiodol. Mean nodule size was 7,8mm, mean pleural surface distance 11,3mm. Mean radiation dose was 49,84mGy, mean localization time 25min, and mean length of hospital stay was 4 days. Furthermore, mean complication rate was 9,9% and mean successful marker-guided VATS resection rate was
94,9%. Obtained histopathology diagnoses in the 15 different cohorts, were predominantly primary lung cancer 55,4% and metastatic nodules 32,9%. Regarding the mean rates of the actual VATS procedure, the majority were non-anatomical wedge resections, whereas anatomical procedures performed 12,2% in segmentectomy and 6,92% in lobectomy. Two studies report thoracotomy conversion in 5% and 5,5%. One study reports lymph node dissection in 90% of the cases.

CONCLUSIONS

Whereas anatomical lobar or sub-lobar resections are considered the standard treatment for operable early-stage NSCLC patients, our results suggest otherwise. In iVATS, primary lung cancer is the commonest obtained diagnosis, however anatomical resections represent the minority of performed procedures. This observation prompts further investigation to clarify the reason for not offering anatomical procedures in NSCLC patients.

Disclosure: No significant relationships.

Keywords: IVATS, Hybrid Theater, Primary NSCLC, Resection Type.

P-116

IS THORACIC ULTRASOUND A BETTER WAY TO PREDICT CHEST WALL INVASION OF LUNG CANCER?

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OBJECTIVES
Stage is the most important factor determining the prognosis of lung cancer and chest wall invasion is one of the component directly affecting the stage. It is known that computerized tomography (CT) is inadequate in detecting chest wall invasions. In this study, we aimed to investigate whether thoracic ultrasonography (USG) is an effective method for predicting chest wall tumor invasion.

METHODS
48 patients who were operated in our hospital between March 2022 and November 2023 and were highly suspected of having chest wall invasion were examined with routine CT and thoracic USG. Decisions about the presence of chest wall invasion were noted by the operator based on the CT image and by the researcher based on the USG result, without being aware of each other. The results were checked with the perioperative findings and the pathological report of the specimen.

RESULTS
Of the 48 patients included in the study, 41 were men and 7 were women. The mean age was 63.2±10.5 years and the mean tumor size was 54.5±25.5 millimeters. 8 patients were operated after neoadjuvant oncological treatment. Chest wall invasion was observed in 19 of the patients. The sensitivity of USG was calculated as 89.4% and its specificity as 93.1%, while the sensitivity of CT was calculated as 57.8% and specificity as 72.4%.

CONCLUSIONS
Due to reliable preoperative data, patients' staging can be done accurately, thus appropriate patients can be identified to receive neoadjuvant treatment, moreover overtreatment can be avoided. Also, the operator will be able to make proper decisions of VATS or thoracotomy and the resection size. In our study, thoracic USG provides more accurate results than CT imaging in examining chest wall invasion. We think that utilization of USG in patients with suspected chest wall invasion provides cheap, fast and reliable information that will benefit the patient's treatment plan.

Disclosure: No significant relationships.
Keywords: Chest Wall, Invasion, Lung Cancer, Ultrasound.

	Sensitivity	Specificity
CT	57.8%	72.4%
USG	89.4%	93.1%

P-117

COMPARATIVE EVALUATION OF DIFFERENT TYPES OF GASTRIC CONDUITS USED FOR ONE-STAGE RECONSTRUCTION DURING OESOPHAGEAL CANCER ESOPHAGECTOMY

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National Cancer Institute, Kyiv, Ukraine

OBJECTIVES
This prospective single-center study aimed to compare the outcomes of different types of gastric conduits used for one-stage reconstruction during oesophageal cancer esophagectomy.

METHODS
A total of 195 patients were enrolled in the study and divided into three groups: Group 1 (sub-total stomach, n=62), Group 2 (typical gastric tube, n=79), and Group 3 (coniform gastric tube, n=54). The study evaluated the incidence of anastomotic leak, intrathoracic complications, re-intervention rate, and mortality in each group.

RESULTS
The results showed that Group 3 (coniform gastric tube) had the lowest incidence of anastomotic leak (16.65%), followed by Group 2 (typical gastric tube) (18.9%) and Group 1 (sub-total stomach) (22.4%). Similarly, Group 3 had the lowest incidence of intrathoracic complications (18.5%), followed by Group 2 (20.2%) and Group 1 (25.8%). The re-intervention rate was lowest in Group 2 (13.9%), followed by Group 3 (14.8%) and Group 1 (17.7%). The mortality rate was lowest in Group 2 (2.5%), followed by Group 3 (3.7%) and Group 1 (3.2%).

CONCLUSIONS
The study demonstrates that all three types of gastric conduits used for one-stage reconstruction during oesophageal cancer esophagectomy have unfavorable outcomes. However, the coniform gastric tube shows promising results with the lowest incidence of anastomotic leak and intrathoracic complications. These findings suggest that the coniform gastric tube may be a preferred option for reconstruction.

Disclosure: No significant relationships.
Keywords: Esophagectomy, Oesophageal Cancer, Oesophageal Reconstruction, Gastric Conduit, Gastric Tube.

Table 1. Patients characteristics

Patients characteristics		Total (Median + SD or Mean)	P-value (Mortality)
n		195	
			0,088
Sex	Male	138 (70,77%)	
	Female	57 (29,23%)	
Age		61,68 ± 11,52	0,016
Neoadjuvant treatment			0,106
		193 (98,97%)	
	CTx	14 (7,18%)	
	RCTx	179 (91,79%)	
	None	2 (1,03%)	
Conduit			0,023
	Sub-total stomach	62 (31,79%)	
	Typical gastric tube	79 (40,51%)	
	Coniform gastric tube	54 (27,69%)	
Surgical approach			0,017
	Hybrid (Laparoscopic + Thoracotomy)	97 (49,74%)	
	Miniinvasive (Laparoscopic + Thoracoscopic)	13 (6,67%)	
	Open	85 (43,59%)	
Multivisceral resection			0,036
	Present	42 (21,54%)	
	Absent	153 (78,46%)	

P-118

WITHDRAWN

P-119

KETOGENIC DIETS IMPROVE SINGLE-LUNG VENTILATION INDUCED LUNG INJURY VIA GUT-LUNG AXIS

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OBJECTIVES
Single-lung ventilation (SLV) is a conventional ventilation procedure used for thoracic surgery. And SLV can result in acute lung injury, which may further develop into lethal ARDS. Ketogenic diets (KDs) are popularly used to aid a myriad of conditions. However, the consequences of this unique diet on SLV induced lung injury remain unknown.

METHODS
SLV induced Sprague Dawley (SD) rat models of lung injury was fed with KDs for 4 weeks. 16S rDNA and Liquid chromatography tandem mass spectrometry (LC-MS) were used for microbiota and metabolomics analysis. Correlational analysis and bioinformatics analysis were used to illustrate the relationship and mechanism of gut microbiota and its metabolites in KDs mitigating SLV-induced lung injury.

RESULTS
SLV induced lung injury could disturb the balance of gut microbiota, and after KDs treatment rebalance the procedure. Fecal microbiota transplantation using feces from the KDs treated mice attenuated lung injury in antibiotic pretreated SLV mice. A total of 32 pathways were both identified by analyzing either metabolites or microbiota, which may be the potential mechanism of how KDs attenuates SLV induced lung injury.

CONCLUSIONS
Our current study suggests that the ketogenic diet exerts a protective role in a mouse model of SLV through the diet-gut microbiota-lung axis, which may involve metabolic imbalances of the gut microbiota and its metabolites. However, there is a need for future studies to explore the protective mechanism of the gut-lung axis in SLV models.

Disclosure: No significant relationships.
Keywords: Ketogenic Diets, Gut-Lung Axis, Lung Injury, Gut Microbiota, Single Lung Ventilation.

P-120

KIRSTEN-RAT-SARCOMA VIRUS (K-RAS) MUTATIONS EFFECT ON EARLY STAGE LUNG ADENOCARCINOMA GROWING PATTERN

Riccardo Tajè[1], Filippo Tommaso Gallina[2], Federico Tacconi[1], Daniele Forcella[2], Eugenio Pompeo[1], Gabriele Alessandrini[2], Stefano Elia[3], Enrico Melis[2], Vincenzo Ambrogi[1], Francesco Facciolo[2]
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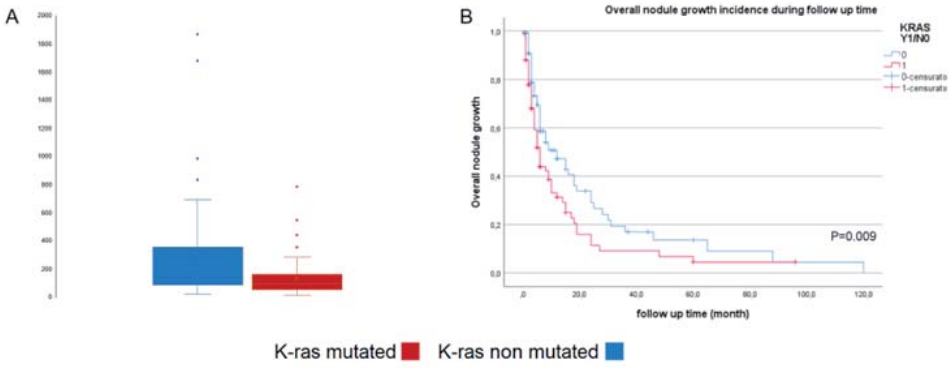
OBJECTIVES
The objective of this study is to evaluate the role of Kirsten-Rat-Sarcoma-Virus (K-ras) mutation in the growth of early-stage lung adenocarcinomas compared to K-ras non-mutated nodules according to volume doubling time (VDT).

METHODS
In this retrospective single centre analysis, growth assessment and biological data of 383 early-stage lung adenocarcinoma were retrieved. Only lung adenocarcinomas shorter than 30 mm at diagnosis and without evidences of nodal metastases. Growth assessment was calculated with available online calculator comparing mean diameter retrieved from the first radiological evidence of the nodule to the preoperative computed tomography scan. Each nodule underwent at least to scans. Next Gene Sequencing results were evaluated for biological characterization.

RESULTS
Comprehensively, 208 early-stage lung adenocarcinoma were evaluated. Median VDT in the overall population was 117 days (IQR 63-208.5) and 81 nodules were stable during follow up. Median time interval between computed-tomography scans was 5 months (IQR 3-12). K-ras mutations were found in 83 patients (39.9%). As depicted in figure 1a, VDT was significantly shorter in the nodules harbouring K-ras mutations compared to nodules without K-ras mutations (p=0.007). Time to nodule growth was evaluated according to Kaplan Meier analysis and compared between K-ras mutated and K-ras non-mutated nodules. As depicted in figure 1b, K-ras mutated nodules had significantly shorter time to nodule growth compared to nodules without K-ras mutations (P=0.009). When early-stage adenocarcinoma with sub-solid morphology were analysed, VDT was significantly shorter in the k-ras mutated group compared to the non-mutated group (p=0.014).

CONCLUSIONS
In early-stage lung adenocarcinomas, K-ras mutations may be associated with shorter VDT and, thus, a more aggressive pattern of growth. More extensive evaluation of the correlation between VDT and K-ras mutation ay help to enlighten the natural history and redefine the management strategies in pulmonary early-stage lung cancer harbouring K-ras mutations.

Disclosure: No significant relationships.
Keywords: K-Ras; Lung Adenocarcinoma, Lung Cancer, Early-Stage Lung Cancer, Subsolid Nodules, Pulmonary Nodules.



P-121

LACK OF CORRELATION BETWEEN MAJOR POSTOPERATIVE COMPLICATIONS AND EARLY RECURRENCE IN ESOPHAGECTOMY FOR CANCER: A 10-YEAR ANALYSIS

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OBJECTIVES
Esophageal cancer is associated with significant morbidity and mortality. Rates of recurrence remain high, and the majority of recurrences occur within the first 3 years. The impact of postoperative complications on oncologic outcomes after esophagectomy remains unclear, despite established associations in other cancers. This study aimed to investigate the correlation between major postoperative complications and oncologic outcomes in patients undergoing curative-intent esophagectomy for esophageal cancer.

METHODS
A retrospective analysis of esophagectomy patients (2012–2023) at a Canadian center was conducted. The time from resection to disease recurrence was recorded. Recurrence of disease included local, nodal, or widespread evidence of cancer, occurring within 3 years following definitive treatment. Post-operative major complications during hospital admission or within the first 30 postoperative days were classified by type and timing. The incidence of disease recurrence within the first 3 years was compared between patients who experienced major postoperative complications and those that did not.

RESULTS
Of 212 patients, 77.8% were male, 62.3% ASA 2, and 52.4% smokers. The average patient age was 64.2 and BMI of 26.3. Malignancies were adenocarcinoma (86.8%), SCC (11.3%), NE 1.4%, or other (0.47%), and most patients (95.3%) had neoadjuvant chemotherapy. Recurrence of disease occurred in 81 (38.2%) patients within 3 years with the average time to recurrence of 14.9 months. Complications occurred in 110 (51.9%) patients, classified as anastomotic leak (27.0%), arrythmia (27.0%), pneumonia (19.6%), or empyema (4.7%). No association was found between recurrence of esophageal cancer and post-operative complications (X2, p=0.1998).

CONCLUSIONS
Contrary to previous findings, a correlation between major post operative adverse events and recurrence within the first 3 years was not found in this retrospective analysis.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer; Esophagectomy; Complications; Recurrence.

P-122

LACUNAR CHANNELS IDENTIFIED IN THE VISCERAL PLEURA BY ELECTRON MICROSCOPY. A POTENTIAL SOURCE OF AIR LEAK?

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[2]*Occupational Medicine Division, Laboratory of Toxicology and Industrial Epidemiology,Department of Public Health and Paediatrics, University of Turin, Turin, Italy*
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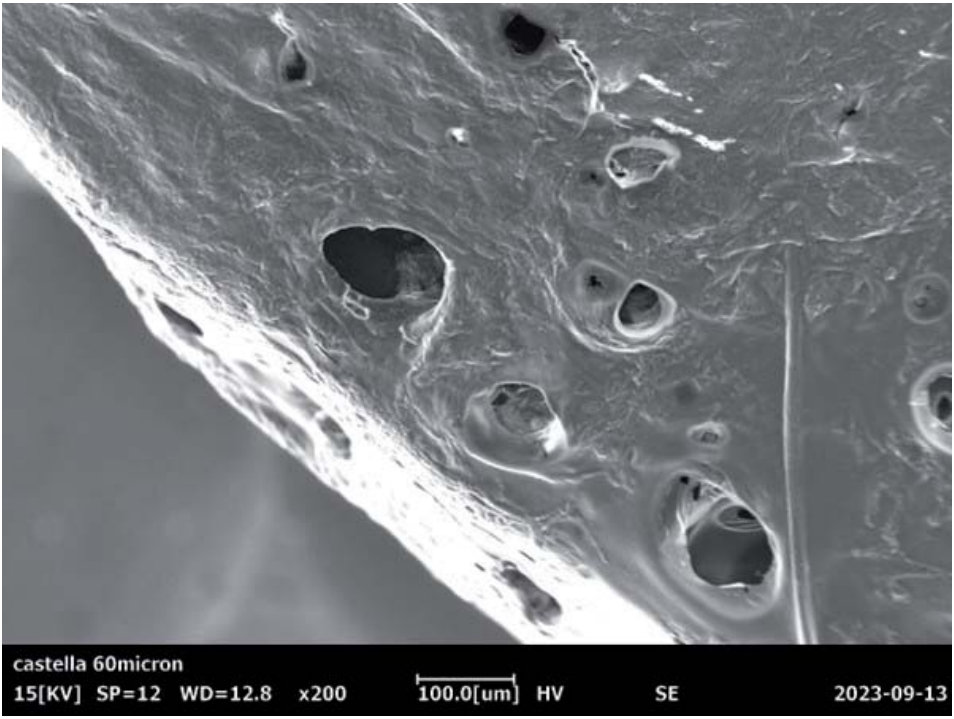
OBJECTIVES
Sometimes pneumothorax may occur in absence of bullae. This suggests the alternative hypothesis that visceral pleura may present lacunar areas through which air leak occasionally occurs. In order to verify this hypothesis, visceral pleura was investigated by scanning electron microscope (SEM) both in pneumothorax cases and in controls.

METHODS
Visceral pleura was sampled from 6 patients operated for recurrent pneumothorax and 6 patients who underwent lobectomy for lung cancer (controls). Fresh material was stored at -80°C and then cut by a microtome at a thickness of 60 microns parallel to the pleura surface in the first 6 cases and perpendicularly in the last 6, in order to obtain bidimensional information. After coating the samples with a film of gold, samples were analysed by SEM (Coxem-Em 30 AX Plus) at 15 Kev and 2k magnification.

RESULTS
In all 12 cases, SEM identified round, well-defined lacunar structures with an homogeneous thickness ranging from 1 to 4 micron. A great heterogeneity was detected in terms of density and diameter: in pneumothorax cases, channels had an average diameter of 15.8 micron and a density of 83 structure per field. Among controls, channels were smaller (average diameter 2 micron) and less dense (36.6 per field).

CONCLUSIONS
Visceral pleura presents lacunar channels whose dimension make them visible by electron microscopy only. These channels are larger and more dense in pneumothorax patients, suggesting their potential role as a source of air leak.

Disclosure: No significant relationships.
Keywords: Pneumothorax, Visceral Pleura, SEM, Lacunar Structures.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P-123

LARGE-SCALE PLASMA PROTEOMIC PROFILING IDENTIFIES A HIGH-PERFORMANCE BIOMARKER PANEL FOR LUNG CANCER SCREENING

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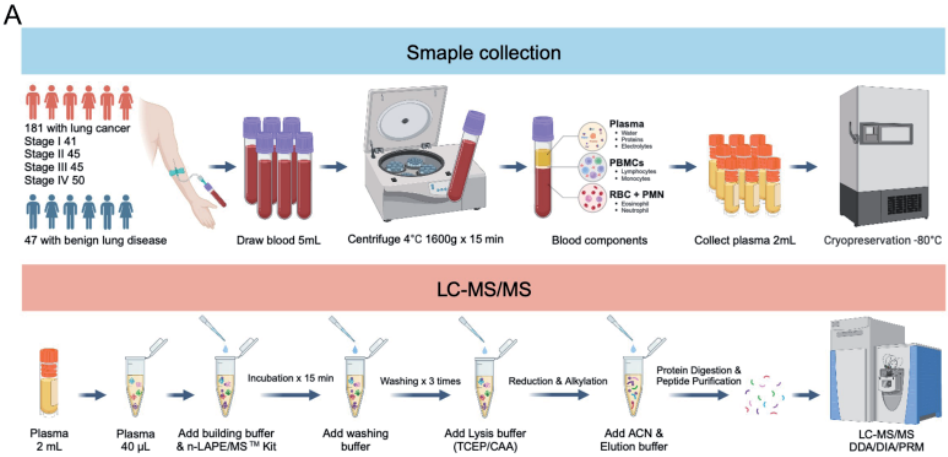
OBJECTIVES
Individual plasma protein are emering as minimally invasive biomarker for preclinical disease detection. We systematically profiled a plasma proteome to investigated their potential for future lung cancer screening.

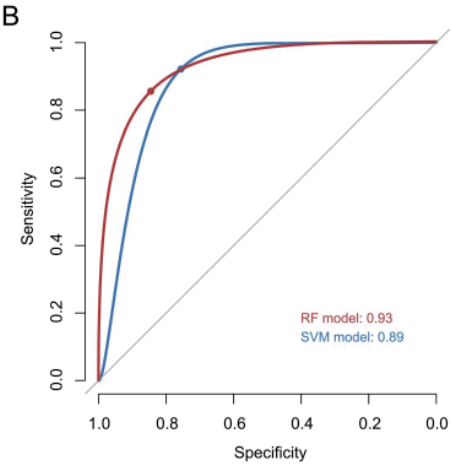
METHODS
We quantified 5, 637 plasma rpoteins from 181 lung cancer patients and 47 healthy contrils in a GMU cohort, employing a comprehensive and deep profiling startegy for the plasma proteome using zeolite NaY as enrichment medium. A stepwise selection strategy was constructed and prediction model was established using two machine learing algorithms: random forest (RF) and support vector machine.

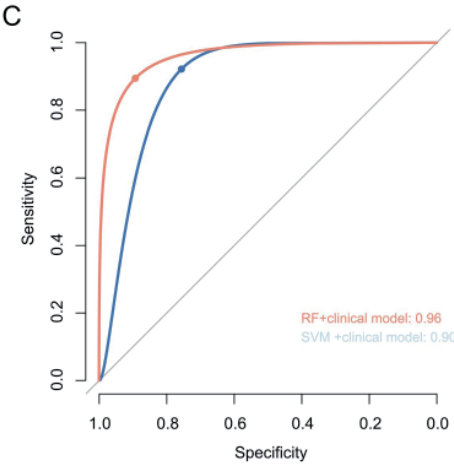
RESULTS
97 proteins were significantly different in GMU cohort, wiht 91 up-regulated protein and 6 down-regulated protein. After calculating single protein area under the receiver operating characteristic curve (AUC), 20 protein were further identified. After excluding four proteins with mulitcollinearity using lasso regression, a model comprising 16 "key protein", representative of the lung cancer plasma protien profile, was established and demonstrated high accuracy. The RF model gave a superior AUCs compared to the SVM model (AUC = 0.93, (95% CI: 0.82 - 0.97) vs. 0.89, (95% CI: 0.77 - 0.96)) (Figure 1B). After incorporating clinical baseline characteristics, the RF model also demonstrated a better accuracy (AUC = 0.96, (95% CI: 0.87 - 0.98) vs. 0.90, (95% CI: 0.80 - 0.96)) (Figure 1C).

CONCLUSIONS
We performed an comprehensively, in-depth analysis of quantitative proteomic data from 228 samples using various novel, stepwise algorithms and found that their proteome can predict lung cancer screening and staging.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Plasma Protein, Biomarker, Cancer Screening.


A
Smaple collection
181 with lung cancer
Stage I 41
Stage II 45
Stage III 45
Stage IV 50
47 with benign lung disease
Draw blood 5mL
Centrifuge 4°C 1600g x 15 min
Plasma
PBMCs
RBC + PMN
Blood components
Collect plasma 2mL
Cryopreservation -80°C
LC-MS/MS
Plasma 2 mL
Plasma 40 µL
Add building buffer & n-LAPE/MS™ Kit
Incubation x 15 min
Add washing buffer
Washing x 3 times
Add Lysis buffer (TCEP/CAA)
Reduction & Alkylation
Add ACN & Elution buffer
Protein Digestion & Peptide Purification
LC-MS/MS DDA/DIA/PRM


B
Sensitivity
Specificity
1.0
0.8
0.6
0.4
0.2
0.0
RF model: 0.93
SVM model: 0.89


C
Sensitivity
Specificity
1.0
0.8
0.6
0.4
0.2
0.0
RF+clinical model: 0.96
SVM +clinical model: 0.90

P-124

LAST MINUTE CANCELLATION OF ELECTIVE LUNG CANCER SURGERY IS ASSOCIATED WITH POORER ONCOLOGIC OUTCOMES

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OBJECTIVES
To evaluate the prevalence and the causes of last-minute cancellations before curative surgery for lung cancer and their association with outcomes.

METHODS
Single centre retrospective analysis on consecutive patients booked for elective lung cancer resections(January 2017-December 2022).
Last minute cancellation(LMC): a cancellation occurring within the last 24 hours from the planned operation. Reasons for cancellation: hospital-related (HR) and patient-related(PTR).
Kaplan Meier and Cox regression analysis were used to evaluate the association between last minute cancellations and overall survival.

RESULTS
197 patients (12% of 1587 planned resections) had LMC. 156 (79%) were HR and 41 (21%) were PTR (table 1).
3% (5/156) of HR did not receive surgery vs. 39% (16/41) of PTR, p<0.0001.
The median delay from cancellation to surgery was 12 days (IQR 5-21) for HR and 16 days (IQR 10-35) for PTR, p=0.012.
The 90-day mortality rates of cancelled and non-cancelled patients were similar (4.6%vs.4.7%,p=1).
50 of 197 (25%) cancelled patients were upstaged from clinical stage T1 to pathologic stage greater than T1 (vs.17% of non-cancelled patients),p=0.007
58 of 197 (29%) cancelled patients were upstaged from cN0 to node-positive (vs. 20% of non-cancelled patients),p=0.002.
5-year overall survival of patients with cancellation was 58%(95% CI 49-66) vs. 69%(95% CI 66-71) of non-cancelled ones, p=0.016.
5-year OS of patients with HR cancellations was 61% (95% CI 52-60) vs. 35% (95% CI 14-58) of those with PTR cancellations, p=0.046.
Cox regression analysis showed that LMC for either process-related (HR 1.43, 95% CI 1.05-1.96, p=0.024) or patient-related (HR 1.99, 95% CI 1.08-3.63, p=0.027) reasons remained associated with poorer overall survival after adjusting for clinical stage, type of operation and patient related variables.

CONCLUSIONS

Unanticipated last-minute cancellations of elective lung cancer surgery are common and are associated with poorer oncologic outcomes. Implementing clinical and structural processes to reduce their occurrences might mitigate their negative impact on cancer prognosis.

Disclosure: No significant relationships.
Keywords: Postponed Surgery, Cancellation, Lung Cancer, Lung Surgery.

Hospital related cancellations (HR)	**No. patients (%)**
ICU/HDU bed unavailable	40 (26%)
Ward bed unavailable	21 (14%)
Urgent case took priority	16 (10.5%)
Theatre overran	42 (27.5%)
Management change/Additional test required	7 (4.5%)
Staff unavailable	23 (15%)
Theatre ventilation failure	3 (1.9%)
Admin error	1 (0.6%)
Patient related cancellations (PTR)	**No. patients (%)**
Deemed unfit for surgery	26 (65%)
Patient's decision	8 (20%)
Additional tests required	6 (15%)

P-125

LATERAL INTERNAL THORACIC ARTERY

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OBJECTIVES
The lateral internal thoracic artery, first described as "A. mammaria lateralis aus der A. Mammaria interna" by J. Henle in 1876, branches off from the internal thoracic artery and runs directly to the ribs. It has been reported as steal syndrome after coronary artery bypass surgery using the internal thoracic artery.
In this study, we reviewed surgical videos of primary lung cancer to determine the percentage of the lateral internal thoracic artery, where it runs, and to what intercostal space it extends.

METHODS
We viewed videos of surgery for primary lung cancer at Tokyo Medical and Dental University Hospital between January 2020 and November 2021, and investigated the location and length of the lateral internal thoracic artery.

RESULTS
Of the 1004 patients underwent surgery for primary lung cancer cases (right 702 cases, left 302 cases), 105 cases (10.5%) had the external internal thoracic artery. There was no significant difference between left in 35 cases (11.7%) and right in 70 cases (10.0%). It branched from the origin of the internal thoracic artery and ran lateral to the thoracic cavity (mid-axillary line to anterior axillary line on the body surface). The length of the external internal thoracic artery was up to the first intercostal space in 35 cases (33.3%), to the second intercostal space in 25 cases (23.8%), to the third intercostal space in 20 cases (19.0%), to the fourth intercostal space in 10 cases (9.5%), and to the fifth intercostal space in 15 cases (14.3%).

CONCLUSIONS
The lateral internal thoracic artery was found in 10.5% of patients, with no difference between right and left sides, and it extends from the mid to anterior axillary line to about the fifth intercostal space. Respiratory and cardiovascular surgeons should be aware of the presence of the lateral internal thoracic artery branching from the internal thoracic artery.

Disclosure: No significant relationships.
Keywords: Lateral Thoracic Artery, Internal Thoracic Surgery, Chest Wall.

P-126

LEARNING CURVE FOR UNIPORTAL THORACOSCOPIC ANATOMICAL LUNG RESECTIONS: ASSESSING THE TREND OF PROCEDURE-RELATED COMPLICATIONS USING THE NON-ADJUSTED CUMULATIVE SUM METHOD

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OBJECTIVES

The number of cases required for a surgical team to become proficient in uniportal thoracoscopic anatomical lung resection remains unclear. In this study, we evaluated the learning curve of uniportal thoracoscopic anatomical lung resection in our department in terms of the frequency of procedure-related complications.

METHODS

A total of 333 cases of uniportal thoracoscopic anatomical lung resection between February 2019 and March 2023 at our institution were included in this study. The learning curve was analyzed using non-adjusted cumulative sum methods to evaluate the trend of the frequency of procedure-related complications across case sequences, which determined the inflection points. Based on the inflection points, the surgical period was divided into several phases. Patient characteristics and perioperative outcomes were then compared across phases. Although the surgical team consisted of 2 senior and 4 junior surgeons, each operation was supervised by HI.

RESULTS

The inflection point of the cumulative sum methods occurred at the 132nd case (Figure 1). Using this inflection point, all cases were divided into two groups, including immature (n=132) and mature (n=211) phase groups. When comparing the two groups, the mature phase group showed significantly better results in terms of blood loss ($p<0.0001$), postoperative drainage time ($p<0.0001$) and postoperative hospital stay ($p<0.0001$), while there was no significant difference in operative time. Although there was no significant difference in the incidence of procedure-related complications between the two groups (16.7 vs. 9.5%, $p=0.0607$), a decreasing trend was observed in the mature phase group. Details of procedure-related complications are shown in Table 1.

CONCLUSIONS

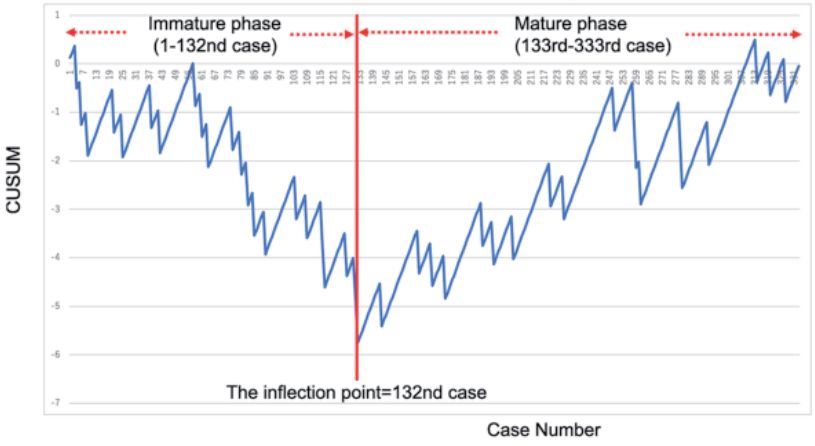
In uniportal thoracoscopic anatomical lung resection performed by a team, the inflection point for the incidence of procedure-related complications occurred at the 132nd case. Several other perioperative outcomes improved across the phases although there was no significant reduction in operative time.

Disclosure: No significant relationships.
Keywords: Learning Curve, Non-Adjusted Cumulative Sum Method, Uniport, Thoracoscopy, Procedure-Related Complication.

Table 1. Details of the procedure-related complications between immature and mature phases

Variables	Immature phase (n=132)	Mature phase (n=201)	p-value
Procedure-related complications , n (%)	22 (16.7)	19 (9.5)	0.0607
Intraoperative complications	8	6	
Significant intraoperative vascular injury	7	6	
Bronchial injury	1	0	
Incorrect pulmonary vein division	0	0	
Conversion and reinervention	9	7	
Conversion to thoracotomy	9	7	
Reintervention on the day of surgery or postoperative day 1	0	0	
Postoperative complications	12	8	
Prolonged air leak lasting more than 5 days	6	5	
Delayed pulmonary fistula requiring re-drainage	5	2	
Phrenic nerve paralysis	0	0	
Hoarseness	0	0	
Excessive pleural effusion	0	1	
Chylothorax	0	0	
Pleuritis	1	0	
Empyema	0	0	
Bronchial fistula	0	0	

Figure 1. Non-adjusted cumulative sum chart for procedure-related complications in uniportal thoracoscopic anatomic lung resections in a surgical team.



P-127

LEARNING CURVE OF ROBOTIC LUNG RESECTIONS COMPARED WITH VIDEO ASSISTED THORACIC SURGERY (VATS): EXPERIENCE WITH A NEW MODULAR ROBOTIC SURGICAL SYSTEM

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[2]*Fondazione IRCCS Ca' Granda - Ospedale Maggiore Policlinico, Milan, Italy*
[3]*Foundation IRCCS Ca' Granda - Ospedale Maggiore Policlinico, Milan, Italy*

OBJECTIVES

Over the last few years, new companies have entered the market of robotic surgical systems. This study aims to compare the learning curve of two surgeons performing anatomical lung resections with a new modular robotic system (Versius Surgical System, CMR) and with a standard VATS technique.

METHODS

A RATS port placement with an anterior utility incision, similar to the three-port VATS surgery, was carried out. Port-training was required to correctly set-up the movement of surgical instruments.
The first consecutive 49 RATS anatomical lung resections were compared with the corresponding 49 first triportal VATS cases (collected between October 2010 and September 2015), performed by the same two surgeons. We analyzed the retrospectively collected data by CuSum method.

RESULTS

From November 2021 to January 2024 two surgeons performed 49 typical lung resections with Versius. Demographic data of VATS and Versius groups was comparable. The average operative time of the Versius and VATS groups was 248±56 and 228±49 minutes respectively (p-value = 0,027). From the CuSum plots (reported in figure), it appears that the learning curve is faster for the VATS group. Nevertheless, the effective robotic operating time is about 70% of the whole reported time, which includes the time needed for instruments port training and robot positioning.
Three RATS and two VATS cases required conversion to open surgery to manage intraoperative complications. Important findings concern time to chest tube removal and length of hospital stay: both data seem to favour RATS.

CONCLUSIONS

Surgeons and the whole equipe seem to need more time to learn new approaches using different surgical instruments. Notwithstanding a longer normalization of operating times for the RATS group, the new modular robotic platform can be safely and efficiently implemented in a robot-naive centre, ensuring a reduction in time to chest tube removal and length of hospital stay.

Disclosure: No significant relationships.
Keywords: Learning Curve, Robotic, Thoracic Surgery, Resections.

P-128

COMPARISON OF COMPLEX VERSUS SIMPLE ROBOTIC SEGMENTECTOMY IN TERMS OF SURGICAL EFFICACY AND SAFETY

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OBJECTIVES
Two prospective novel trials of JCOG0802 and CALGB 140503 showed the validity of segmentectomy for early-stage lung cancer. However, there are few reports on robotic complex segmentectomy which requires multiplanar intersegmental dissection with technical difficulty.

METHODS
Among 562 patients underwent robotic lung resection at our institution from 2017 to 2023, 150 patients underwent robotic segmentectomy. Segmentectomy was classified as simple and complex. Simple was defined as a segmentectomy requiring a linear division of a single intersegmental plane. Complex was defined as a segmentectomy requiring division of two or more intersegmental planes. We excluded segmentectomy beyond the interlobar pleura to other lung lobes (n=7), over four segments (n=1), combined resection with mediastinal tumor (n=1), residual ipsilateral segmentectomy (n=2), conversion case to open thoracotomy (n=1), and to simple segmentectomy from complex (n=1). Patient characteristics and perioperative outcomes were compared between the two groups. P-value of <0.05 was considered statistically significant.

RESULTS
A total of 137 patients were included 57 complex and 80 simple segmentectomy. There were no significant differences in terms of age, sex, smoking history, tumor size. Comparing complex and simple segmentectomies, more right sided cases (63% vs 30%, P=0.0001), longer operative time (183 vs 161 min, P=0.0182), longer console time (132 vs 111 min, P=0.0085) in the complex group. However equivalent blood loss (5 vs 5 ml), distance to surgical margin (15 vs 15 mm), postoperative hospital stays (6 vs 5 days), and median drainage period (2 vs 2 days) in both groups. Furthermore, complex segmentectomy had significantly fewer postoperative complications of grade III or higher (3.5% vs 14%, P=0.0438) relative to simple segmentectomy, including prolonged air leakage (3.5% vs 10 %). Resected margins were negative in all patients.

CONCLUSIONS
Robotic complex segmentectomy was a safe and feasible surgical procedure with low risk of postoperative complications.

Disclosure: No significant relationships.
Keywords: Robotic Surgery, Complex, Segmentectomy.

Simple vs Complex robotic segmentectomy

Variable	Simple n=80	Complex n=57	*p-Value*
Age, median (range)	68 (39-87)	70 (40-88)	0.3979
Sex, man	28 (35%)	24 (42%)	0.3983
Right side	24 (30%)	36 (63%)	0.0001
Pack-year smoking	0 (0-147)	0 (0-112)	0.6136
Tumor size (mm), median (range)	13 (4-42)	13.5 (6-40)	0.3815
Operative time (min), median (range)	161 (89-335)	183 (110-279)	0.0182
Console time (min), median (range)	111 (49-264)	132 (60-225)	0.0085
Blood loss (ml), median (range)	5 (0-100)	5 (1-85)	0.7730
Distance of surgical margin (mm), range (median)	15 (5-60)	15 (5-35)	0.3670
Drainage period (day), median (range)	2 (1-8)	2 (1-10)	0.6220
Postoperative hospital stay (day), median (range)	5 (2-18)	6 (3-12)	0.1793
Postoperative complication (CD grade ≥ IIIa)	11 (14%)	2 (3.5%)	0.0438
Pleurodesis for prolonged air leakage	8 (10%)	2 (3.5%)	0.1500
Thirty-day mortality	1 (1%)	0 (0%)	0.3969

P-129

LEARNING CURVES OF ROBOTICALLY ASSISTED LUNG CANCER SURGERY IN SURGEONS WITH DIFFERENT BACKGROUND EXPERIENCE

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OBJECTIVES
The aim was to compare safety and efficacy of establishing a new robotic-assisted thoracoscopic surgery (RATS) in a low volume center with mixed cardiothoracic practice and with surgeons with different background experiences - video assisted versus open.

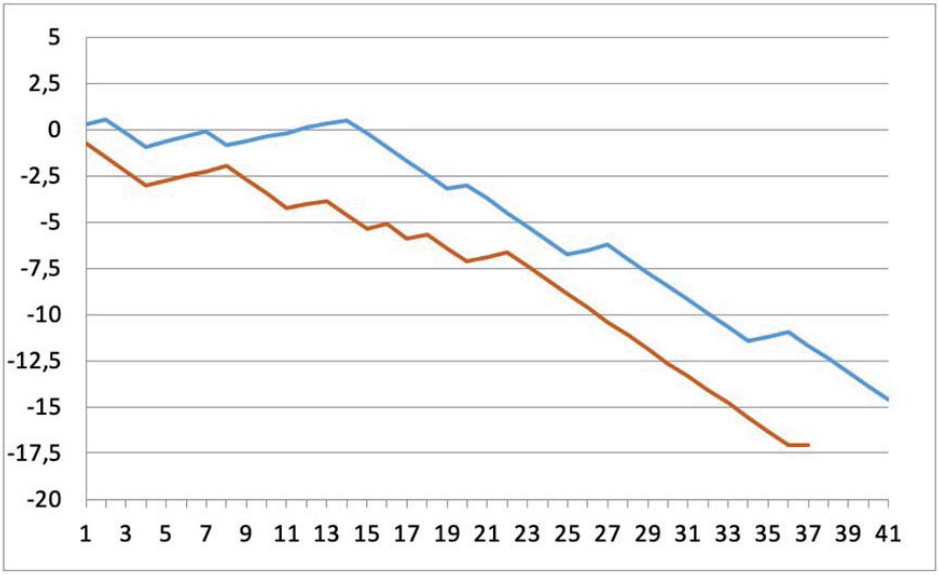
METHODS
Between January 2015 and June 2023 our center performed 460 anatomical lung resections. The RATS program was established in October 2021 and two Surgeons -A and B were selected as RATS surgeons. Before this, Surgeon A performed mostly open thoracic surgery and surgeon B had significantly more thoracoscopic experience. The primary outcomes were the learning curves of Surgeon A and B for lymph node yield, operative time, blood loss and complications after starting the RATS program. The Risk-adjusted cumulative cusum (RA-CUSUM) method was used to determine the learning curves.

RESULTS
Surgeons A and B showed similar learning curves in lymph node yield with Surgeon A having a peak at 19 and Surgeon B at 23 n-case. Both Surgeons were able to execute systematic lymph node dissection (=at least three N2 stations sampled) in oncological cases. Operative time improved with surgeon B after 15 and with surgeon A after 30 cases. RA-CUSUM analysis showed that there were no increased bleeding cases when comparing the baseline risk and the median bleeding values of our center. With both surgeons, there were less overall complications in RATS than in other surgical techniques. Surgeon B had a steadily dropping overall complications rate in RA-CUSUM.

CONCLUSIONS
According to our study, surgeons performing robotic assisted lung cancer surgery with either open or thoracoscopic background experience is safe and does not compromise oncological outcomes.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Robotic-Assisted Thoracoscopic Surgery, Video-Assisted Thoracoscopic Surgery, Thoracotomy, Learning Curve.

Fig.1 Systematic lymph node dissection RA-CUSUM



P-130

LEFT VERSUS RIGHT SINGLE LUNG TRANSPLANTATION IN INTERSTITIAL PNEUMONIA

Nozomi Aruga, Daisuke Nakajima, Megumi Kobayashi, Akira Matsumoto, Taiki Ryo, Mamoru Takahashi, Shigeto Nishikawa, Satona Tanaka, Yojiro Yutaka, Akihiro Ohsumi, Toshi Menju, Hiroshi Date
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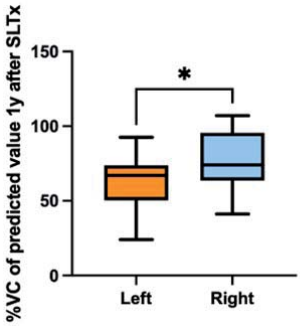
OBJECTIVES
Single lung transplantation (SLTx) accounts for approximately 50% of all brain-dead donor lung transplants in order to overcome the serious donor organ shortage in Japan. The aim of this study is to elucidate which side lung is preferred for SLTx in interstitial pneumonia (IP) patients.

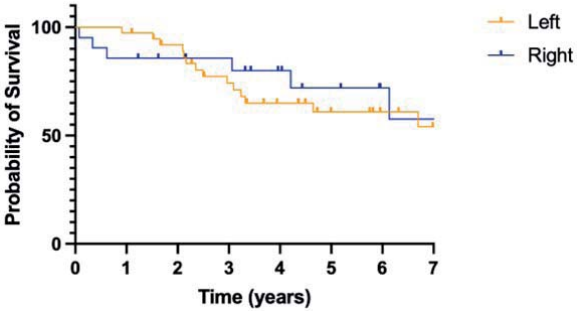
METHODS
Between September 2010 and October 2022, we performed 59 SLTx for IP patients, including 38 left-SLTx (left group) and 21 right-SLTx (right group). Recipient chest volumes of the transplanted side pre- and post-SLTx were retrospectively measured using 3D-CT volumetry, and the ratio of post- to pre-SLTx chest volume was compared between the groups. Posttransplant outcomes were also compared between the groups.

RESULTS
Posttransplant outcomes did not significantly differ between the groups: the mean PaO2/FiO2 just after SLTx was 295 mmHg in the left group and 267 mmHg in the right group (P = 0.438); the mean duration of mechanical respiratory support was 8 days in both groups (P = 0.906); none required extracorporeal membrane oxygenation support after left-SLTx, whereas one required after right-SLTx (P = 0.356). The 1- and 5-year survival rates were 97.4% and 60.9% after left-SLTx and 85.7% and 72.0% after right-SLTx, respectively (P = 0.754). The mean %VC of the predicted value one year after SLTx was significantly better in the right group (75.5%) in comparison to the left group (62.7%, P = 0.036). The mean post-/pre-SLTx chest volume tended to be higher in the left group (316%) compared with the right group (214%, P = 0.099).

CONCLUSIONS
The lung grafts implanted on the left side tended to expand more within the small chest cavities than those on the right side in IP patients. However, the right-SLTx provided significantly better VC than the left-SLTx, and both right- and left-SLTx showed favorable posttransplant outcomes.

Disclosure: No significant relationships.
Keywords: Single Lung Transplantation, Interstitial Pneumonia.


%VC of predicted value 1y after SLTx
150
100
50
0
*
Left
Right


Probability of Survival
100
50
0
0
1
2
3
4
5
6
7
Time (years)
Left
Right

P-131

LENGTH OF STAY AFTER PULMONARY RESECTION IN A WELL IMPLEMENTED ENHANCED RECOVERY PROGRAM: FACTORS INFLUENCING IT

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OBJECTIVES

Enhanced recovery programs after lung resection (ERAS) facilitate early discharge and, consequently, decrease costs and improve the availability of hospital resources. Knowing the variables associated to hospital stay in the context of an ERAS program could improve the quality of care. In this study, we have analysed the length of stay (LOS) after lung resection in a University Hospital with a consolidated enhanced recovery program and the clinical variables influencing it.

METHODS

We performed a retrospective review of a prospectively collected database including all patients undergoing lung resection between August 2018 and August 2023. Clinical characteristics of the patients, including age, pulmonary function tests (FEV1%, DLCO %), extent of the resection (wedge, segmentectomy or lobectomy), approach (open, VATS or RATS) pathologic diagnosis and the incidence of any type of intraoperative or in-hospital complications were reviewed. Univariate and multivariate analysis were performed to investigate the relationship between clinical variables and length of stay.

RESULTS

192 patients were analysed. The characteristics of the population are shown in Table 1. Median length of stay was 2 days (Mean: 2.42, IQR: 1.05). 41 patients (21%) presented any intraoperative complications and 20 (10%) any in-hospital complications. On univariate analysis, only the extent of the resection ($p< 0.001$) and the incidence of intraoperative ($p< 0.001$) and in hospital complications ($p=0.007$) were related to increased length of stay. All of them remained significantly associated with length of stay in multivariate linear regression [extent of the resection ($p< 0.001$) and the incidence of intraoperative ($p< 0.001$) and in hospital complications ($p=0.003$)].

CONCLUSIONS

The extent of the resection and the incidence of intraoperative and in-hospital complications are correlated with LOS in the context of an ERAS program. Accurate prediction of the last could improve the objective quality of care.

Disclosure: Honoraria from Abex/Intuitive, Astrazeneca and Johnson and Johnson.
Keywords: Enhanced Recovery, Postoperative Complications, Length Of Stay, Lung Resection.

P-132

LOBE-SPECIFIC LYMPH NODE DISSECTION IN CLINICAL N0-1 NON-SMALL CELL LUNG CANCER: EVALUATING THE EFFECT OF TUMOR SIZE

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OBJECTIVES

Lobe-specific lymph node dissection (L-SND) has been proposed for clinical T1a-2b N0-1 non-small cell lung cancer (NSCLC). However, the efficacy of this approach, particularly concerning pathological nodal staging, remains uncertain. This study aims to assess the percentage detection of pN2 disease in L-SND compared to systematic lymph node dissection (SLND).

METHODS

Between 2010 and 2016, 166 patients diagnosed with cT1a-T2b N0-1 NSCLC underwent lobectomy with SLND at Chiang Mai University Hospital. Pathological results of dissected lymph nodes in each station were extracted from medical records. Patients initially classified under SLND were subsequently reclassified as L-SLD based on the primary tumor site: right upper lobe (stations 2R-4R), left upper lobe (stations 4L-6), and both lower lobes (stations 7-9). The percentage detection of pN2 disease was compared between L-SLD and SLND, with a subgroup analysis based on tumor size. Agreement between SLND and L-SLD in detecting pN2 disease was assessed using Kappa.

RESULTS

While the rate of pN2 detection in SLND exceeded that in L-SLD, the difference was not statistically significant (27.0% versus 23.6%, p=0.474). Overall, only 4.4% of cases were upstaged to pN2 after SLND. Subgroup analysis revealed comparable rates in different lobes (right upper lobe: 4.4%, left lower lobe: 3.4%, right lower lobe: 3.2%, left upper lobe: 1.9%, p=0.904). High agreement in pN2 disease detection was observed between L-SND and SLND (kappa=0.911, 95% CI; 0.784 - 0.957). In the subgroup analysis based on tumor size, nodal upstaging was not detected for tumors ≤2 cm, but for tumors >2 cm, upstaging was observed specifically in right upper lobe (Table 1).

CONCLUSIONS

L-SND appears equally effective as SLND for pathological N2 staging in clinically early-stage NSCLC surgery, particularly for tumors ≤2 cm. Nevertheless, SLND achieved a higher detection rate of pN2 disease. Further studies with larger sample size are warranted to validate these findings.

Disclosure: No significant relationships.
Keywords: Lung Cancer, LN Dissection, Early-Stage NSCLC, L_SLD, SLND.

Table 1. Pathological N2 status in lobe-specific dissection and systematic lymph node dissection

Location of primary tumor	Clinical N0-1 status		Pathologic N2 status (lobe-specific dissection)		Pathologic N2 status (Systematic dissection)		% upstaged to N2 disease
	Negative	Positive	Negative	Positive	Negative	Positive	
RUL (n=67)	57 (85.1)	10 (14.9)	52 (77.6)	15 (22.4)	49 (73.1)	18 (26.9)	4.5
RLL (n=31)	29 (93.65)	2 (6.5)	24 (77.4)	7 (22.6)	23 (74.2)	8 (25.8)	3.2
LUL (n=51)	43(84.3)	8 (15.7)	37 (72.5)	14 (27.5)	36 (70.6)	15 (29.4)	1.9
LLL (n=29)	24 (82.8)	5 (17.2)	23 (79.3)	6 (20.7)	22 (75.9)	7 (24.1)	3.4
Tumor size ≤ 2 cm							
RUL (n=8)	7 (87.5)	1 (12.5)	7 (87.5)	1 (12.5)	7 (87.5)	1 (12.5)	0
RLL (n=4)	4 (100)	0	4 (100)	0	4 (100)	0	0
LUL (n=2)	2 (100)	0	1 (50)	1 (50)	1 (50)	1 (50)	0
LLL (n=1)	1 (100)	0	1 (100)	0	1 (100)	0	0
Tumor size >2- ≤3 cm							
RUL (n=21)	19 (90.48)	2 (9.52)	14 (66.67)	7 (33.33)	12 (57.14)	9 (42.86)	9.52
RLL (n=8)	8 (100)	0	7 (87.50)	1 (12.50)	7 (87.50)	1 (12.50)	0
LUL (n=16)	16 (100)	0	11 (68.75)	5 (31.25)	11 (68.75)	5 (31.25)	0
LLL (n=6)	6 (100)	0	5 (83.33)	1 (16.67)	5 (83.33)	1 (16.67)	0
Tumor size > 3-5 cm							
RUL (n=29)	26 (89.66)	3 (10.34)	21 (72.41)	8 (27.59)	19 (65.52)	10 (34.48)	6.9
RLL (n=12)	12 (100)	0	11 (91.67)	1 (8.33)	11 (91.67)	1 (8.33)	0
LUL (n=18)	18 (100)	0	12 (66.67)	6 (33.33)	12 (66.67)	6 (33.33)	0
LLL (n=7)	7 (100)	0	6 (85.71)	1 (14.29)	6 (85.71)	1 (14.29)	0

P-133

LOCALIZATION OF THE SOLITARY PULMONARY NODULE IN VIDEO ASSISTED THORACIC SURGERY (VATS) WITH A MIXED REALITY SYSTEM

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OBJECTIVES
The localization of the solitary pulmonary nodule in VATS is still challenging and numerous techniques have been described to facilitate the surgeon. Our study aims to use three-dimensional reconstructions of the lung by projecting a hologram that can be viewed through special lenses worn by the surgeon during the procedure, making localization of the nodule easier and faster.

METHODS
Twenty-five consecutive patients undergoing diagnostic lung resection in VATS with evidence of a solitary intraparenchymal nodule were retroprospectively recruited. Of these, 12 subjects (Group A) underwent a high-resolution chest CT scan, and the images were subsequently processed to obtain a 3D model with evidence of the target nodule. The hologram was made visible by the surgeon using a mixed reality helmet, allowing the operator to consult it at any time to orient himself in the location of the nodule. In the remaining 13 patients (Group B) the standard method of our institute was used for the localization of the pulmonary nodule (CT-guided methylene blue marking). The operative time and diagnostic adequacy of samples were recorded for each procedure performed. The data from the two groups were compared, looking for any significant differences.

RESULTS
The mean operative time of the lung resections of Group A was 53.58 ± 11.92 minutes while that of Group B was 64.69 ± 9.69; from the comparison of the two groups, the duration of the procedure, using mixed reality, is significantly reduced compared to the classic procedure ($p = 0.0173$). The operative samples obtained were all adequate for diagnosis in both groups, without significant differences between the two methods analyzed.

CONCLUSIONS
From the data emerging from our study, the use of 3D models projected as holograms thanks to the mixed reality headset appears to be an effective tool for localizing the pulmonary nodule, reducing operating times.

Disclosure: No significant relationships.
Keywords: Solitary Pulmonary Nodule, Mixed Reality, VATS.

	Group A	Group B	*p*
Patients (n)	12	13	
Age, years (M ± SD)	69.75 ± 7.31	70.15 ± 7.09	0.8898
Sex, male, n (%)	7 (58.3)	6 (46.2)	0.8381
Operative time (min)	53.58 ± 11.92	64.69 ± 9.69	0.0173
Lenght of stay, days	2.83 ± 0.93	3.15 ± 0.89	0.3919
Comorbidity, n (%)			
- Cardiac	7 (58.3)	7 (53.8)	0.8597
- Pulmonary	5 (41.7)	3 (23.1)	0.5708
- Metabolic	4 (33.3)	4 (30.8)	0.7678

P-134

LONG-TERM FOLLOW-UP OF NON-MYASTHENIC PATIENTS WITH EARLY STAGE THYMOMA UNDERWENT EXTENDED THYMECTOMY OR LIMITED RESECTION

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[2]*Taipei Veteran General Hospital, Taipei, Taiwan*

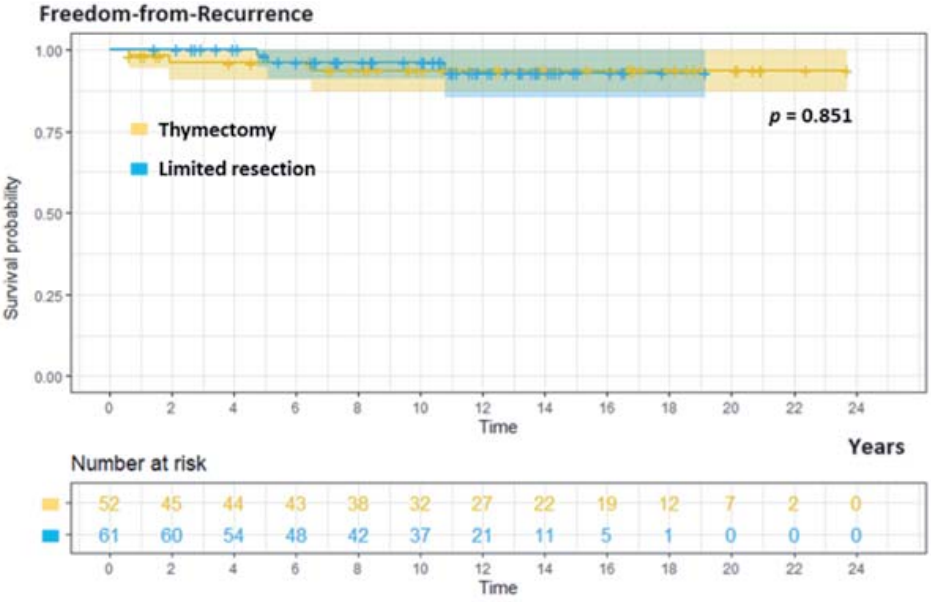
OBJECTIVES
The standard resection for early stage thymoma is total thymectomy and complete excision of tumor with or without myasthenia gravis. But the optimal surgery mode for patients with early stage non-myasthenic thymoma was recently in debate. Our study aimed to analyze oncological outcomes for non-myasthenic patients with early stage thymoma treated by thymectomy or limited resection in long-term period.

METHODS
Patients with early stage of thymoma underwent surgical resection at Taipei Veteran General Hospital, Taiwan between December 1997 and March 2013. Patients who combined clinical evidence of myasthenia gravis were excluded. Total 113 patients were retrospectively reviewed with pathologic early stage (Masaoka stage I and II) thymoma who undergoing limited resection or extended thymectomy. Long term oncologic and surgical outcomes were compared between two groups.

RESULTS
The median observation time was 134.1 months (interquartile range (IQR) 90.7–176.1 months). In our cohort, 52 patients received extended thymectomy and 61 patients underwent limited resection. There were six patients experienced thymoma recurrence, two of them combined myasthenia gravis development after recurrence. There was no significant difference ($p = 0.851$) in freedom-from-recurrence, the 10-year freedom-from-recurrence rates were similar between the limited resection group (96.2%) and the thymectomy group (93.2%). Tumor-related survival also disclosed no significant differences between groups ($p = 0.726$)

CONCLUSIONS
In early stage non-myasthenic thymoma, patients underwent limited resection without complete excision of thymus could achieve similar oncologic outcomes during long-term follow up and better peri-operative results, comparing with thymectomy.

Disclosure: No significant relationships.
Keywords: Early Stage Thymoma1, Thymectomy2, Limited Resection3, Non-Myasthenic4.


Freedom-from-Recurrence
Survival probability
1.00
0.75
0.50
0.25
0.00
Thymectomy
Limited resection
p = 0.851
0 2 4 6 8 10 12 14 16 18 20 22 24
Time
Years
Number at risk
52 45 44 43 38 32 27 22 19 12 7 2 0
61 60 54 48 42 37 21 11 5 1 0 0 0
0 2 4 6 8 10 12 14 16 18 20 22 24
Time

P-135

LONG-TERM OUTCOME OF PATIENTS WITH SINGLE N2 NON SMALL CELL LUNG CANCER (NSCLC) AFTER SURGERY: ANALYSIS FROM A REAL-WORLD DATASET

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[1]*IRCCS Azienda Ospedaliero Universitaria di Bologna, Bologna, Italy*
[2]*Azienda Ospedaliero Universitaria di Pisa, Pisa, Italy*
[3]*Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy*

OBJECTIVES

The best management of N2 non-small cell lung cancer (NSCLC) is still debated. In the upcoming 9th edition of TNM, single N2 involvement showed a better survival compared to multiple stations.
The aim of this study is to analyze difference in outcomes between different N2 patients in a real-world setting.

METHODS

We retrospectively collected all consecutive surgically resected clinical N2 patients from three high-volume institutions treated between 2016 and 2021. All preoperative, intraoperative and postoperative data were collected and analyzed

RESULTS

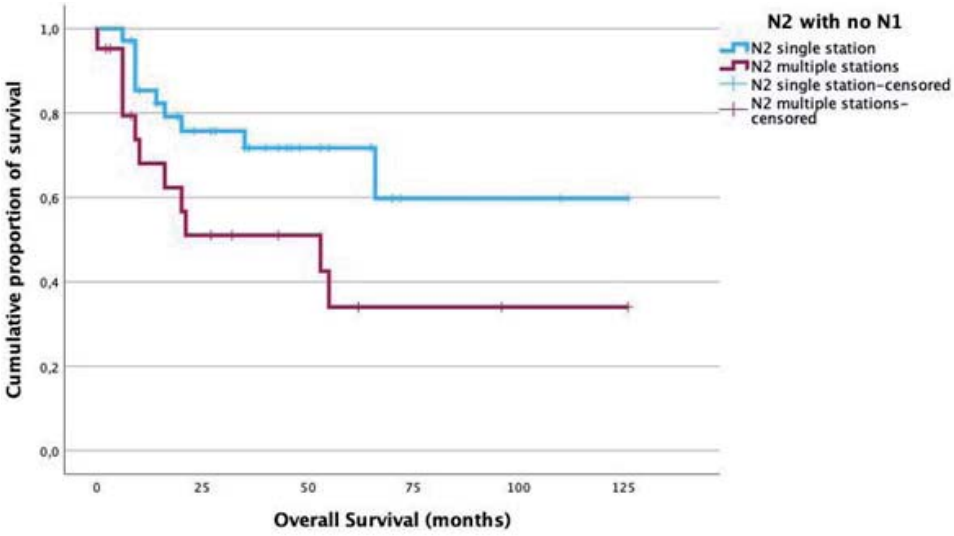
We collected 207 patients, mean age was 68.0 years (range 38-90) and 80 (38.6%) were female. Neoadjuvant was administered to 79 patients (38.2%) and 159 (76.8%) received a lobectomy. On final pathology report, 50 patients had a lymph-nodal downstage, while 157 remained pathologically N2. Among them, 99 had a N1 involvement and 58 had N2 involvement only, while 63.1% of N2 were single station and 39.1% had more than one station involved. 102 patients received an adjuvant therapy. Recurrence was observed in 117 (56.5%), of which 60 were locoregional.
Patients with a single N2 had a better Overall Survival (OS) compared to those with multiple stations' involvement, even if this difference was not significant (p=0.173). When we analyzed outcomes according to the presence of N1, single N2 patients without N1 involvement had a significant better OS compared to those with multiple N2 (p=0.038, figure 1), while no differences between single and multiple N2 was detected in those with N1 metastasis (p=0.833). Adjuvant therapy positively affected OS (p=0.013). At multivariable analysis, single N2 station involvement with no N1 showed to be an independent prognostic factor for OS (p=0.022, HR 3.019 95% CI 1.177-7.747).

CONCLUSIONS

Single station N2 has a better survival. Nevertheless, the presence of N1 involvement is a strong predictor of OS also in N2 single station patients.

Disclosure: No significant relationships.

Keywords: N2, Non-Small Cell Lung Cancer, Multidisciplinary Treatment, Surgery.



P-136

LONG-TERM OUTCOMES AFTER PNEUMONECTOMY FOR THE TREATMENT OF NSCLC: AN UPDATE OF THE EVIDENCE FROM A MULTICENTRIC DATASET

Pietro Bertoglio[1], Vittorio Aprile[2], Fabrizio Minervini[3], Jury Brandolini[1], Diana Bacchini[2], Filippo Antonacci[1], Leonardo Valentini[1], Marco Lucchi[2], Peter Kesteholz[3], Piergiorgio Solli[1]
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OBJECTIVES
The role of pneumonectomy in the management of NSCLC has been debated and its use is limited to highly selected patients. We aim to explore long term outcome in patients treated with pneumonectomy for NSCLC in recent years.

METHODS
We retrospectively collected all consecutive patients treated with pneumonectomy in three high-volume institutions in the period between 2017 and 2022. We analyzed prognostic factors for Overall Survival (OS) and Disease-Free Survival (DFS). Completion pneumonectomies and carcinoid histology were excluded.

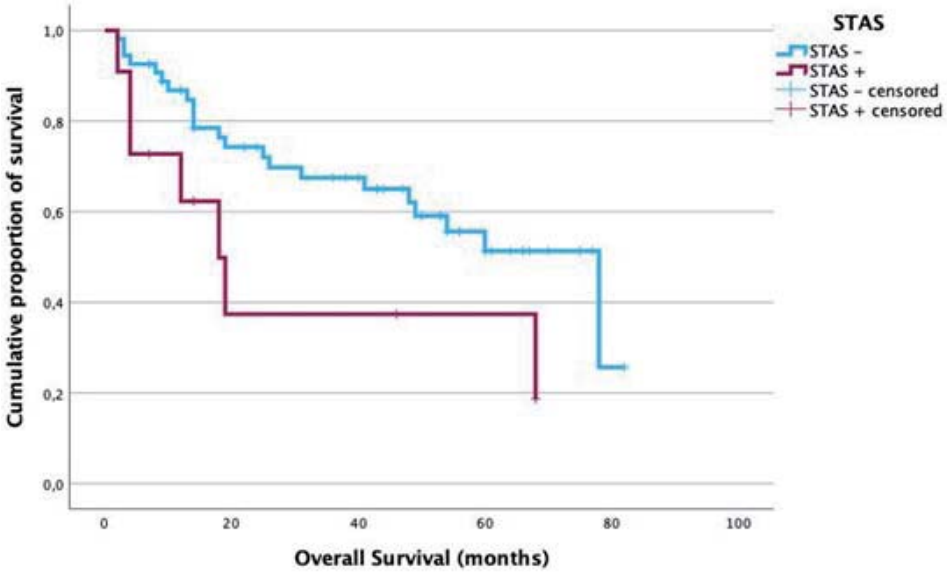
RESULTS
We collected 74 patients; the mean age was 67.1 years (range 37-86) and 18 (24.3%) were female. Neoadjuvant was administered to 15 patients (20.3%). Most patients were in clinical stage IIIA (30, 40.5%). Right pneumonectomy was performed in 20 cases (27.0%) and squamous histology was the most represented (38, 51.4%).
Pathological stage I, II and III were found in 5 (6.8%), 27 (36.9%) and 42 (56.7%) patients respectively. Adjuvant therapy was administered in 33 cases (44.6%) and the recurrence rate was 44.6% (33 patients.
Median OS was 68.0 months and was positively influenced by squamous histology (p=0.013) and the absence of STAS (p=0.050, figure 1). Concurrently, squamous histology (p=0.043), well differentiated tumors (p=0.019), absence of STAS (p<0.001), early pathological stage (p=0.025) and adjuvant therapy (p=0.050) significantly improved DFS.
At multivariable analysis, adenocarcinoma histology (p=0,014; HR 3.913(95% CI: 1.263-8.076) and poor differentiation (p=0.029; HR 3.177 (95% CI: 1.126-8.964) were independent prognostic factors for a worse OS; while adenocarcinoma (p=0.030; HR 2.995 (95% CI 1.115-8.051); poor differentiation (p=0.006 HR 5.358 (95% CI 1.611-17.818) and presence of STAS (p=0.004; HR 4.902 (95% CI 1.657-14.507) negatively influenced DFS.

CONCLUSIONS

Pneumonectomy for NSCLC is a valuable option in the treatment of NSCLC in selected patients and guarantee acceptable long-term outcomes. The presence of a squamous histology, absence of STAS and a well differentiated tumor allow better long-term results.

Disclosure: No significant relationships.

Keywords: Non-Small Cell Lung Cancer, Pneumonectomy, Long-Term Outcomes.



P-137

LONG-TERM OUTCOMES OF UNIPORTAL AND ROBOT-ASSISTED SUBXIPHOID THYMECTOMY FOR THYMIC EPITHELIAL TUMORS

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OBJECTIVES
We investigated the perioperative and long-term outcomes of subxiphoid thymectomy, a new surgical approach for thymic epithelial tumors.

METHODS
From 2011 to 2022, subxiphoid thymectomy was performed on 269 cases, of which 108 cases diagnosed as thymoma or thymic cancer were studied. Subxiphoid uniportal thymectomy (SUT) was indicated for non-invasive thymoma. In cases where the tumor had invaded other organs, subxiphoid robotic thymectomy (SRT) with an additional intercostal port was applied.

RESULTS
The median operation time in the SUT group and SRT group was 118.0±43.28 and 237.5±88.28 minutes, respectively, and the blood loss was 5.0±17.37 and 50.5±72.04ml, respectively. The SRT group had longer operative time ($P<0.001$) and more blood loss ($P<0.001$) than the SUT group. There were no in-hospital deaths in both groups. In the SUT group, the median observation period was 51 months, and the 5-year and 10-year survival rates were both 96.3%. In the SRT group, the median observation period was 60 months, and the 5-year survival rate was 96.8%. All deaths were due to other causes, and none were due to thymic tumors. Pleural dissemination recurrence was observed in 3 cases (2.78%). Two cases of thymic carcinoma in the SUT group recurred, one with lung metastasis and pleural dissemination on the affected side, and one with pleural dissemination on the affected side and bone metastasis. In the SRT group, one patient with thymoma WHO type B2 had recurrence, which was pleural dissemination on the affected side.

CONCLUSIONS
The subxiphoid approach is a safe surgical technique and has a good survival rate for cases detected at an early stage as well as for cases in which the disease stage is advanced and requires complicated surgical techniques.

Disclosure: No significant relationships.
Keywords: Uniportal VATS, RATS, Subxiphoid, Thymectomy.

P-138

LONG-TERM PROGNOSIS AND ANASTOMOTIC RECURRENCE IN LUNG CANCER PATIENTS UNDERGOING CARINAL OR BRONCHIAL RESECTION ACCORDING TO MICROSCOPIC RESIDUAL DISEASE OF ANASTOMOSIS

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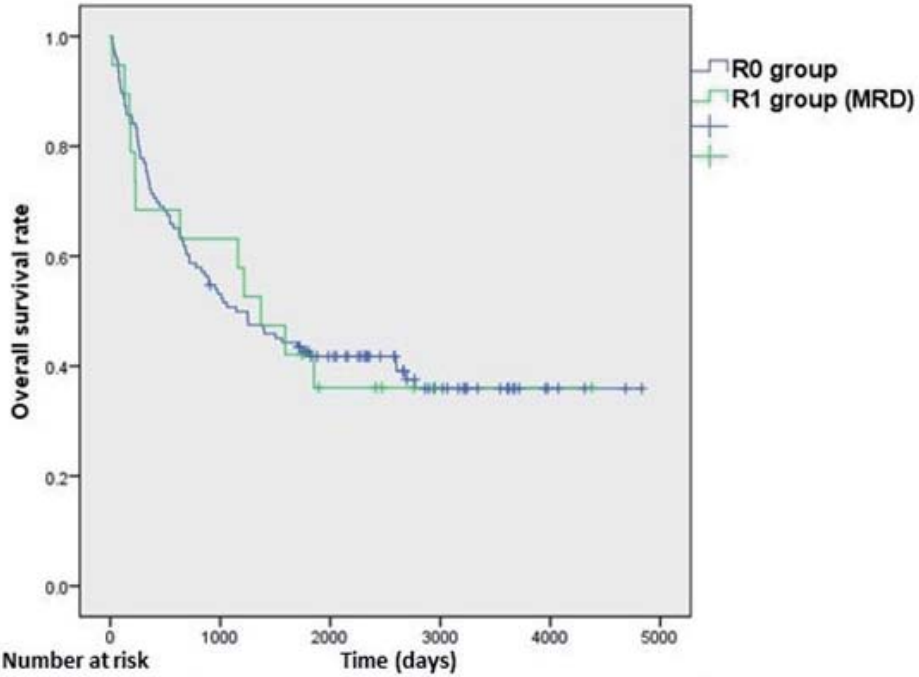
OBJECTIVES
While the anastomotic complications were lethal in lung cancer patients undergoing carinal or bronchial resection, it is generally recommended to achieve the macroscopic and microscopic complete resections. So, we revealed prognosis and local recurrence according to microscopic residual disease of anastomosis.

METHODS
A retrospective study was conducted on consecutive 2542 patients with resected lung cancers between 2008 and 2016. Carinal and bronchial resections were performed in 145 patients (5.7%). There was sleeve lobectomy in 124, left bronchial resection in 1, sleeve pneumonectomy in 18, and carinal resection with double-barrel reconstruction in 2. We investigated prognosis and anastomotic recurrence according to intentional microscopic residual disease (MRD) of anastomosis. Basically, we achieved macroscopic complete resection. R1 was defined as MRD such as carcinoma in-situ (CIS), extra mucosal invasion, intra lymphatic invasion and peri bronchial soft tissue, and R0 as pathological complete resection. Furthermore, we investigated prognostic factors in multivariate analysis.

RESULTS
R1 was observed in 19 cases (13.1%). The frequency of recurrences in anastomosis was tend to be higher in R1 group than in R0 group (15.8% (3/19) vs 4.8% (6/126)), but there was no significant difference (p-value = 0.096). Median follow-up time was 7.5 years and 5-year overall survival rate was 42.6%. Between R0 and R1 group, there was no significant difference in 5-year overall survival (42.8% vs 42.1%, p-value = 0.899). Significant prognostic factors were age (p-value < 0.001), pathological N status (N0/1 vs N2) (p-value = 0.008) and presence of neoadjuvant or adjuvant treatment (p-value = 0.040) in multivariate analysis, and MRD was not significant prognostic factor (p-value = 0.826).

CONCLUSIONS
Recurrence rate of anastomosis in intentional microscopic residual disease group was tend to be higher, but it did not have a significant impact on the prognosis, if macroscopic complete resection was achieved in carinal or bronchial resection.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Sleeve Resection, Anastomosis, Prognosis, Recurrence.



Number at risk

R0	126	66	44	19	4	0
R1	19	12	5	1	1	0

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CHONDROGENIC FORMATION OF 3D PRINTED TRACHEAL SCAFFOLD PRELOADED WITH TENSILE-STIMULATED CHONDROCYTES

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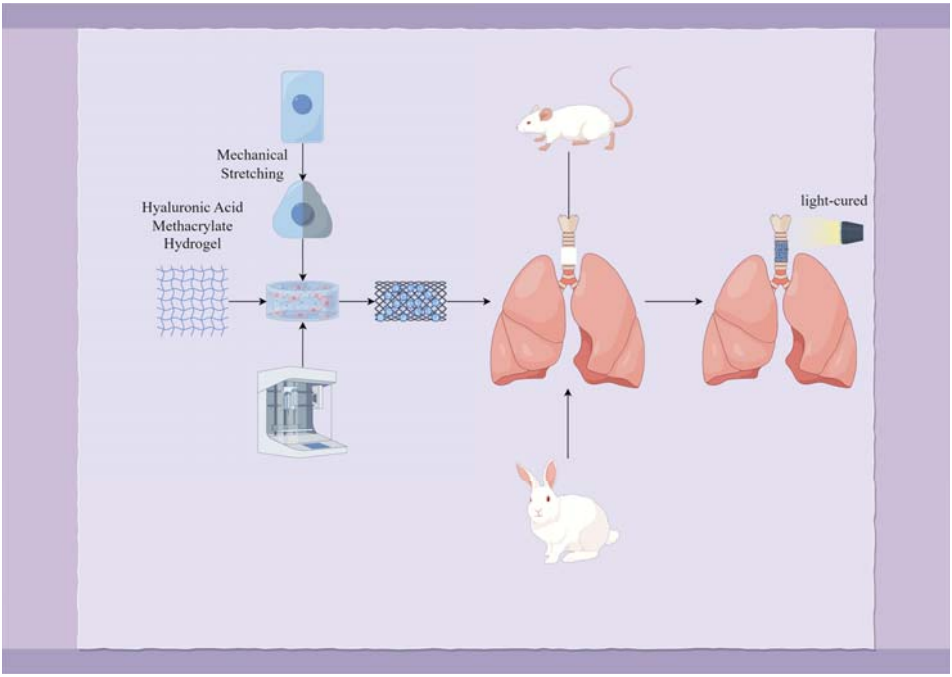
OBJECTIVES
The long-term tracheal mechanical performance brought by cartilage reconstruction determines whether tracheal transplants will collapse or narrow again. In order to explore the role of stretching pre-treated cartilage cells in promoting the re-chondrification of transplants, we conducted cell experiments and in vivo transplant experiments, combined with polycaprolactone for 3D bioprinting to prepare tracheal substitutes, seeking to construct a more rational and effective chondrification tissue-engineered trachea.

METHODS
We stretched chondrocytes from rabbits/rats under a physiological pretension of 10% at a physiological frequency of 0.2Hz to evaluate the proliferation and migration capabilities of chondrocytes after mechanical stimulation. The stretched chondrocytes were aggregated into spheroids in HAMA hydrogel, and the PCL/HAMA/chondrocyte tracheal substitute scaffold that met the transplantation requirements was 3D bio-printed based on preset data. Tracheal defect models were constructed in rabbits and rats, and the scaffolds were transplanted to the tracheal defect site. Postoperatively, the transplanted site was periodically evaluated for stenosis through bronchoscopy and CT scans. Specimens were harvested 60 days postoperatively, and histopathological sections and immunofluorescence assays were performed.

RESULTS
Our research indicates that 10% physiological cyclic mechanical stretch can promote the proliferation and migration ability of chondrocytes. In vivo transplant experiments in rabbits and rats confirmed that the PCL/HAMA/chondrocyte tracheal substitute scaffold showed no obvious tracheal stenosis and postoperative complications. Tissue section staining and immunofluorescence analysis indicated a higher level of glycosaminoglycan (GAG) accumulation and chondrogenic gene expression in the stretched group compared to the non-stretched group and the blank control group, suggesting that the tracheal transplants constructed from pre-stretched chondrocytes have better ability for re-chondrification.

CONCLUSIONS
The tracheal substitute designed with a 3D printed scaffold and in vitro stretched chondrocytes has greater potential for new cartilage formation in a short period of time. This pre-transplantation stretching pretreatment provides a promising method for the surgical reconstruction of tracheal defects.

Disclosure: No significant relationships.
Keywords: Tissue-Engineered Trachea, 3D Bio-Printing, Tracheal Graft, Mechanical Stretching.



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COMPARISON OF LOBECTOMY PERFORMED THROUGH VERSIUS ROBOTIC SURGICAL SYSTEM AND DA VINCI ROBOTIC SURGICAL SYSTEM: THE FIRST PROSPECTIVE STUDY OF EARLY PERIOPERATIVE RESULTS

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OBJECTIVES
Robotic-assisted thoracic surgery (RATS) has been proven as a safe and efficient minimally invasive thoracic approach compared to thoracotomy. Recently, many new platforms arised as an alternative to DaVinci surgical system. However, there are no comparative studies of first results between these two robotic platforms. This study aimed to explore the application of the Versius surgical robot in performing pulmonary lobectomy and to compare its safety, surgical effect, and advantages or disadvantages compared with the mature da Vinci robotic surgical system.

METHODS
Prospective, multicenter, and analytical design, was carried out. First consecutive robotic lung resections performed in both centers were included for analysis. Surgeries were performed through the Versius surgical robot and the da Vinci robotic system. Anatomical lobectomy and systematic lymph no de dissection were conducted in all patients. Demographic and clinical data were collected and variables of interest, including surgical time, days of pleural drainage, days of hospital stay, and the incidence of complications were compared.

RESULTS
The combined 39 patients from the Versius group (n=9) and the da Vinci group (n = 30) who were enrolled and eligible for analyses, showed no significant differences except for centrality (defined here as a tumor growing in the inner third of the thorax on a CT scan), being significantly higher in the Versius group. No conversion to thoracotomy was observed, and perioperative outcomes were comparable in the 2 groups. We found statistically significant differences in surgical time, being significantly lower in the Versius group (204 ([165-230] vs 127 [120-135], $p < 0.001$).

CONCLUSIONS
The application of Versius surgical robot in lobectomy was preliminarily shown to be safe and effective. Compared with the mature da Vinci robotic surgery system, Versius surgical robot had similar technical and surgical advantages, highlighting its suitability as an optional method for the new generation of robotic-assisted thoracoscopic surgery.

Disclosure: No significant relationships.
Keywords: Robotic Assisted Thoracic Surgery, Lobectomy.

Table 1. Patient demographics and characteristics. Surgical outcomes

Variable	da Vinci (N=30)	Versius (N=9)	p value
Age, years	67 (59.5, 72.8)	71 (58, 77)	0.433
Gender; n (%)			0.716
Female	16 (53.3%)	4 (44.4%)	
Male	14 (46.7%)	5 (55.6%)	
Smoker; n (%)			0.151
Active	11 (36.7%)	2 (22.2%)	
Former	7 (23.3%)	6 (66.7%)	
Never	10 (33.3%)	1 (11.1%)	
Unknown	2 (6.7%)	0 (0%)	
Comorbidity yes; n	19 (63.3%)	8 (88.9%)	0.228
COPD; n	6 (20%)	4 (44.4%)	0.197
HT; n	16 (53.3%)	3 (33.3%)	0.451
DM; n	5 (16.7%)	3 (33.3%)	0.355
CRI; n	4 (13.3%)	0 (0%)	0.556
CV; n	9 (30%)	3 (33.3%)	1
Anticoagulant; n	6 (20%)	4 (44.4%)	0.197
FEV1 L	2.3 (1.8, 2.9)	2.3 (1.9, 2.5)	0.973
FEV1 %	87.5 (75.2, 103)	91 (89, 95)	0.443
FVC L	3.2 (2.7, 4.1)	2.8 (2.7, 3.2)	0.395
FVC %	91 (84, 99.8)	95 (89, 103)	0.677
DLCO %	83 (76.2, 90)	90 (84.2, 106.2)	0.076
Tumor location; n (%)			0.388
Rigth Upper Lobectomy	11 (36.7%)	3 (33.3%)	
Rigth Middle Lobectomy	2 (6.7%)	2 (22.2%)	
Rigth Lower Lobectomy	5 (16.7%)	2 (22.2%)	
Left Upper Lobectomy	7 (23.3%)	0 (0%)	
Left Lower Lobectomy	5 (16.7%)	2 (22.2%)	
Complications yes; n (%)	5 (16.7%)	2 (22.2%)	0.653
Readmission 30d	4 (13.3%)	0 (0%)	0.556
90-day Mortality; n	0 (0%)	0 (0%)	
Operative time; minutes (range)	204 (165, 230)	127 (120, 135)	< 0.001
Days of Chest Drainage; days (range)	3 (2, 5.8)	2 (2, 6)	0.252

Table 1. Patient demographics and characteristics. Surgical outcomes (continuation)

Variable	da Vinci (N=30)	Versius (N=9)	p value
Length of Stay; days (range)	4 (3, 6)	3 (2, 7)	0.396
Tumoral size; cm (SD)	1.8 (1.3, 2.6)	3.1 (2, 3.6)	0.077
Induction; n	0 (0%)	0 (0%)	
Centrality; n	2 (6.7%)	4 (44.4%)	0.018
pStage TNM 8th			0.637
I; n	20 (74.1%)	7 (77.8%)	
II; n	6 (22.2%)	1 (11.1%)	
III; n	1 (3.7%)	1 (11.1%)	
Number of LNs; n (SD)	9 (7, 12.8)	10 (6, 11)	0.920
Sampled LNs stations; n (SD)	4 (4, 5)	4 (4, 5)	0.917
Superior mediastinal LNs; n (SD)	1 (0, 4)	3 (2, 4)	0.058
Mediastinal LNs; n (SD)	0 (0, 1)	0	
Station 7; n (SD)	2 (1.2, 3)	3 (1, 4)	0.799
Inferior mediastinal LNs; n (SD)	1 (0, 2)	1 (0, 1)	0.643
Pulmonary hilar LNs; n (SD)	1 (0, 3.5)	2 (1, 3)	0.179

Abbreviations: RATS: robotic-assisted thoracic surgery; VATS: video-assisted thoracic surgery; COPD: chronic obstructive pulmonary disease; HT: hypertension; DM: diabetes mellitus; CRI: chronic renal insufficiency; CV: cardiovascular disease; FEV1: forced expiratory volume in one second; FVC: forced vital capacity; DLCO: diffusing capacity for carbon monoxide; LNs: lymph nodes; SD: standard deviation.

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LONG-TERM PROGNOSTIC STUDY OF PATIENTS WITH CENTRAL LUNG CANCER WHO UNDERWENT RIGHT LOWER LOBAR SLEEVE LOBECTOMY WITH INSUFFICIENT BRONCHIAL MARGIN

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OBJECTIVES
This study aims to compare the short-term perioperative outcomes and long-term survival between the RLL sleeve lobectomy and the right middle and lower lobar (RML+RLL) bilobectomy for the central lung cancer at the right lower lobar (RLL) bronchi and identify the ideal candidates for RLL sleeve lobectomy.

METHODS
Data from 310 patients with RLL central lung cancer treated with RLL sleeve lobectomy or RML+RLL bilobectomy at Shanghai Pulmonary Hospital between April 2011 and December 2020 were analyzed. According to the definition of bronchial margin insufficiency, tumor types were classified into endoluminal, mixed, and extraluminal-typed, which was determined by computed tomography (CT) scans combined with fluorescent bronchoscopy. Five-year overall survival (OS) rates of two surgical groups and subgroups were estimated by Kaplan-Meier analysis, Cox proportional hazards modeling, and Propensity-score matching (PSM) analysis.

RESULTS
5-year OS rate for 310 patients was 73.2% after 69.0 months of median follow-up time. 96 patients were endoluminal-typed tumors, 109 were mixed-typed tumors, and 105 were extraluminal-typed tumors. Five-year OS rate was favorably influenced by endoluminal-typed tumor ($p = 0.025$), and non-adenocarcinoma ($p = 0.002$) by multivariable analysis. After PSM with a 1:3 ratio, the RLL sleeve lobectomy group demonstrated non-inferior survival (79.6% vs. 77.0%, $p = 0.865$), and similar complication rates (32.4% vs. 38.7%, $p = 0.369$) compared to the RML+RLL bilobectomy group. Importantly, subgroup analysis showed that the 5-year-OS rate of patients with endoluminal-typed tumors was significantly greater after the RLL sleeve lobectomy than those treated with the RML+RLL bilobectomy (91.7% vs. 80.0%, $p = 0.005$), and was significantly greater than patients in different surgical groups for mixed and extraluminal-typed tumors, respectively.

CONCLUSIONS
For patients with RLL central lung cancer with insufficient bronchial margin, optimal survival benefit is obtained for patients with endoluminal-typed tumors and treated with RLL sleeve lobectomy.

Disclosure: No significant relationships.
Keywords: Right Lower Lobe, Central Lung Cancer, Sleeve Lobectomy, Bilobectomy, Prognosis.

Table 1. Univariate and Multivariable Analysis of Overall Survival for Patients with Centrally Located Lung Cancer Originating in the Right Lower Lobe Bronchi

Variable	Univariate analysis			Multivariable analyses		
	HR	95%CI	P	HR	95%CI	P
Group			0.210			0.698
RLL sleeve lobectomy	ref.			ref.		
RML+RLL bilobectomy	1.452	0.810-2.602		1.142	0.584-1.958	
Sex			0.453			
Male	ref.					
Female	1.309	0.647-2.649				
Age			0.044			0.373
≤65	ref.			ref.		
>65	1.682	1.015-2.787		1.246	0.768-2.021	
Smoking status			0.538			
Non-smoker	ref.					
Active smoker	1.159	0.725-1.852				
Distance under endoscope			0.060			
≤5mm	ref.					
>5mm	0.573	0.337-0.975				
Distance under CT			0.032			0.351
≤5mm	ref.			ref.		
>5mm	0.553	0.322-0.950		0.566	0.341-0.940	
Tumor types			0.015			
Endoluminal type	ref.					0.025
Mixed type	6.483	2.140-10.826	0.003	2.546	1.295-5.006	0.007
Extraluminal type	6.442	1.789-11.095	0.007	1.975	0.981-3.979	0.057
Surgical approaches			0.665			
VATS	ref.					
Open surgery	0.900	0.555-1.457				
Postoperative complications			0.492			
No	ref.					
Yes	1.181	0.735-1.896				

Table 1. Univariate and Multivariable Analysis of Overall Survival for Patients with Centrally Located Lung Cancer Originating in the Right Lower Lobe Bronchi (continuation)

Variable	Univariate analysis			Multivariable analyses		
	HR	95%CI	P	HR	95%CI	P
Pathology			<0.001			0.002
Non-adenocarcinoma	ref.			ref.		
Adenocarcinoma	4.142	2.140-8.019		2.555	1.408-4.637	
T stage			0.775			
T1	ref.					
T2	1.629	0.725-3.661				
T3	1.882	0.724-4.893				
T4	2.803	0.713-11.026				
N stage			0.003			0.342
N0	ref.			ref.		
N1	2.139	1.305-3.506		1.275	0.773-2.102	
Pathological stage			0.005			0.655
Localized (I-II)	ref.			ref.		
Locally advanced (III)	2.775	1.565-4.921		0.879	0.499-1.548	
Neoadjuvant therapy						
No	ref.		0.147			
Yes	1.684	0.833-3.407				
Adjuvant therapy			0.476			
No	ref.					
Yes	0.841	0.522-1.356				
Recurrence			< 0.001			0.323
No	ref.			ref.		
Yes	5.210	3.005-9.033		1.285	0.781-2.112	

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COMPARISON OF ON-Q INTERCOSTAL ELASTOMERIC PUMP SYSTEM AND INTRAVENOUS ANALGESIA METHODS FOR PAIN MANAGEMENT AFTER THORACOTOMY

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OBJECTIVES
We aimed to compare the results of continuous infusion of local anesthetics through either intercostal On-Q (ICOQ) elastomeric pump under the pleura or intravenous analgesia for management of post-thoracotomy pain.

METHODS
We performed a prospective comparative analysis of 149 consecutive patients who underwent anterolateral thoracotomy were performed between January 2018 and October 2021. Postoperative pain management with a continuous-infusion elastomeric pump providing local anesthetic into the intercostal area was compared with an intravenous analgesia. Patients received either ICOQ elastomeric pump system (n=73) or intravenous analgesia (n=76) for the first 48 postoperative hours. Visual analogue scale (VAS) rescue patient- controlled analgesia morphine consumption, hemodynamic and side-effects were evaluated within 48 h.

RESULTS
The VAS scores of the IV group at 1, 4, 12, 24, 36, and 48 hours were statistically significantly higher than the ON-Q group. ($p = 0.028$, $p = 0.041$, $p = 0.011$, $p = 0.001$, $p = 0.021$, $p = 0.017$, respectively postoperative complications occurred in 17 (23%) patients in the ICOQ group, and 34 (45%) patients in the IV group. There was no significant difference between the two groups in terms of postoperative complications except for nausea and vomiting.

CONCLUSIONS
The continuous analgesia using the ICOQ is an effective analgesia method for postoperative pain control for thoracotomy procedures that reduces pain scores, additional opioid consumption.

Disclosure: No significant relationships.
Keywords: Analgesia, Continuous Wound Catheter, Local Anaesthesia, Pain, Surgery.

Patients	Group ICOQ (n=73)	Group Intravenous (n=76)	P value
Age, years	55.59 ± 12.34	57.09 ± 12	0.452
Sex, n (%)			
Female	9 (12.2)	13 (16.9)	0.411
Male	64 (86.5)	63 (81.8)	0.411
ASA score, n (%)			
I	44 (60.3)	45 (58.4)	0.896
II	19 (26)	22 (28.6)	0.827
III	11 (15.1)	9 (11.7)	0.567
Comorbidity disease, n (%)			
Chronic obstructive lung disease	13 (17.6)	9 (11.7)	0.305
Diabetes mellitus	8 (10.8)	12 (15.6)	0.387
Hypertension	12 (16.2)	17 (22.1)	0.361
Coronary artery disease	11 (14.9)	7 (9.1)	0.273
Surgical procedure, n (%)			
Lobectomy	39 (52.7)	45 (58.4)	0.477
Pneumonectomy	14 (18.9)	10 (13)	0.318
Wedge resection	20 (27)	22 (28.6)	0.833
Surgical side, n (%)			
Right	41 (55.4)	49 (63.6)	0.300
Left	32 (43.2)	27 (35.1)	0.300

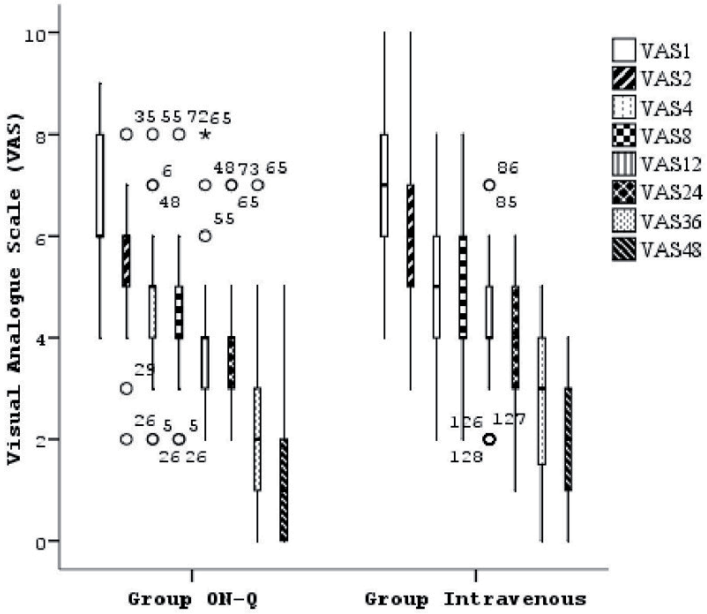

Figure 2. Time-dependent correlation between groups and visual analogue scale (VAS).

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COMPARISON OF SYSTEMATIC AND SELECTIVE LYMPH NODE DISSECTION IN CLINICAL STAGE I NON-SMALL CELL LUNG CANCER: A RETROSPECTIVE COHORT STUDY

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OBJECTIVES
The standard surgical procedure for operable non-small cell lung cancer (NSCLC) patients is lobectomy and systematic lymph node dissection, including mediastinal lymph nodes. However, some institutions perform selective lymph node dissection, in which certain mediastinal lymph nodes dissection are omitted based on the resected lobe, for clinical stage I lung cancer.

METHODS
This study included 223 cases diagnosed with clinical stage I NSCLC who underwent lobectomy and lymph node dissection at our institution from 2013 to 2018. The median follow-up was 74.9 months. We compared the survival rates and perioperative outcomes between patients who underwent systematic lymph node dissection (ND2a-2 group) and those who underwent selective lymph node dissection (ND2a-1 group).

RESULTS
Of the 223 cases, 113 (51%) were in the ND2a-1 group and 110 (49%) were in the ND2a-2 group. When comparing the two groups, the ND2a-2 group had a larger preoperative tumor size and a higher frequency of postoperative adjuvant chemotherapy. The distribution of pathological stages was nearly equal, and no significant differences were observed in recurrence-free survival (RFS) or overall survival (OS) (RFS: p=0.45, OS: p=0.49). In the matched cohort analysis using propensity score matching (N=132), no significant differences in OS or RFS were observed between the two groups (RFS: p=0.88, OS: p=0.23). Operative time was significantly shorter in the ND2a-1 group compared to the ND2a-2 group in the overall cohort (p<0.001) and in the matched cohort, operative time and blood loss were significantly shorter (p=0.001, p=0.039). There was also a higher incidence of postoperative complications (p=0.038).

CONCLUSIONS
Although this is a retrospective cohort study from a single institution, the results suggest that lobectomy and selective lymph node dissection can be considered for clinical stage I NSCLC.

Disclosure: No significant relationships.
Keywords: Clinical Stage I Lung Cancer, Lobectomy, Systematic Lymph Node Dissection, Selective Lymph Node Dissection.

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COMPARISON OF VIDEO-ASSISTED THORACOSCOPIC SURGERY AND THORACOTOMY IN THE TREATMENT OF 238 PATIENTS WITH PULMONARY HYDATID CYST DISEASE: A RETROSPECTİVE STUDY

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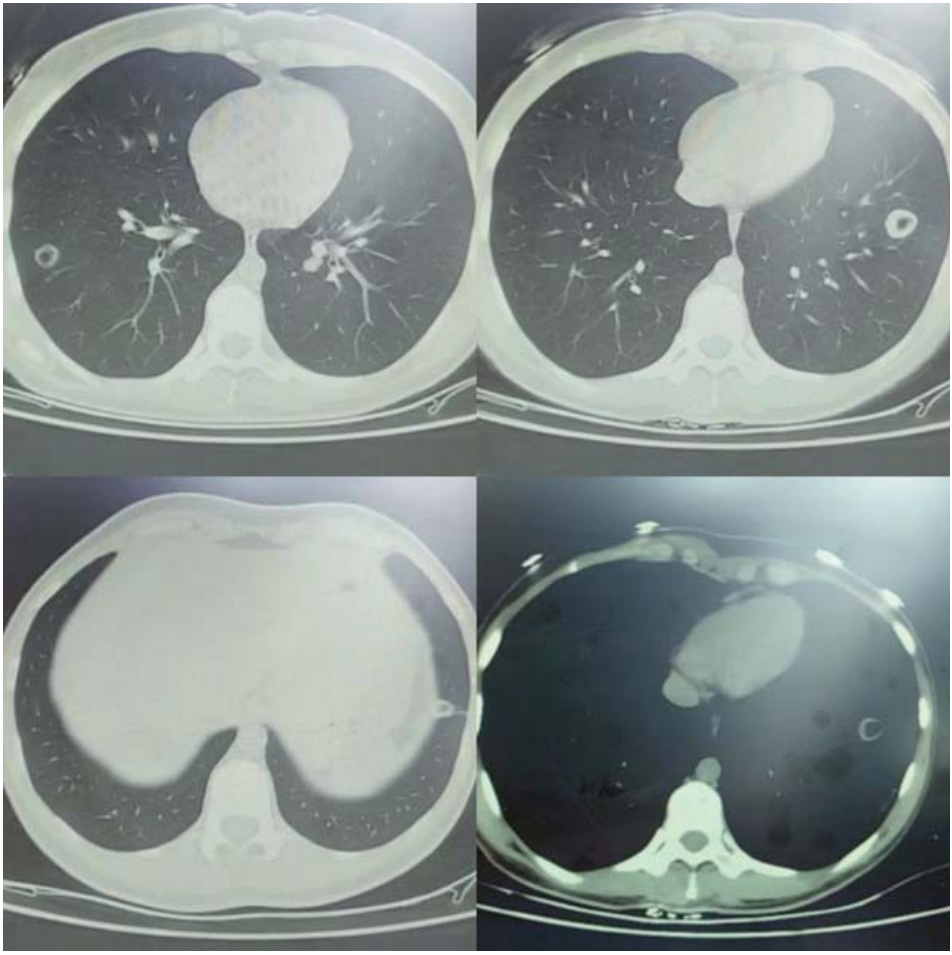
OBJECTIVES
Pulmonary hydatid cyst disease is an important health problem in countries with high cattle populations, it can be treated surgically, but the optimal approach remains unclear. The aim of this retrospective study is to compare the advantages and disadvantages of video-assisted thoracoscopic surgery (VATS) and thoracotomy in the treatment of this parasitic disease, and to contribute to determining the limits in the choice of surgical method.

METHODS
The medical records of 238 patients (129 men, 109 women) who were operated for pulmonary hydatid disease between January 2011 and January 2021 were reviewed. VATS was performed in 23% (n=54) and thoracotomy was performed in 77% (n=184) of the patients. Statistical analysis was performed using SPSS to compare the amount of drainage, time to removal of the drain, duration of surgery, length of hospital stay, complication and pain scores between the two groups.

RESULTS
The results showed that the amount of drainage, drain removal time, operation time and narcotic analgesic use time were longer in the thoracotomy group than in the VATS group. Postoperative complications were seen in 4% of thoracotomy patients and 12% of VATS patients, but there was no mortality in either group. No recurrence was detected during the follow-up.

CONCLUSIONS
We concluded that VATS is superior to thoracotomy in the treatment of pulmonary hydatid cyst disease in terms of postoperative quality of life and complications. VATS causes less postoperative pain, has a better cosmetic outcome, shorter surgical time, lower drainage volume, and shorter drain removal time. The decision to perform VATS depends on several factors, such as the size and location of the cyst. In our study, VATS was preferred for cysts smaller than 6 cm and peripherally located. A thoracotomy may be necessary for larger or more complicated cysts or if there are other factors that make VATS unsuitable.

Disclosure: No significant relationships.
Keywords: VATS, Thoracotomy, Pulmonary Hydatidosis.



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COMPENSATORY LUNG EXPANSION POST-PULMONARY RESECTION: A PROPENSITY SCORE MATCHING ANALYSIS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND NON-CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS

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OBJECTIVES
This study aimed to assess compensatory lung expansion in patients with chronic obstructive pulmonary disease (COPD) undergoing pulmonary resection using the automatic measurement function of lung volume and low attenuation area (LAA) with Synapse Vincent (SV). The objective of this study was to understand the changes in lung volume and LAA in COPD patients compared with non-COPD patients after lung resection.

METHODS
This study included 130 patients who underwent anatomical lung resection for primary lung cancer between 2020 and July 2022 and had measurable lung volume and LAA using SV from CT scans before and at least one year after surgery. Data on the preoperative lung volume (pre-SV_VC), postoperative lung volume (post-SV_VC), preoperative LAA (pre-LAA), and postoperative LAA (post-LAA) were collected. Patient backgrounds were matched using propensity score matching (PSM).

RESULTS
The study included 72 men and 58 women with a median age of 72 years. Of these, 41 patients (31%) had COPD. Before PSM, Preoperative SV and LAA were significantly higher in the COPD group (SV, $p=0.005$; LAA, $p=0.017$). A significant correlation was observed between the rate of change in LAA and SV_VC ($p<0.001$), with a correlation coefficient of 0.527. The COPD group experienced a greater decrease in postoperative SV than the non-COPD group ($p=0.004$), although the rate of change in LAA was smaller ($p=0.005$). Post-PSM analysis revealed no significant difference in the rates of change in SV ($p=0.262$) and LAA ($p=0.104$) between the COPD and non-COPD groups.

CONCLUSIONS
PSM analysis indicated that COPD did not affect the compensatory lung expansion after pulmonary resection. Despite the higher risk of surgical complications, the long-term lung dilation and function in the COPD group can be evaluated comparably to the non-COPD group from a physiological standpoint.

Disclosure: No significant relationships.
Keywords: Chronic Pulmonary Obstructive Disease, Compensatory Lung Expansion, Synapse Vincent.

P-146

CONTRIBUTION OF NEEDLE-BASED CONFOCAL LASER ENDOMICROSCOPY TO ELECTROMAGNETIC NAVIGATION BRONCHOSCOPY IN LUNG CANCER

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OBJECTIVES

Electromagnetic navigation bronchoscopy is part of the modern arsenal for performing endoscopic biopsies. To overcome tumor heterogeneity and biopsies in necrotic areas, we have integrated confocal laser endomicroscopy (CLE) into this system to provide real-time support for biopsy. CLE is the world's smallest flexible microscope for in vivo visualization of tissue structures.
The aim of our study was to evaluate the concordance between images obtained via the CLE and the anatomopathological diagnosis.

METHODS

We retrospectively analyzed all cases in which electromagnetic navigation bronchoscopy coupled with CLE was performed for marking prior to surgical resection or for biopsy of a pulmonary nodule from June to November 2023.
The images obtained were classified in relation to the results of the Wijmans classification and compared with the pathological findings.

RESULTS

Thirty patients were included in this study. The median size of the pulmonary nodules was 16 mm (IQR=13). The median time the CLE was in use in contact with the lesion was 5 minutes (IQR=5). The median navigation time to the nodule was 8.5 min (IQR=5).
Microscopic images in favor of malignancy were observed in 28/30 patients, with 27/28 diagnosed as cancer (96.4%). In 2/30 patients, a granuloma pattern was observed, with 2/2 diagnosed as benign lesions (100%).
Definitive pathological diagnosis was obtained by endobronchial biopsy in 6 patients and by surgical resection in 24 patients.

CONCLUSIONS

We observed high concordance between CLE images and definitive anatomopathological diagnosis. This technology could be used to improve endobronchial biopsy yield, particularly in lung cancer screening programs background.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Electromagnetic Navigation Bronchoscopy, Confocal Laser Endomicroscopy, Diagnosis.

P-147

CORRELATION OF SELF-ASSESSED MANUAL DEXTERITY AND ACTUAL PERFORMANCE IN SURGICAL SIMULATION – ONE YEAR FOLLOW UP

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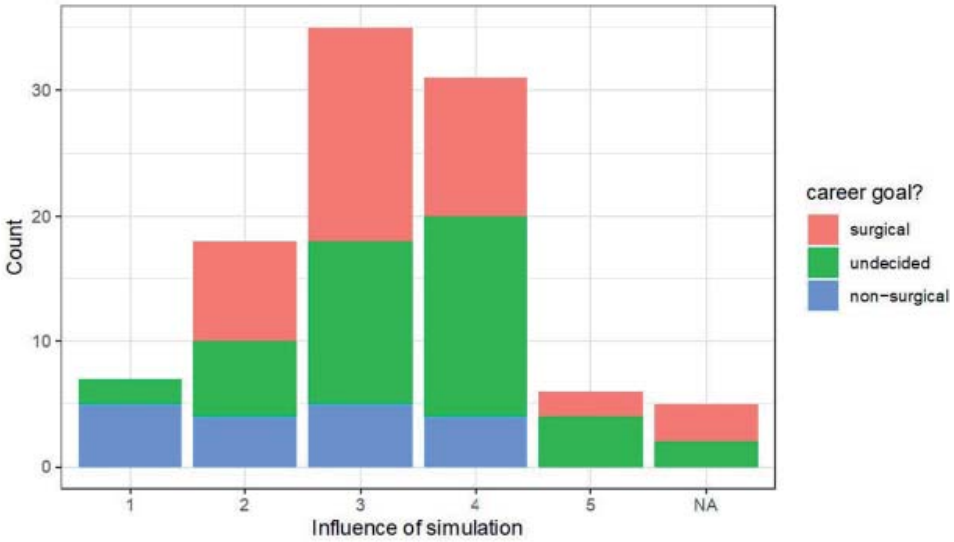
OBJECTIVES
Simulation training has proved to be beneficial in many fields of professions including medicine and might be included already during medical school. We evaluated if medical students rate their manual dexterity as good or above average and if this self-assessment (SA) correlates with the actual performance in a surgical simulation.

METHODS
Basic surgical tasks have been performed by medical students in the 3rd and 4th year for a total of 4 rounds on 2 identical Lap-Sim® surgical simulators. Three questionnaires, before and after the simulation as well as follow up after 1 year had to be answered.
Descriptive statistics stratified by career goal (surgical/ undecided/ nonsurgical) for outcomes of simulation parameters are reported. Associations between surgical career goal and SA of manual dexterity with three performance parameters (tissue damage, time and path length) are estimated in linear regression models.

RESULTS
Out of 102 participating students 41 stated surgery as their career goal, 18 a nonsurgical field, and 43 were undecided. 87.8% of the surgical group rated their dexterity as good or above average (86.1% in the undecided group), 88.9% of the nonsurgical group as below average or good. An positive association of SA with tissue damage has been found statistically significant (p=0.033). The figure shows the influence of surgical simulation on SA of manual dexterity.
One year after the simulation (n=97) 13.4% changed their career goal from undecided to surgical, whereas 8.2% changed from undecided to non-surgical. 92.7% wanted to have simulation training integrated into the curriculum.

CONCLUSIONS
A correlation of self-assessed manual dexterity has been found in the surgical group for tissue damage, but not for time and path length. Simulation training might help students in decision making for a surgical field and therefore recruit future surgeons, which could be shown in the one year follow-up.

Disclosure: No significant relationships.
Keywords: Surgical Simulation, Manual Dexterity, Student Training.


Count
30
20
10
0
1
2
3
4
5
NA
Influence of simulation
career goal?
surgical
undecided
non−surgical

P-148

CTDNA-GUIDED NEOADJUVANT PD-1 INHIBITOR (TORIPALIMAB) PLUS CHEMOTHERAPY IN STAGE II NON-SMALL CELL LUNG CANCER: AN OPEN-LABEL, TWO-ARM RANDOMIZED, PHASE 2 TRIAL (CTDNEO)

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[2]*University of Electronic Science and Technology of China, Chengdu, China*

OBJECTIVES
Recently, the ctDNA-MRD test has been widely used for relapse monitoring and risk stratification in hematological and solid cancer types, including resectable NSCLC. Therefore, we conducted a prospective, two-arm randomized clinical study to explore the efficacy of toripalimab in combination with chemotherapy versus chemoradiotherapy for the conversion of resectable stage II NSCLC.

METHODS
All participants meeting the criteria（Table 1） will be enrolled after signing an informed consent form. Peripheral blood ctDNA samples will collect and according to the positive and negative ctDNA, divided the patients into two groups. The positive group will be divided equally into two groups by simple randomization, one receiving toripalimab combination chemotherapy and one receiving chemotherapy only. The ctDNA negative group will randomly divide into two groups in the same way. Detailed drug regimens and dosages are provided in the Table 1.The ctDNA positive group will receive a total of three ctDNA tests: before and after undergoing neoadjuvant therapy, after undergoing surgery(all within two weeks). And ctDNA negative group only need to receive ctDNA test once before neoadjuvant therapy. The primary endpoint of our research is the rate of pathologic complete response(pCR) in patients undergoing surgery after treatment. Secondary endpoints are the R0 resection rate, the rate of major pathological remission (MPR), overall survival (OS), event free survival (EFS) after treatment. On the basis of the primary outcome, the power was 0.80 and the loss to follow-up rate was 20%, resulting in a minimum enrollment of 48 patients.Figure 1 presents the detailed experimental procedure.

RESULTS
Our findings maybe will support the potency of using ctDNA to predict the efficacy of neoadjuvant PD-1 inhibitor plus chemotherapy in resectable stage II NSCLC.

CONCLUSIONS
This trial protocol has been registered on the www.medicalresearch.org.cn (MR-51-23-044937).

Disclosure: No significant relationships.
Keywords: Circulating Tumor DNA, Neoadjuvant Chemoimmunotherapy, Non-Small Cell Lung Cancer.

Inclusion criteria	1. Age: ≥18 years old, male or female 2. Histologically or cytologically confirmed patients with stage IB-II non-small cell lung cancer with wild-type EGFR (epidermal growth factor receptor) and ALK (anaplastic lymphoma kinase) and ROS-1 (ROS proto-oncogene 1, receptor tyrosine kinase); 3. Histologically or cytologically confirmed patients with stage IB-II non-small cell lung cancer with wild-type EGFR (epidermal growth factor receptor) and ALK (anaplastic lymphoma kinase) and ROS-1 (ROS proto-oncogene 1, receptor tyrosine kinase); 4. ECOG PS: 0-1; 5. No previous systemic anti-tumor therapy; 6. Baseline blood routine and biochemical parameters met the following criteria: -Hemoglobin ≥ 80g/L; absolute neutrophil count (ANC) ≥ 1.5×109/L; platelet ≥90×109/L; -ALT, AST≤2.5 times the upper limit of normal, ≤5 times the upper limit of normal (for HCC); -total serum bilirubin ≤1.5 times the upper limit of normal; serum creatinine ≤1.5 times the upper limit of normal; Serum albumin ≥30g/L; proteinuria < 2 + detected by urine dipstick; 1. Expected survival time ≥3 months; 2.. Women of childbearing age had to have a negative serum test within 28 days before starting study treatment. If a urine pregnancy test is positive, it must be confirmed by a serum pregnancy test; 3. Women must not breastfeed; 4.The subjects voluntarily joined the study, signed informed consent, had good compliance, and cooperated with follow-up.
Exclusion criteria	1. The patient had received neoadjuvant therapy, including chemoradiotherapy, targeted therapy, and immunotherapy Treatment; 2.Participants with known EGFR, ALK or ROS1 sensitive mutations. 3. Severe allergic reactions to other monoclonal antibodies; 4. To pemetrexed, paclitaxel or docetaxel, cisplatin, carboplatin, or prophylaxis thereof Had a history of severe allergy. 5 Have a history of immunodeficiency or other acquired or congenital immunodeficiency diseases Disease or a history of organ transplantation; 6. People with high blood pressure who cannot be reduced to the normal range by antihypertensive medication (systolic blood pressure >140 mmHg, diastolic blood pressure >90 mmHg), grade I or above coronary heart disease, grade I arrhythmia (including prolonged QTc interval > 450 ms in men and > 470 ms in women), and grade I cardiac insufficiency; Patients with positive urine protein; 7. Coagulation dysfunction (INR >1.5, APT T>1.5 ULN) , with a tendency to bleed; 8. Patients with central nervous system metastases; 9. Pregnant or lactating women; 10. Patients with a history of psychotropic substance abuse who are unable to abstain or have mental disorders; 11. Patients who participated in clinical trials of other drugs within 4 weeks; 12. According to the investigator's judgment, there is a serious harm to patient safety or impact on patient well-being Patients with concomitant diseases into the study; 13. Persons deemed unsuitable for inclusion by the investigator.

Drug regimens	All patient recieve three cycles of neoadjuvant therapy. Neoadjuvant immunotherapy: Toripalimab: 240mg, IV, day 1 Q3W (20-60min) Neoadjuvant chemotherapy: Squamous cell carcinoma of lung: Paclitaxel/Docetaxel + cisplatin/carboplatin; Non-squamous carcinoma: Pemetrexed + cisplatin/carboplatin. Pemetrexed 500mg/? IV day 1; Carboplatin AUS 5 IV day 1 Docetaxel 100mg/? IV d1, 8, 15; Cisplatin 75mg/? IV day 1 Paclitaxel 175mg/? IV day 1 Q3W.

P-149

CYSTATIN C TESTING IN DIFFERENTIATING LUNG CANCER FROM BENIGN NODULES OF THE LUNG

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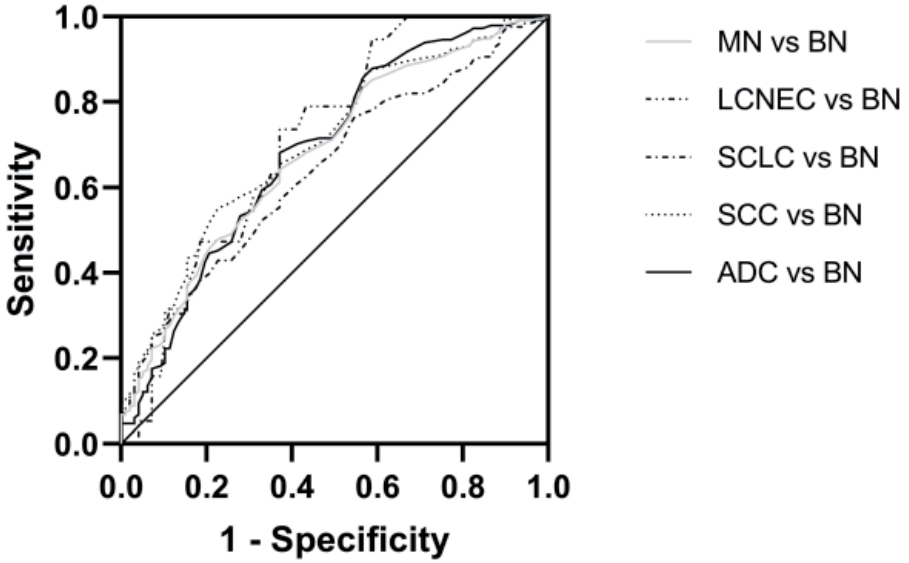
OBJECTIVES
The present study aims to evaluate the utility of Cystatin C testing for differentiating lung cancer from benign nodules of the lung in patient.

METHODS
Consecutive patients were enrolled in our research who had undergone a surgical resection or with fine needle biopsy between April 2015 and June 2023. All the patients were evaluated with their age, sex, smoking, drinking, and histology of lung cancer. Serum levels of Cystatin C in patients with lung nodules were evaluated using an automated analyzer.

RESULTS
540 consecutive patients were enrolled in our research. There were 443 patients with primary lung cancer and 97 patients diagnosed as benign nodules. The serum level of Cys-C in patient with malignancy nodule was significantly higher than in those with benign nodule ($p<0.01$), but they were comparable between patients with squamous cell carcinoma, adenocarcinoma, small cell lung cancer and large cell neuroendocrine carcinoma. Moreover, receiver operating characteristic curve analysis showed that a Cys-C level>0.92 mg/L was a good predictor for ruling out benign nodule, with a sensitivity of 64.0% and a specificity of 63%.

CONCLUSIONS
Our study suggests that the serum Cys-C level test may be helpful for differentiating lung cancer from the benign nodule of the lung in patient.

Disclosure: No significant relationships.
Keywords: Cystatin C, Lung Cancer, Benign Nodule, Receiver Operating Characteristic.


1.0
0.8
0.6
0.4
0.2
0.0
Sensitivity
0.0
0.2
0.4
0.6
0.8
1.0
1 - Specificity
MN vs BN
LCNEC vs BN
SCLC vs BN
SCC vs BN
ADC vs BN

P-150

DANISH CONSENSUS ON DISCHARGE CRITERIA AFTER PULMONARY SURGERY – A DELPHI SURVEY

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OBJECTIVES
To achieve consensus on hospital discharge criteria after pulmonary surgery in Denmark.

METHODS
Board certified thoracic surgeons in Denmark among all four university hospitals conducting thoracic surgery in Denmark were invited to give their expert opinion in a 3-round Delphi survey. In round 1, experts determined criteria indicating sufficient recovery from pulmonary surgery regardless of surgical approach. In round 2 and 3, answers were rated using a 5-point Likert scale. Answers were blinded but in round 3, experts were presented with the opportunity to view the group results and change their own ranks considering the responses and arguments from their colleagues in accordance with the Delphi methodology.
Consensus was achieved when discharge criteria and endpoints were rated as 4 or more on the Likert scale by at least 75% of the experts in round 3.

RESULTS
Among 31 experts, 30 (97%) participated in all 3 rounds. Consensus was achieved on twenty-three specific endpoints covering chest drain removal, respiratory function, pain management, mobilization, arrhythmia, infection, oral intake, and self-care.

CONCLUSIONS
These results represent consensus among Danish board-certified thoracic surgeons on criteria to discharge patients to home after pulmonary surgery in Denmark from any of the four thoracic surgical centres. These results may facilitate future research in enhanced recovery after surgery and enable differentiation between readiness for discharge and actual discharge.

Disclosure: No significant relationships.
Keywords: Thoracic Surgery, Discharge Criteria, Enhanced Recovery After Surgery, Delphi-Consensus.

P-151

CLINICAL AND SURVIVAL PATTERNS OF PULMONARY METASTASIS IN COLORECTAL CANCER PATIENTS

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OBJECTIVES
This study aims to evaluate the overall 5-year survival of pulmonary metastasis from CRC and identify potential independent risk factors affecting the overall survival (OS).

METHODS
A retrospective study conducted in a tertiary care center(Royal Hospital). The study included all patients diagnosed with stageIV CRC with PM aged>18 years between2008 and2015. Patients with no follow-up and missed data were excluded. Data retrieved from electronic record system (Al-Shifaa) and analyzed using SPSS software.

RESULTS
The prevalence of pulmonary metastasis in the overall CRC cases was15.2%(84/554 patients). 71patients included in this study after application of exclusion criteria with the mean age of patients was60.35 ±16.4 years majority males64.8%(46) with no comorbidities57.7%(42). Common location of primary tumor is sigmoid31%(22) and diagnosed with T3 40.8%(29) status and N2 32.4%(23). Majority of cases presented with synchronous PM74.6%(53) and following metastasis features Bilateral lung side 69.0% (49), =>10 nodules 42.3%(30), <1cm size66.2%(47) and no lymph involvement 57.7%(41). 5-year overall survival rate is15.3% by 15 months. Statistically significant difference in the overall survival distribution between those underwent metastatectomy 55.6% by71 months and those who did not 8.3% by13 months (Log-Rank test,P=0.004). Several factors were found to be associated with a favorable OS, which include middle age group(P=0.007), absence of perineural invasion(P=0.015), isolated pulmonary metastasis(P=0.003). Multivariate cox regression showed OS significantly relatively poor in females(P=0.001) metachronous(P=0.003),T4(p=0.005) and normal CEA at diagnosis(p=0.011).

CONCLUSIONS
This study showed 5-year OS rate is15.3% by15 months for stage IV CRC with PM. Metastatectomy, middle age group, absence of perineural invasion, isolated pulmonary metastasis at diagnosis may be associated with improved survival. Females, tumor statusT4, normal CEA at diagnosis and metachronous PM were associated with poorer survival outcomes. Despite the study's limitations of retrospective design with a small sample size, the results can

be considered as part of MDT-based decision making. These findings will require future large multicenter studies.

Disclosure: No significant relationships.
Keywords: Pulmonary Metastasis, Colorectal Cancer, Overall Survival, Risk Factor.

P-152

DEVELOPMENT AND VALIDATION OF AN OVERALL SURVIVAL PREDICTION MODEL FOR ESOPHAGEAL SQUAMOUS CELL CARCINOMA: A NOVEL PN CLASSIFICATION

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OBJECTIVES

Esophageal squamous cell carcinoma (ESCC) is a significant health burden, particularly in regions like East Asia. The pN classification of ESCC remains a controversial factor. Accurately predicting overall survival (OS) after esophagectomy is crucial for treatment planning and improving treatment outcomes.

METHODS

We analyzed data from the Sichuan Cancer Hospital & Institute Esophageal Cancer Case Management Database (SCCH-ECCM Database) covering the period from January 2010 to December 2017. Our study aimed to examine the clinicopathological characteristics, lymph node resection at each station, and treatment details of patients with ESCC who underwent esophagectomy. We developed a new N stage based on the number of lymph node metastasis (LNM) stations and also created a prediction model for OS using both the pN stage and the new N stage.

RESULTS

After analyzing 49 indicators through univariate and multifactorial analysis, we identified 19 important factors that impact OS after esophagectomy. Further analysis using LASSO regression revealed 6 key correlates of OS: the number of LNM stations, TNM stage, pT stage, dissection of No. 106recL, and history of alcohol use. Models were developed based on pN stage and the new N stage. The area under the curve indicated that model 2 had slightly better clinical utility compared to model 1.

CONCLUSIONS

Our study demonstrates that new N stage, based on the number of LNM stations, performs comparably to the current AJCC/UICC pN system.

Disclosure: No significant relationships.
Keywords: Survival Prediction Model, Esophageal Squamous Cell Carcinoma.

Table 1. Demographic characteristics of patients

Variables	Total (n =2510)	Training cohort (n = 1757)	Internal validation (n =753)	Statistic	p-Value
Sex				0.206	0.691
Male	2060(82.1%)	1446(82.3%)	614(81.5%)		
Femal	450(17.9%)	311(17.7%)	139(18.5%)		
KPS scores				2.153	0.147
100	1419(56.5%)	1010(57.5%)	409(54.3%)		
90	1091(43.5%)	747(42.5%)	344(45.7%)		
Smoking				0.762	0.407
No	1340(53.4%)	948(54%)	392(52.1%)		
Yes	1170(46.6%)	809(46%)	361(47.9%)		
Alcohol use				0.669	0.431
NO	1841(73.3%)	1297(73.8%)	544(72.2%)		
Yes	669(26.7%)	460(26.2%)	209(27.8%)		
Thoracic surgical				8.636	0.003
MIE	1199(47.8%)	873(49.7%)	326(43.3%)		
OE	1311(52.2%)	884(50.3%)	427(56.7%)		
Abdominal surgical type					
MIE	698(39.7%)	266(35.3%)	964(38.4%)	4.397	0.1
OE	1542(61.4%)	1056(60.1%)	486(64.5%)		
No	4(0.2%)	3(0.2%)	1(0.1%)		
Surgical.approach				0.684	0.893
McKeown	1779(70.9%)	1237(70.4%)	542(72%)		
Iovr-Lewis	691(27.5%)	491(27.9%)	200(26.6%)		
Sweet	4(0.2%)	3(0.2%)	1(0.1%)		
????	36(1.4%)	26(1.5%)	10(1.3%)		
Intraoperative thoracic duct ligation				0.773	0.412
Yes	2095(83.5%)	1459(83%)	636(84.5%)		
No	415(16.5%)	298(17%)	117(15.5%)		
Organ.replaces.the.esophagus				1.146	0.373
Stomach	2504(99.8%)	1754(99.8%)	750(99.6%)		
Colon	6(0.2%)	3(0.2%)	3(0.4%)		
Path of anastomosis				0.002	1
Posterior mediastinal route	2487(99.1%)	1741(99.1%)	746(99.1%)		

Table 1. Demographic characteristics of patients (continuation)

Variables	Total (n =2510)	Training cohort (n = 1757)	Internal validation (n =753)	Statistic	p-Value
Retrosternal route	23(0.9%)	16(0.9%)	7(0.9%)		
Method of anastomosis				0.08	0.785
Mechanical suturing	1617(64.4%)	1135(64.6%)	482(64.0%)		
Manual suturing	893(35.6%)	622(35.4%)	271(36.0%)		
Anastomotic location				0.076	0.806
Cervical	1834(73.1%)	1281(72.9%)	553(73.4%)		
Intrathoracic	676(26.9%)	476(27.1%)	200(26.6%)		
Intraoperative.blood				0.001	1
Yes	144(5.7%)	101(5.7%)	43(5.7%)		
No	2366(94.3%)	1656(94.3%)	710(94.3%)		
Multifocal.lesions				1.393	0.283
Yes	68(2.7%)	52(3.0%)	16(2.1%)		
No	2442(97.3%)	1705(97.0%)	737(97.9%)		
Degree.of.differentiation				1.891	0.389
G1	455(18.1%)	330(18.8%)	125(16.6%)		
G2	1046(41.7%)	731(41.6%)	315(41.8%)		
G3	1009(40.2%)	696(39.6%)	313(41.6%)		
Tumor.location				0.623	0.734
Upper	587(23.4%)	412(23.4%)	175(23.2%)		
Middle	1367(54.5%)	949(54.0%)	418(55.5%)		
Lower	556(22.2%)	396(22.5%)	160(21.2%)		
Lymphovascular.invasion				3.101	0.086
Yes	442(17.6%)	294(16.7%)	148(19.7%)		
No	2068(82.4%)	1463(83.3%)	605(80.3%)		
Nerve.invasion				0.578	0.474
Yes	487(19.4%)	334(19.0%)	153(20.3%)		
No	2023(80.6%)	1423(81.0%)	600(79.7%)		
pT				0.541	0.911
T1	202(8.0%)	140(8.0%)	62(8.2%)		
T2	509(20.3%)	363(20.7%)	146(19.4%)		
T3	1584(63.1%)	1104(62.8%)	480(63.7%)		
T4	215(8.6%)	150(8.5%)	65(8.6%)		

Table 1. Demographic characteristics of patients (continuation)

Variables	Total (n =2510)	Training cohort (n = 1757)	Internal validation (n =753)	Statistic	p-Value
pN				4.194	0.242
N0	1080(43%)	773(44%)	307(40.8%)		
N1	765(30.5%)	538(30.6%)	227(30.1%)		
N2	450(17.9%)	304(17.3%)	146(19.4%)		
N3	215(8.6%)	142(8.1%)	73(9.7%)		
TNM stage				3.678	0.298
I	201(8%)	139(7.9%)	62(8.2%)		
II	863(34.4%)	624(35.5%)	239(31.7%)		
III	1155(46%)	798(45.4%)	357(47.4%)		
IV	291(11.6%)	196(11.2%)	95(12.6%)		
Dissection 101L				0.148	0.749
No	2308(92%)	1618(92.1%)	690(91.6%)		
Yes	202(8%)	139(7.9%)	63(8.4%)		
Dissection 101R				0.147	0.798
No	2435(97%)	1703(96.9%)	732(97.2%)		
Yes	75(3%)	54(3.1%)	21(2.8%)		
Dissection.104L				0.015	0.931
No	2339(93.2%)	1638(93.2%)	701(93.1%)		
Yes	171(6.8%)	119(6.8%)	52(6.9%)		
Dissection.104R				0.077	0.843
No	2382(94.9%)	1666(94.8%)	716(95.1%)		
Yes	128(5.1%)	91(5.2%)	37(4.9%)		
Dissection.106recL				0.056	0.827
No	1109(44.2%)	779(44.3%)	330(43.8%)		
Yes	1401(55.8%)	978(55.7%)	432(56.2%)		
Dissection.106recR				1.058	0.321
No	928(37%)	661(37.6%)	267(35.5%)		
Yes	1582(63%)	1096(62.4%)	486(64.5%)		
Dissection.109L				0.118	0.752
No	1586(63.2%)	1114(63.4%)	472(62.7%)		
Yes	924(36.8%)	643(36.6%)	281(37.3%)		
Dissection.109R				0.279	0.649
No	2357(93.9%)	1647(93.7%)	710(94.3%)		
Yes	153(6.1%)	110(6.3%)	43(5.7%)		

Table 1. Demographic characteristics of patients (continuation)

Variables	Total (n =2510)	Training cohort (n = 1757)	Internal validation (n =753)	Statistic	p-Value
Dissection 106tbL				0.577	0.486
No	2293(91.4%)	1610(91.6%)	683(90.7%)		
Yes	217(8.6%)	147(8.4%)	70(9.3%)		
Dissection 107				0	1
No	180(7.2%)	126(7.2%)	54(7.2%)		
Yes	2330(92.8%)	1631(92.8%)	699(92.8%)		
Dissection 105				0.313	0.582
No	1647(65.6%)	1159(66.0%)	488(64.8%)		
Yes	863(34.4%)	598(34%)	265(35.2%)		
Dissection.108				0.015	0.931
No	1268(50.5%)	889(50.6%)	379(50.3%)		
Yes	1242(49.5%)	868(49.4%)	374(49.7%)		
Dissection.110				0.037	0.861
No	1346(53.6%)	940(53.5%)	406(53.9%)		
Yes	1164(46.4%)	817(46.5%)	347(46.1%)		
Dissection.112				0.038	0.871
No	2316(92.3%)	1620(92.2%)	696(92.4%)		
Yes	194(7.7%)	137(7.8%)	57(7.6%)		
Dissection.111				0.112	0.773
No	2077(82.7%)	1451(82.6%)	626(83.1%)		
Yes	433(17.3%)	306(17.4%)	127(16.9%)		
Dissection_1and2				1.014	0.335
No	1385(55.2%)	981(55.8%)	404(53.7%)		
Yes	1125(44.8%)	776(44.2%)	349(46.3%)		
Dissection.7				0.019	0.896
No	1222(48.7%)	857(48.8%)	365(48.5%)		
Yes	1288(51.3%)	900(51.2%)	388(51.5%)		
Dissection.11				0.012	0.946
No	2216(88.3%)	1552(88.3%)	664(88.2%)		
Yes	294(11.7%)	205(11.7%)	89(11.8%)		

Table 1. Demographic characteristics of patients (continuation)

Variables	Total (n =2510)	Training cohort (n = 1757)	Internal validation (n =753)	Statistic	p-Value
Dissection.8and9				0.178	0.692
No	1424(56.5%)	992(56.5%)	432(57.4%)		
Yes	1086(43.3%)	765(43.5%)	321(42.6%)		
Dissection.3				1.261	0.269
No	1039(41.4%)	740(42.1%)	299(39.7%)		
Yes	1471(58.6%)	1017(57.9%)	454(60.3%)		
Dissection.4				1.329	0.284
No	2320(92.4%)	1617(92.0%)	703(93.4%)		
Yes	190(7.6%)	140(8.0%)	50(6.6%)		
Dissection.unlabeled.nodes				0.312	0.612
No	2168(86.4%)	1522(86.6%)	646(85.8%)		
Yes	342(13.6%)	235(13.4%)	107(14.2%)		
Clinical.treatment.modality				2.191	0.332
Preoperative CT or RT/CRT plus surgery	46(1.8%)	28(1.6%)	18(2.4%)		
Surgery alone	1269(50.6%)	897(51.1%)	372(49.4%)		
Surgery plus postoperative CT or RT/CRT	1195(47.6%)	832(47.4%)	48.2%		
Age	62.00(57.00,67.00)	62.00(57.00,67.00)	62.00(57.0,67.00)	-0.705	0.481
Number.of.RLNs	20.00(14.00,28.00)	20.00(14.00,28.00)	20.00(14.00,28.00)	-0.098	0.922
Number.of.LNMs	1.00(0.00,3.00)	1.00(0.00,3.00)	1.00(0.00,3.00)	-0.925	0.355
Number.of.RLN.stations	7.00(5.00,8.25)	7.00(5.00,8.00)	7.00(5.00,9.00)	-1.952	0.051
Numbe.of.LNM.stations	1.00(0.00,2.00)	1.00(0.00,2.00)	1.00(0.00,2.00)	-2.164	0.030

Table 2. Univariate and multivariate Cox regression analyses for factors affecting patient survival

Variables	%	Univariate Cox model		Multivariate Cox modl1		Multivariate Cox modl2	
Sex		HR (95%CI)	p-Value	HR (95%CI)	p-Value	HR (95%CI)	p-Value
Male	82.3%						
Female	17.7%	0.66(0.547-0.797)	<0.001				
Age		1.008(0.1000-1.016)	0.054				
KPS scores							
100	57.5%						
90	42.5%	1.291(1.132-1.472)	<0.001	1.146 (0.994-1.320)	0.061	1.146 (0.995-1.321)	0.059
History of smoking							
No	54.0%						
Yes	46.0%	1.457(1.278-1.662)	<0.001	1.151 (0.979-1.353)	0.088	1.168 (0.094-1.373)	0.059
History of alcohol use							

P-153

DIAGNOSTIC AND PROGNOSTIC MARKERS IN MEDIASTINITIS: FINDINGS FROM OVER TWO DECADES

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OBJECTIVES

Mediastinitis is a rare, life-threatening condition marked by rapidly progressing sepsis and inflammatory disintegration in the mediastinal cavity. The condition carries high mortality without prompt diagnosis and surgical intervention.

METHODS

A total of 60 acute descending necrotizing mediastinitis (DNM) patients who had been surgically treated in our institution between April 1999 and August 2023 were studied retrospectively. Various prognostic factors (such as surgical aggressiveness, comorbidities, laboratory parameters, pathogens) were investigated for their impact on the outcome of mediastinitis.

RESULTS

Among comorbidities, only COPD demonstrated statistical significance (p=0.044) in relation to the outcome, while the prognostic significance of the atherosclerosis approached the threshold (p=0.052). When observing the accumulation of risk factors, patients with 1 or 0 risk factors had a mortality rate of 25%, while those with 2 or more had a rate of 64.3% (p=0.027). We lost 20 patients (33.33%), and 40 patients recovered as a result of the comprehensive treatments (66.66%). However, over the years, the survival rate has increased; from the year 2017 onwards, out of a total of 24 patients, we lost only 4 patients. The impact of surgical aggressiveness on prognosis was assessed by comparing the survivor and deceased groups; however, no significant correlation was found. The time from symptoms to diagnosis and intervention, as well as the effect of pathogens on survival, did not reach statistical significance.

CONCLUSIONS

While our experience indicates that the time from symptom onset to diagnosis and surgery may influence prognosis, our current study lacked statistical significance, likely due to the heterogeneous patient population. Nevertheless, prompt disease recognition, urgent elimination of the primary cause through active surgery, and resolution of septic-toxic conditions can reduce mortality and enhance survival rates. The collective presence of risk factors intensifies mediastinitis severity, emphasizing the importance of timely identification and effective management for improved prognosis.

Disclosure: No significant relationships.

Keywords: Acute Descending Necrotising Mediastinitis (DNM), Inflammation Of The Mediastinum, Prognostic Factors For Mediastinitis, Surgical Treatment Of Mediastinitis.

P-154

DISCRIMINATORY POWER OF POSITRON EMISSION TOMOGRAPHY – COMPUTED TOMOGRAPHY (PET-CT) IMAGING IN DETERMINING THE TRUE NATURE OF LESIONS IN CLINICAL STAGE 1 LUNG CANCER

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OBJECTIVES
It is important to make a differential diagnosis of benign-malignant lesions in order to correctly determine the treatment approach to lung lesions. In this study, PET-CT features were compared to reveal the differences between benign and malignant lesions.

METHODS
631 clinical stage 1 patients (407 malignant, 224 benign) who were operated on in our clinic between January 2018 and December 2022 were retrospectively examined. The patients were investigated in terms of demographic characteristics, FDG uptake, lesion size and localization, character of the lesion (solid, subsolid, GGO), Hounsfield Units, lobulation, spiculation, air bronchogram, pleural traction, calcification, cavitation.

RESULTS
As a result of the study conducted on 631 patients, age, SUVmax, spiculation, lobulation and solidity were found to be significant as independent determinants of malignancy. ($p < 0.05$)

CONCLUSIONS
Preoperative patient evaluation and PET-CT examination should be performed carefully to determine the correct approach to diagnosis and treatment in patients with clinical stage 1 lung.

Disclosure: No significant relationships.
Keywords: Early Stage, Lung Cancer, PET-CT.

P-155

DO PLEURAL ADHESIONS INFLUENCE THE OUTCOMES OF PATIENTS WITH PRIMARY LUNG CANCER UNDERGOING ANATOMICAL LUNG RESECTION?

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OBJECTIVES
The relationship between perioperative factors, including complications and pleural adhesions, has not yet been thoroughly studied. We aimed to investigate the relationship between pleural adhesions and preoperative, intraoperative, and postoperative complications in patients undergoing anatomical resection for primary lung cancer.

METHODS
A total of 1004 patients underwent surgery for primary lung cancer at the Tokyo Medical and Dental University Hospital between January 2016 and December 2023. Among them, 924 underwent anatomical resection (segmentectomy and lobectomy) without a history of ipsilateral thoracotomy were analysed using an intraoperative video. Pleural adhesions were categorized into three groups: "no adhesions," "mild adhesions," and " extensive adhesions," and correlations with preoperative factors, intraoperative factors, and postoperative complications were compared. Extensive pleural adhesions were defined as dense, firm, or > 50% of the thoracic cavity.

RESULTS
Among 644 patients (69.7%) had no pleural adhesions, 180 (19.4%) had linear or reticular partial adhesions, and 100 (10.8%; 72 with areal adhesions and 28 with full adhesions) had extensive adhesions.
Oral anticoagulant use was significantly correlated with pleural adhesions: 32 (32.0%) patients had extensive adhesions, 124 (19.3%) had no adhesions, and 32 (17.7%) had partial adhesions ($p = 0.025$). No significant differences were observed between pleural adhesions and surgical procedure type, operative time, or intraoperative blood loss. However, significant differences were found in prolonged postoperative air leakage (>5 days) ($p=0.009$), postoperative atelectasis ($p=0.026$), and postoperative pleuritis ($p=0.038$). Additionally, no significant differences were noted in the duration of chest drainage or postoperative hospitalisation.

CONCLUSIONS
Pleural adhesions were significantly associated with oral anticoagulant use, postoperative air

leakage and atelectasis in anatomical lung resections for primary lung cancer, without affecting the duration of chest drainage or hospital stay.

Disclosure: No significant relationships.
Keywords: Pleural Adhesion, Lung Cancer, Anatomical Resection.

P-156

DOES CYTOREDUCTIVE SURGERY COMBINED WITH HYPERTHERMIC INTRA-THORACIC CHEMOTHERAPY PLAY A ROLE IN EXTENDING SURVIVAL OF PATIENTS WITH PRIMARY AND SECONDARY PLEURAL MALIGNANCIES CONFINED IN THE CHEST?

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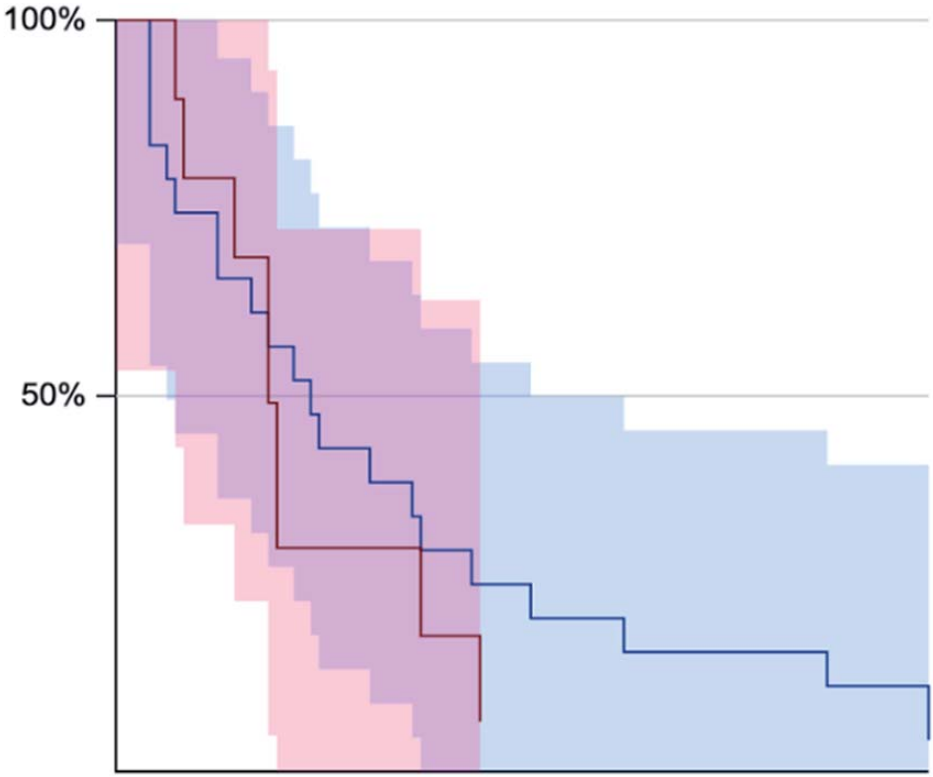
OBJECTIVES
The aim of this study is to explore the outcome of CRS & HITHOC in selected patients with primary and secondary pleural malignancies.

METHODS
Patients with pleural malignancies who underwent CRS and HITHOC have been recruited from prospective maintained database of 2 thoracic units. HITHOC was performed for 1 hour at 42 * using different agents according to the primary tumor. Two groups were formed: A malignant pleural mesothelioma (MPM), B no-MPM. The following variable have been searched: age, sex, primary tumor, presence of malignant pleural effusion, complications, pre and post-operative chemotherapy. Primary end-point was overall survival. Secondary end-points have been morbidity-mortality and recurrence. Survival curve was calculated using Kaplan-Meier Method.

RESULTS
33 patients, 23 M, 10 F, mean age 58.2 (19-79) year. Mean age for Group A was 66.2 ± 3.3 versus
37.7± 11.4 of Group B. 23 patients had MPM. 9 patients had pleural metastases (PE), of those 2 with of Ewing's sarcoma, 2 patients with NSCLC, 2 with stage IV thymoma and 2 with PM of osteosarcoma. Cisplatin was used in most patients. The surgical approach was VATS in 25 patients. Most common postop complication was anemia. Hospital mortality was zero. 2 out 33 (6%) patients died before 6 months, 4 (12%) died before 12 months. 8 (29%) died before 24 months. 19 (57.5%) were alive more than 2 years. There was no significant difference in survival between group A and B (log-rank test; $z = 1.02$, $p = 0.31$) (Fig.1). The only evident difference between group A and B was age (SE = 5.215 $p < 0.001$).

CONCLUSIONS
Our study suggests that CRS and HITHOC can play a leading role to prolong survival in selected patients with primary and secondary malignant pleural disease. A large global multicenter study is necessary to confirm our data.

Disclosure: No significant relationships.
Keywords: Hyperthermic, Pleural Malignancies, Mesothelioma, Pleurectomy/Decortication.



P-157

DOES THE TIME INTERVAL FROM NEOADJUVANT CAMRELIZUMAB COMBINED WITH CHEMOTHERAPY TO SURGERY AFFECT OUTCOMES FOR LOCALLY ADVANCED ESOPHAGEAL SQUAMOUS CELL CARCINOMA?

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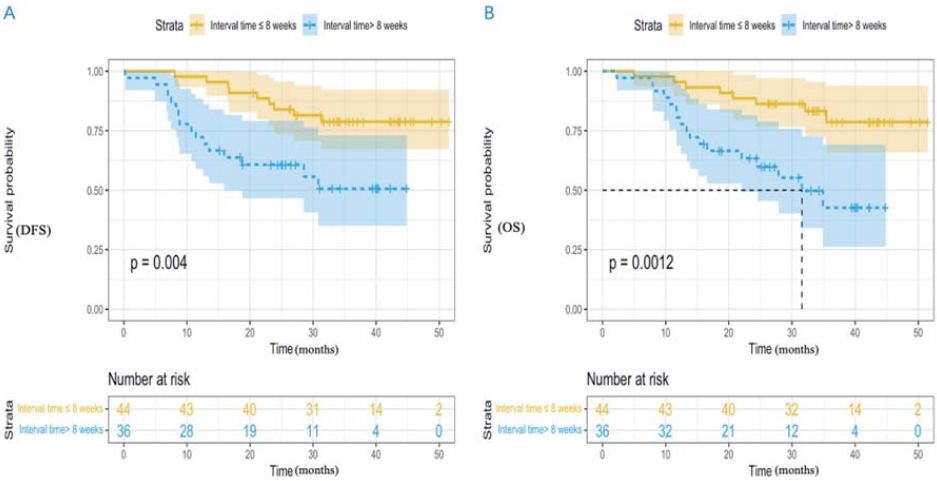
OBJECTIVES
This study was launched to explore whether time interval from neoadjuvant therapy to surgery affect outcomes for locally advanced ESCC.

METHODS
This retrospective study consecutively included ESCC patients who received esophagectomy after neoadjuvant camrelizumab combined with chemotherapy at the Department of Thoracic Surgery, the First Affiliated Hospital, Zhejiang University School of Medicine. The primary endpoints were disease-free survival (DFS) and overall survival (OS), while the secondary endpoints were pathological response, surgical outcomes, and postoperative complications.

RESULTS
From 2019 to 2021, a total of 80 patients were included in our study and were divided into two groups according to the time interval from neoadjuvant immunochemotherapy to surgery: ≤ 8 weeks group (n=44) and > 8 weeks group (n=36). The rate of MPR in the ≤ 8 weeks group was 25.0% and 27.8% in the > 8 weeks group (P=0.779). The rate of pCR in the ≤ 8 weeks group was 11.4%, with 16.7% in the > 8 weeks group (P=0.493). The incidence of postoperative complications in the ≤ 8 weeks group was 27.3% and 19.4% in the > 8 weeks group (P=0.413). The median DFS in the two groups had not yet reached (hazard ratio [HR], 3.153; 95% confidence interval [CI], 1.383 to 6.851; P=0.004). The median OS of ≤ 8 weeks group was not achieved (HR, 3.703; 95% CI, 1.584 to 8.657; P=0.0012), with the > 8 weeks group 31.6 months (95% CI, 21.1 to 42.1). In multivariable analysis, inferior DFS and OS were observed in patients with interval time > 8 weeks (HR, 2.992; 95% CI, 1.306 to 6.851; and HR, 3.478; 95% CI, 1.481 to 8.170, respectively).

CONCLUSIONS
Locally advanced ESCC patients with time interval from neoadjuvant camrelizumab combined with chemotherapy to surgery > 8 weeks were associated with worse long-term survival.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma (ESCC); Locally Advanced; Neoadjuvant Immunochemotherapy; Survival; Interval Time To Surgery.


A
Strata
Interval time ≤ 8 weeks
Interval time> 8 weeks
Survival probability
(DFS)
p = 0.004
Time (months)
Number at risk
Interval time ≤ 8 weeks 44 43 40 31 14 2
Interval time> 8 weeks 36 28 19 11 4 0
B
(OS)
p = 0.0012
Interval time ≤ 8 weeks 44 43 40 32 14 2
Interval time> 8 weeks 36 32 21 12 4 0

P-158

DOES VENO VENOUS-EXTRACORPOREAL MEMBRANE OXYGENATION (VV-ECMO) FOR MALIGNANT AIRWAY OBSTRUCTION AFFECT ANTI-CANCER THERAPY AFTER AIRWAY STENTIG? A CASE SERIES ANALYSIS

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OBJECTIVES

Airway stenting is a procedure proposed to patients with inoperable malignant airway obstruction. Recently, several studies suggested the utility and safety of veno-venous extracorporeal membrane oxygenation (VV-ECMO) during stenting procedure. However, in an era when a variety of efficient anti-cancer treatments are available, it is unknown whether airway stenting supported by VV-ECMO proceeds to subsequent anti-cancer therapy. The aim of this study is to investigate whether the use of VV-ECMO affects the anti-cancer therapy after stenting.

METHODS

This was conducted as a retrospective single-center study. Patients with malignant airway obstruction who underwent tracheal or main bronchial stenting by rigid bronchoscope with VV-ECMO was recruited between 4/2018 and 12/2023. Clinical data was collected from medical records.

RESULTS

Nine patients (median age 62 years, 44% female) were recruited. Etiologies are all malignancies including 6 lung cancers, one thyroid cancer, one tracheal cancer and one lymphoma. Seven patients underwent prophylactic VV-ECMO, the other 2 underwent emergency VV-ECMO. The mean VV-ECMO time was 37.9 hours (range, 17 - 99) and all patients succeeded to wean off VV-ECMO. After stenting, 6 patients received anti-cancer therapy: 4 started radiation therapies within 2 weeks, 3 initiated chemotherapy within 6 months, and one underwent surgery 11 days after stent placement. In the remaining three cases, stent placement and weaning of ECMO were successful, however due to poor general condition, they were unable to receive cancer treatment. Only one ECMO-related complication was reported: internal jugular vein thrombosis, which did not interfere with subsequent cancer therapy. Stent removal was successful in two patients who received anti-cancer therapy after stenting. The 30-day and 90-day survival rates were 89% and 67% respectively.

CONCLUSIONS

This preliminary data is the first report suggesting that airway stenting assisted by VV-ECMO leads to safe and immediate anti-cancer therapy in patients with malignant airway obstruction.

Disclosure: No significant relationships.
Keywords: Malignant Airway Obstruction, ECMO, Airway Stent.

No.	Age	Sex	Etiology of airway obstruction	Location of stent	Total ECMO time (hours)	Post-stenting anti-cancer therapy and time to initiate each therapy after stenting (days)		Survival (days)
1	54	M	Lung cancer	T	24	Radiation Stent removal	8 111	>870 alive
2	57	M	Lung cancer	T, C, LMB	17	Chemotherapy	36	90
3	47	F	Lung cancer	T	99	Radiation	14	>90 alive
4	58	F	Lung cancer	T	44	Radiation Chemotherapy	8 92	108
5	67	F	DLBCL	C	42	Radiation Stent removal Chemotherapy	12 56 180	538
6	72	M	Thyroid cancer	C	25	Tumor resection Cyber Knife	11 162	423
7	66	M	Lung cancer	T	45	No cancer therapy		61
8	62	M	Lung cancer	C	22	No cancer therapy		20
9	73	F	Tracheal cancer	T	23	No cancer therapy		59

T: trachea; C: carina; LMB: left main bronchus

P-159

EARLY HOSPITAL DISCHARGE ON DAY TWO POST ROBOTIC LOBECTOMY WITH TELEHEALTH HOME MONITORING

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OBJECTIVES

Despite adoption of enhanced recovery programs, reported mean postoperative length of stay after robotic lobectomy is 4 days. We analysed feasibility and safety of a prospective protocol of patient discharge on postoperative day 2 with telehealth home monitoring device after robotic lobectomy in selected patients.

METHODS

Inclusion criteria: <75 years-old, stage I NSCLC, caregiver, ECOG 0-2, scheduled for lobectomy, logistic proximity to hospital (<50Km); intra-postoperative exclusion criteria: conversion to open surgery, early complications needing hospital monitoring or redo-operation, difficult pain management, <92 HbO2% saturation on room air or need for O2 supplementation, altered vital or laboratory parameters. Teleconsultations were scheduled as follow: first one in afternoon of POD2, two on POD3, and then once a day until chest tube removal. Post-discharge vital signs were recorded by patient at least four times/daily through the device and were available for consultation by two surgeons through phone application. In case of sudden variation of vital signs or occurrence of adverse events a direct telephone line was available for patients as well as a protected re-hospitalization path. Primary outcomes were safety evaluated by occurrence of post-discharge complications and readmissions and feasibility in terms of percentage of protocol completion.

RESULTS

Between July 2022 and December 2023, 47 patients were enrolled. Six (12.8%) patients were excluded for unsatisfied discharge criteria on POD2. Exclusions causes were: air leaks (n:2), uncontrolled pain (n:2), atrial fibrillation and occurrence of cerebral ischemia (n:1 each).
During telehealth home monitoring a total of 66/1732 (3.8%) vital sign measurements violated the threshold in 21(51.2%) patients. All critical violations were managed at home, no postoperative complication occurred neither readmission was needed.

CONCLUSIONS

An early discharge was feasible in 87.2% of enrolled patients with an optimal safety profile. A potential economic benefit could derive from this protocol if it will be validated in larger sample.

Disclosure: Received honoraria from AB medica SPA.

Keywords: Early Discharge, Tele-Monitoring, Tele-Medicine, Telehealth Home Monitoring, Thoracic Surgery; Oncological Surgery.

P-160

EARLY PATIENT-REPORTED OUTCOMES AFTER R˜SSISTED VERSUS VIDEO-ASSISTED THORACOSCOPIC LOBECTOMY

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OBJECTIVES
Robotic-assisted thoracoscopic surgery (RATS) can attain traditional clinical outcomes that are comparable to those of video-assisted thoracoscopic surgery (VATS). However, no data exists on patient-reported outcomes (PROs) after RATS and VATS. This study aimed to utilize longitudinal electronic PRO assessments to evaluate symptom burden and functional status between these approaches from patients' perspective.

METHODS
This study comprised patients who underwent lobectomy via RATS or VATS for non-small cell lung cancer. We collected multiple-time-point PROs data from the prospective longitudinal study via an electronic PRO system. Symptom severity and function status were assessed using Perioperative Symptom Assessment for Patients with Lung Surgery and were analyzed between groups using linear mixed-effects models. Traditional clinical outcomes were.

RESULTS
Of the 164 patients included, 42 underwent RATS and 122 underwent VATS. Baseline characteristics were similar in both groups. During the 7-day postoperative period, participants underwent RATS reported milder pain ($P = 0.001$), coughing ($P = 0.001$), drowsiness ($P = 0.024$), and distress ($P = 0.034$) compared with those underwent VATS. Moreover, participants in RATS group showed less functional interference with walking ($p = 0.008$) and general activity ($P = 0.009$). RATS exhibited a shorter postoperative hospitalization ($P = 0.014$) but higher hospital cost ($P < 0.001$). Meanwhile, short-term clinical outcomes of operative time, dissected lymph node stations, chest tube drainage, and postoperative complication rates were comparable.

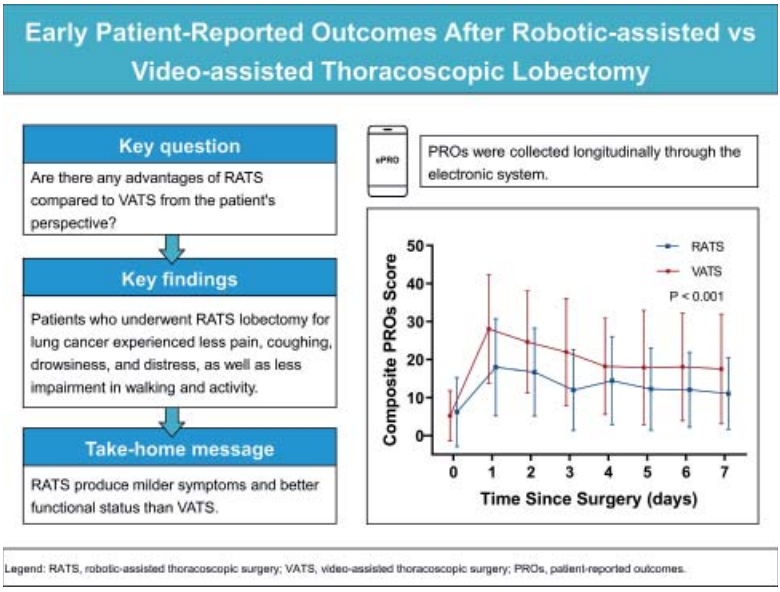
CONCLUSIONS
RATS lobectomy can achieve comparable traditional clinical outcomes to VATS lobectomy. Furthermore, PROs serve as important metrics for assessing patients' recovery after lobectomy. Compared with VATS, RATS may induce less symptom burden and better functional status for patients in the early postoperative period.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Patient-Reported Outcomes, Robotic-Assisted Lobectomy, Video-Assisted Lobectomy.

Table 1. Traditional Clinical Outcomes

Variables	RATS Group (n = 42)	VATS Group (n = 122)	P Value
Operative time, min, median (range)	160 (107-322)	180 (80-361)	0.123
Dissected LN stations, median (range)	6 (2-9)	6 (2-10)	0.810
Number of LN counts, median (range)	11 (3-45)	12.5 (3-34)	**0.044**
Chest tube duration, days, median (range)	3 (1-10)	3 (1-18)	0.541
Chest tube drainage, mL, median (range)	510 (30-3,058)	500 (15-4,050)	0.518
Postoperative length of stay, days, median (range)	3 (2-18)	4 (2-28)	**0.014**
Cost for hospital stay, RMB, median (range)	105,820 (92,837-138,169)	80,946 (51,883-138,288)	**<0.001**
Postoperative complications	7 (16.7)	16 (13.1)	0.567
Prolonged air leak	3 (7.1)	7 (5.7)	0.743
Pleural effusion requiring drainage	1 (2.4)	2 (1.6)	1.000
Pneumothorax	2 (4.8)	6 (4.9)	0.968
Pneumonia	1 (2.4)	0 (0.0)	0.256
Pulmonary embolism	0 (0.0)	1 (0.8)	1.000
Chylothorax	0 (0.0)	1 (0.8)	1.000
Arrhythmia	1 (2.4)	1 (0.8)	0.448

Values are expressed as n (%) unless otherwise specified. Significant P values are indicated in bold. RATS, robotic-assisted thoracoscopic surgery; VATS, video-assisted thoracoscopic surgery; LN, lymph node.



P-161

EFFECT OF SUBCARINAL LYMPH NODE POSITIVITY ON SURVIVAL IN N2 NON-SMALL CELL LUNG CANCER

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OBJECTIVES
It is recommended to divide N2 disease into two groups in the analysis of data collected for 9th staging of non-small cell lung cancer (NSCLC): single (N2a) station or multiple (N2b) stations. The goal is to reduce the heterogeneity in N2 disease. Even if it were a single station, the effect of subcarinal lymph node (LN) positivity on staging is still a matter of debate. This study is designed to investigate how subcarinal LN positivity effects survival in patients with resectable N2 NSCLC.

METHODS
148 pT1-4N2M0 patients who were operated on for NSCLC between 2008 and 2023 in the Department of Thoracic Surgery of the University Hospital were retrospectively evaluated. Patients were divided into 3 groups: N2a subcarinal LN negative (Group1), N2a subcarinal LN positive (Group2) and N2b. These patients were analyzed in terms of age, gender, clinical and pathological stage, N2a/N2b and subcarinal LN metastasis status and overall survival.

RESULTS
The gender distribution of the patients was female/male = 23/125, and the average age was 60.6 (min/max 24/80) years. Patient numbers per groups were: Group 1 (n=59), Group 2 (n=35), Group 3 (n=54). The 5-year survival for all was 58%, median survival was 67 months. Survival according to groups were: Group 1 (57%), Group 2 (62%), Group 3 (57%). There was no statistical difference in survival between groups (p = 0.779) (Figure 1).

CONCLUSIONS
N2 disease is associated with heterogeneity and poor prognosis. The prognostic effect of the subcarinal LN metastasis, which is located at the center of the lymphatic network, is still unclear. In this study, there was no statistically significant survival difference between subcarinal LN negative and positive N2a patients. This result shows regardless of the LN station number, N2 disease is a systemic disease rather than a locoregional disease. Multicenter studies on this subject are needed.

Disclosure: No significant relationships.
Keywords: NSCLC, N2 Disease, N2a, N2b, Subcarinal Lymph Node.

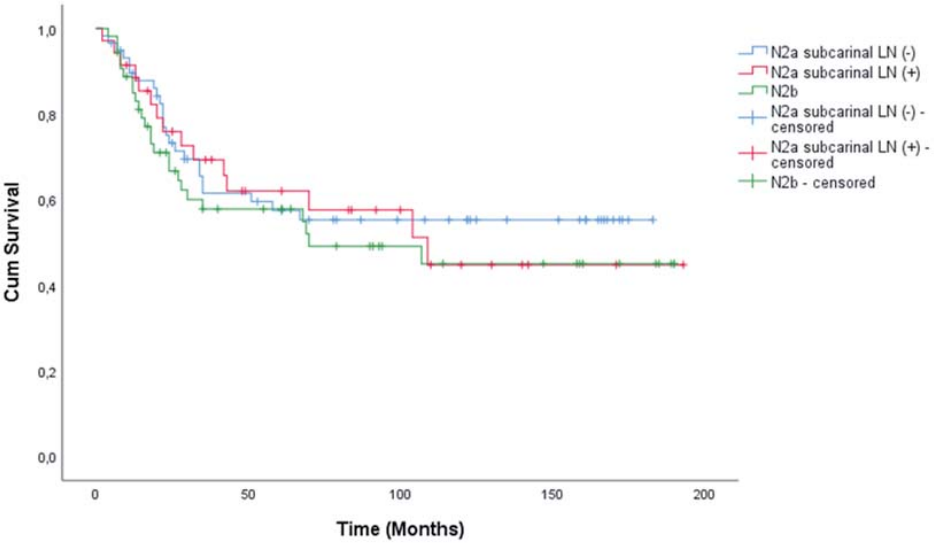

Figure1: Overall survival curve of N2 groups according to all pT stages

P-162

CLINICAL OUTCOMES OF ADJUVANT PLATINUM-BASED CHEMOTHERAPY FOR PREOPERATIVE NODAL STATUS OF LUNG CANCER: A SINGLE-CENTER RETROSPECTIVE ANALYSIS

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OBJECTIVES
Molecular targeted therapy and immunotherapy have demonstrated significant survival benefits for adjuvant treatment of patients with non-small cell lung cancer (NSCLC) after complete resection by ADAURA and IMpower010. The purpose of this study is to evaluate the benefits of adjuvant platinum-based chemotherapy for surgically resected pathological N1/N2 NSCLC in clinical practice.

METHODS
A comprehensive review was conducted for patients who underwent curative resection of pN1/N2 NSCLC from 2013 to 2021 at our institution. Data such as demographic details including performance status (PS), pathology, and stage, were extracted from our electronic database. Disease-free survival (DFS), overall survival (OS), and risk factors for recurrence were investigated.

RESULTS
Data of 155 patients were examined. Preoperative N-staging were N0 in 105 (67.7%), N1 in 34 (21.9%), and N2 in 16 (10.3%). All pulmonary resections were completed with systematic nodal dissection. Among them, 69 patients (44.5%) received adjuvant platinum-based chemotherapy (AC) and 86 (55.5%) were subjected to follow-up without adjuvant chemotherapy (nAC) with various reasons. Performed operations were lobectomies including bilobectomies in 143 patients (92.2%), segmentectomies in 9 (5.8%), and pneumonectomies in 3 (1.9%). Patients with pathological stage II were 29 cases (18.7%) in AC, and 35 cases (22.5%) in nAC; those with stage III were 39 (25.1%) in AC and 52 cases (33.5%) in nAC. The 5-year DFS were 38.2% in AC vs. 34.2% in nAC ($p = 0.00385$); the 5-year OS were 81.4% in AC vs. 60.4% in nAC ($p = 0.0006$) with a median follow-up of 42.2 months. Multivariate Cox regression analysis highlighted PS2 and nAC were independent risk factors for DFS, but clinical N-factor did not affect.

CONCLUSIONS
Adjuvant platinum-based chemotherapy improved both DFS and OS. Notably, 32.2% of these patients exhibited cN1/N2 metastasis preoperatively. This study revealed that even in the

presence of such patients, adjuvant platinum-based chemotherapy provides substantial survival benefits.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Adjuvant Chemotherapy

P-163

EFFECT OF THE SURGICAL DAY OF THE WEEK ON POSTOPERATIVE OUTCOMES OF VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR PATIENTS WITH EARLY-STAGE LUNG CANCER: A MULTICENTER COHORT STUDY

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OBJECTIVES
The surgical day of the week may have important implications for surgical planning, resource allocation, and patient mortality; however, its influence on patients with lung cancer remains unclear. We explored the postoperative outcomes of patients with early-stage lung cancer who underwent video-assisted thoracoscopic surgery on different days of the week.

METHODS
We included patients at three hospitals between August 2022 and April 2023. Patients treated surgically between Monday and Wednesday, and between Thursday and Saturday were respectively classified into early and late groups. Propensity score matching is performed to account for possible selection bias. Complications, postoperative length of stay , and patient-reported outcomes of the two groups (early group vs. late group) were compared. Patient-reported outcomes were assessed by Perioperative Symptom Assessment for Lung Surgery (PSA-Lung) scores.

RESULTS
We included 203 patients in total. and propensity score matching resulted in 74 matched pairs for further analysis. The demographics and tumor characteristics of matched cohorts were comparable. The rates of post-operation 30 days complications (9.5% vs. 10.8%; P=0.785), postoperative hospitalization complications (5.4% vs. 8.1%; P=0.512) and intraoperative complications (1.4% vs. 0%; P>0.999) were not significant, but the early group has a shorter postoperative length of stay than the late group (3 [3–5] vs. 4 [4–6] days; P<0.001). However, after stratified analysis depending on whether the hospital processes discharges on weekend, the postoperative length of stay was not significant (4 [3–6] vs. 6 [3–7] days; P=0.164). All PSA-Lung scores of pain, cough, shortness of breath, disturbed sleep, fatigue, drowsiness, distress, difficulty walking, and activity limitation were not significantly between groups.

CONCLUSIONS

The surgical day of the week may not have significant impacts on postoperative outcomes for patients with early-stage lung cancer underwent video-assisted thoracoscopic surgery.

Disclosure: No significant relationships.
Keywords: Surgical Day of The Week, Early-Stage Lung Cancer, Patient-Reported Outcomes, Video-Assisted Thoracoscopic Surgery.

Table 1. Demographic Characteristics of Patients

	Unmatched cohort (n=203)			1:1 Propensity score matching caliper matching; n = 148)		
Characteristic	**Early group (n=96)**	**Late group (n=107)**	**P**	**Early group (n=74)**	**Late group (n=74)**	**P**
Age (year), median (IQR)	52.00 (41.00–59.75)	54.00 (45.00–60.00)	0.472[a]	54.00 (41.00–60.00)	54.00 (44.50–59.00)	0.837[a]
Female, n (%)	64 (66.70)	69 (64.50)	0.744[b]	50 (67.60)	47 (63.50)	0.604[b]
BMI (kg/m2), mean±SD	22.80 (0.32)	23.00 (0.31)	0.712[c]	22.70 (0.36)	23.10 (0.36)	0.517[c]
FEV1 (L), median (range)	2.4 (2.03–2.89)	2.44 (2.08–3.12)	0.467[a]	2.33 (2.02–2.83)	2.48 (2.08–3.08)	0.160[a]
FEV1 (measured/predicted), median (range)	96.60 (86.30–104.50)	88.90 (83.60–101.00)	0.043[a]	93.80 (83.90–103.90)	95.50 (84.00–104.60)	0.649[a]
Tumor size (cm), median (range)	1.00 (0.80–1.50)	1.20 (0.80–1.50)	0.325[a]	1.00 (0.80–1.60)	1.10 (0.80–1.40)	0.796[a]
Patient source, n (%)			0.015[b]			0.726[b]
Sichuan Cancer Hospital	57 (59.40)	53 (49.50)		48 (64.90)	45 (60.80)	
Ya'an People's Hospital	25 (26.00)	20 (18.70)		12 (16.20)	11 (14.90)	
Guangdong Provincial People's Hospital	14 (14.60)	34 (31.80)		14 (18.90)	18 (24.30)	
Discharge during the weekend, n (%)			0.160[b]			0.610[b]
No	57 (59.40)	53 (49.50)		26 (35.10)	29 (39.20)	
Yes	39 (40.60)	54 (50.50)		48 (64.90)	45 (60.80)	
Smoking status, n (%)			0.551[b]			0.598[b]
Never	79 (82.30)	85 (79.40)		60 (81.10)	56 (75.70)	
Current	9 (9.40)	15 (14.00)		7 (9.50)	11 (14.90)	
Former	8 (8.30)	7 (6.50)		7 (9.50)	7 (9.50)	
Comorbidity (Charlson Index), n (%)			0.884[d]			0.311[d]
No (0)	4 (4.20)	3 (2.80)		3 (4.10)	1 (1.40)	
Yes (≥1)	92 (95.80)	104 (97.20)		71 (95.90)	73 (98.60)	
CTR, n (%)			0.361[b]			0.814[b]
0≤CTR≤0.5	85 (88.50)	90 (84.10)		63 (85.10)	64 (86.50)	
0.5<CTR≤1	11 (11.50)	17 (15.90)		11 (14.90)	10 (13.50)	
Resection type, n(%)			0.078[b]			>0.999[b]

Table 1. Demographic Characteristics of Patients (continuation)

	Unmatched cohort (n=203)			1:1 Propensity score matching caliper matching; n = 148)		
Characteristic	**Early group (n=96)**	**Late group (n=107)**	**P**	**Early group (n=74)**	**Late group (n=74)**	**P**
Lobectomy or sublobectomy	20 (20.80)	34 (31.80)		19 (25.70)	19 (25.70)	
Sublobectomy	76 (79.20)	73 (68.20)		55 (74.30)	55 (74.30)	
Tumor pathological type, n (%)			>0.999[d]			>0.999[d]
Adenocarcinoma	95 (99.00)	105 (98.10)		73 (98.60)	73 (98.60)	
Non-adenocarcinoma	1 (1.00)	2 (1.90)		1 (1.40)	1 (1.40)	
pTNM stage (eighth edition), n (%)			0.882[d]			0.405[d]
IA	92 (95.80)	101 (94.40)		70 (94.60)	72 (97.30)	
≥IB	4 (4.20)	6 (5.60)		4 (5.40)	2 (2.70)	
PCIA/PCEA Pump, n (%)			0.136[b]			0.287[b]
Yes	77 (80.20)	94 (87.90)		58 (78.40)	63 (85.10)	
No	19 (19.80)	13 (12.10)		16 (21.60)	11 (14.90)	
Pain, median (range)	0 (0–0)	0 (0–0)	0.332[a]	0 (0–0)	0 (0–0)	0.252[a]
Cough, median (range)	0 (0–1)	0 (0–1)	0.785[a]	0 (0–1)	0 (0–1)	0.661[a]
Shortness of breath, median (range)	0 (0–0)	0 (0–0)	0.301[a]	0 (0–0)	0 (0–0)	0.692[a]
Disturbed sleep, median (range)	1 (0–3)	1 (0–3)	0.745[a]	1 (0–3)	1 (0–3)	0.744[a]
Fatigue, median (range)	0 (0–1)	0 (0–1)	0.396[a]	0 (0–0)	0 (0–1)	0.290[a]
Drowsiness. median (range)	0 (0–1)	0 (0–1)	0.744[a]	0 (0–1)	0 (0–1)	0.984[a]
Distress, median (range)	0 (0–2)	0 (0–2)	0.753[a]	0 (0–2)	0 (0–2)	0.702[a]
Difficulty walking, median (range)	0 (0–0)	0 (0–0)	0.584[a]	0 (0–0)	0 (0–0)	0.776[a]
Activity limitation, median (range)	0 (0–0)	0 (0–0)	0.323[a]	0 (0–0)	0 (0–0)	0.394[a]

Data are expressed as medians (ranges), means (SDs), or n (%) unless otherwise indicated.
Statistically significant values are provided in red (P<0.05).
Abbreviations: BMI, body mass index; CTR, consolidation-to-tumor ratio; FEV1, forced expiratory volume in 1 s; IQR, interquartile range; PCEA, patient-controlled epidural analgesia; PCIA, patient-controlled intravascular analgesia; PSM, propensity score-matched; SD, standard deviation.
[a]Mann–Whitney U test.
[b]Pearson chi-square test.
[c]t-test.
[d]Fisher's exact test.

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EFFECTIVENESS OF DIFFERENT PREOPERATIVE LOCALIZATION METHODS IN RECOGNIZING SOLITARY PERIPHERAL NODULES: A RETROSPECTIVE COHORT STUDY

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OBJECTIVES
The use of advanced imaging techniques has led to an increase in the detection of small peripheral pulmonary nodules. To determine the benefits of preoperative targeting approaches, we conducted a retrospective cohort study using electromagnetic navigation bronchoscopy and CT-guided transthoracic radioisotope marking. Our aim was to compare the complication and conversion rates between VATS wedge resections with or without preoperative targeting.

METHODS
We have included a total of 208 patients who underwent thoracoscopic atypical resection between 2017 and 2022. Out of these, 79 patients were in the CT-guided group and 52 in the bronchoscopy-guided group. The remaining 77 patients served as the control group without any targeting. We collected demographic parameters and evaluated the surgical margins, frequency of postoperative complications, and conversion rate. We hypothesized that using either one of the targeting methods would result in a lower conversion and complication rate.

RESULTS
The study participants were evenly distributed across all demographic factors. After conducting the Chi-square test, we discovered that the targeted groups had a notably lower conversion rate than the control group. Specifically, the CT- and bronchoscopy-marked group had a conversion rate of 0.13 and 0.24, respectively, compared to 0.31 in the control group ($p<0.05$). Additionally, we noticed a significant difference in the odds ratio of postoperative complications (0.41; confidence interval: 0.09-1.9; $p<0.05$) when we analyzed only patients with lesions that did not reach the pleura.

CONCLUSIONS
Our research has shown that utilizing targeting techniques can reduce the likelihood of complications and contribute to lower conversion rates. Our current study found no significant

difference between the CT- or bronchoscopy-guided marking. However, both targeting techniques resulted in fewer adverse outcomes when compared to the control group. In conclusion, our study indicates that using preoperative localization methods can improve the effectiveness of minimally invasive thoracic surgery.

Disclosure: No significant relationships.
Keywords: Preoperative Targeting, Navigational Bronchoscopy, CT-Guided Radioisotope Targeting, Video-Assisted Thoracoscopic Surgery (VATS), Wedge Resection.

Postoperative characteristics (N=208)		
	With targeting	**Without targeting**
	CTI+ENB	Control
VATS surgery (all)	(n=131)	(n=77)
Conversion rate (1/100 surgery)	**19**	**28**
	chi2: p<0.05, RR=0.61 (CI:0.37-1.02)	
VATS surgery (distance from pleura >2mm)	(n=111)	(n=25)
Complication rate (1/100 surgery)	**18**	**36**
	chi2: p<0.05, RR=0.50 (CI:0.26-0.96)	
CTI: CT-guided radioisotope targeting		
ENB: Electromagnetic navigational bronchoscopic targeting		

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ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (EBUS-TBNA) VERIFIED BY VIDEO-MEDIASTINOSCOPIC LYMPHADENECTOMY (VAMLA): STAGING RESULTS IN A COHORT OF PATIENTS WITH NON-SMALL CELL LUNG CANCER (NSCLC) AND NORMAL MEDIASTINUM

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OBJECTIVES
The reported sensitivity of EBUS-TBNA for staging clinical (c) N0-1 NSCLC is <0.5. This study analyses the accuracy of EBUS-TBNA and the unsuspected (u) N2-3 rates in patients with NSCLC and normal mediastinum by integrated positron emission tomography (PET) - computed tomography (CT).

METHODS
Retrospective observational single-centre study of all consecutive EBUS-TBNA for staging cN0-1 NSCLC from 2017 to 2023. All patients with negative EBUS-TBNA underwent VAMLA as confirmatory test. Systematic nodal dissection (SND) performed during lung resection was considered the gold standard to validate negative VAMLAs. Pathologic findings were reviewed, and staging values were calculated (including 95% confidence interval [CI]) using the standard formulas. uN2–3 rates were analysed in the global series and in the subgroups of tumours according to their clinical tumour and nodal categories by PET-CT.

RESULTS
96 patients (73 men; median age 69, SD 8.3) underwent EBUS-TBNA. A mean of 4.7 nodal stations and a mean of 10.6 lymph nodes were sampled. Seven EBUS were positive; 89 patients underwent VAMLA and 14 were positive; 75 patients underwent resection and SND identified 1 N2. Table 1 shows staging values of EBUS-TBNA according to cN category. The uN2-3 rate for the whole series was 23%. The uN2-3 rates according to presurgical cT and cN categories by PET-CT were: 7.7% (2/26) in cT1N0; 14.8% (4/27) in cT2N0; 28.6 % (4/14) in cT3N0; 40% (2/5) in cT4N0; 41.7% (10/24) in cN1.

CONCLUSIONS
The rate of uN2-3 of this cohort of patients with cN0-1 NSCLC was high, especially in cT3-4N0 and cN1. Sensitivity of EBUS-TBNA alone for staging this specific group of tumours was unsatisfactory. The addition of confirmatory VAMLA adds value and could be considered the reference staging procedure for staging NSCLC and normal mediastinum.

Disclosure: No significant relationships.
Keywords: Staging, Normal Mediastinum, EBUS-TBNA, VAMLA.

Table 1. Staging values of EBUS-TBNA according to cN category

	n	Preval. (%)	Sensitivity (95% CI)	Specificity (95% CI)	PPV (95% CI)	NPV (95% CI)	Accuracy (95% CI)
cN0	72	15.3	0.36 (0.15-0.64)	1 (0.94-1)	1 (0.51-1)	0.89 (0.80-0.94)	0.90 (0.81-0.95)
cN1	24	41.7	0.3 (0.10-0.60)	1 (0.78-1)	1 (0.43-1)	0.67 (0.45-0.82)	0.71 (0.50-0.85)

n: number of patients; Preval: prevalence; PPV: positive predictive value; NPV: negative predictive value; CI: confidence interval

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ENLARGEMENT OF PREOPERATIVE PULMONARY ARTERY AND AORTA AFFECTS THE POSTOPERATIVE SURVIVAL OF LUNG CANCER PATIENTS

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OBJECTIVES

The diameters of the pulmonary artery and aorta affect the severity of pulmonary hypertension and heart failure. However, their clinical significance in lung cancer surgery remains unknown. This study aimed to analyze the impact of pulmonary artery and aorta diameters on survival following lung cancer surgery.

METHODS

We retrospectively analyzed data from 1482 patients with non-small cell lung cancer clinical stages I–IIIA who underwent surgery at our institution between 2006 and 2022. The maximum diameters of the pulmonary artery and ascending aorta were measured using preoperative computed tomography. The measurements were divided into two groups of high and low values using the cutoff values set for the Receiver Operating Characteristic curve (23.8 and 33.6 mm, respectively). All patients were stratified into three groups: non-enlarged pulmonary artery and aorta diameter (normal group; n=244), either pulmonary artery or aortic enlargement (either enlargement group, n=689), and both pulmonary artery and aorta enlargement (both enlargement group; n=549). The preoperative clinical characteristics and postoperative outcomes were analyzed in the three groups.

RESULTS

The both enlargement group was significantly associated with higher age, Charlson comorbidity index, body mass index, pack-year, male sex, lower respiratory function, and increased overall death and cancer mortality rates ($P<0.05$). Multivariate analysis demonstrated that the both enlargement group exhibited significant negative prognostic factors for overall survival (hazard ratio, 1.56; $P=0.04$), as well as for other variables, including older age, male sex, lower body mass index and vital capacity, higher pack-year, Charlson comorbidity index, carcinoembryonic antigen, SUVmax, and advanced clinical stage ($P<0.05$). The 5-year overall survival rate of the normal, either enlargement, and both enlargement groups were 80.2%, 77.3% and 71.0%, ($P=0.002$) respectively (Figure).

CONCLUSIONS

Simple measurement of the pulmonary artery and aorta diameters might be useful predictors of postoperative survival in lung cancer patients.

Disclosure: No significant relationships.
Keywords: Diameter Of Pulmonary Artery and Aorta, Preoperative Computed Tomography, Postoperative Survival, Prognostic Factor.

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ENTIRE CHEST WALL REMODELING IN CHILDREN: INTRODUCING THE INNOVATIVE CROSS BAR/SHORT-BAR TECHNIQUE

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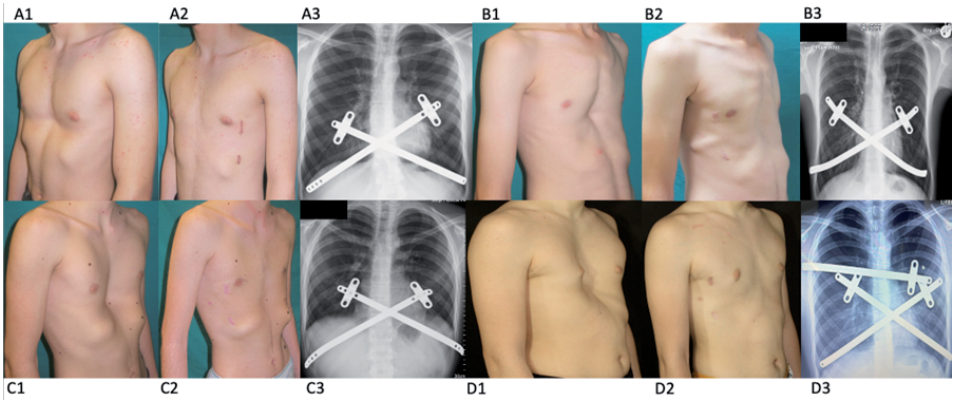
OBJECTIVES
The cross-bar technique is a minimally invasive method to treat severe pectus excavatum. While there are some reports of its application predominantly in adult cases, its effectiveness and safety in pediatric pectus excavatum patients remain underreported. Our study introduces a novel approach to the cross-bar technique utilizing short bars in children and adolescents. It aims to demonstrate the role of the cross-bars in achieving remodeling of the entire chest wall in complex chest wall deformities and highlight its benefits over the single- and parallel techniques.

METHODS
The study enrolled a total of 79 patients ≤ 18 years of age with complex forms of pectus excavatum, who underwent MIRPE with the cross-bar/short-bar technique between October 2019 and November 2023 at the University Clinic of Pediatric Surgery at the Medical University of Vienna, and at the Department of Thoracic Surgery at the Marmara University in Istanbul between August 2005 and September 2023. Analyses included a description of different subtypes of complex Pectus excavatum for cross-bar technique, with details on bar placement, operation times, hospital stay, functional and cosmetic outcomes, and complication rates.

RESULTS
The mean age of the cohort was 15.5 ± 1.92 years. The mean Haller Index was 5.73 ± 4.09, and the Correction Index was 35.67% ± 8.64%. Operation time averaged 93.52 ± 41.28 minutes without concomitant internal costal nerve cryoablation (INC) and 152.23 ± 22.80 minutes with INC ($p < 0.0001$). The mean hospital stay was 4.46 ± 1.19 days without INC and 4.08 ± 1.66 days with INC. Follow-ups were conducted at 1, 6, and 18 months postoperatively.

CONCLUSIONS
The cross-bar/short-bar technique is effective in treating complex chest-wall deformities in children and adolescents, demonstrating safety, favorable functional and cosmetic outcomes, and high patient satisfaction.

Disclosure: No significant relationships.
Keywords: Pectus Excavatum, Cross-Bar, MIRPE.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EPITHELIAL-TO-MESENCHYMAL TRANSITION IN MALIGNANT PLEURAL MESOTHELIOMA IS A HARBINGER OF POOR PROGNOSIS FOLLOWING CYTOREDUCTIVE SURGERY

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OBJECTIVES
Malignant pleural mesothelioma has a low survival rate. Multimodality treatment is the mainstay of radical intent treatment. It remains uncertain how patients with similar stage and histologic subtype have a wide variance in outcome. The epithelial-mesenchymal transition (EMT) enables dissociation of tumour cells from the primary tumour mass, invasion through the extracellular matrix, intravasation into blood vessels and colonisation of distant organs. We investigated factors (including proliferation indices and genetic factors) affecting the prognosis of patients who had undergone surgery.

METHODS
Pleural tissue from 100 malignant pleural mesothelioma consecutive patients who underwent extended pleurectomy/decortication was collected. Tissue cores were stained in tissue microarray panels. Multiplex immunofluorescence was performed. Automated quantitative pathology and machine learning were used to analyse the microimmunofluorescence images. Gene set enrichment analysis (GSEA) was used for genetic feature selection.

RESULTS
The median age was 70.50, M:F=(3.8:1). The majority of the patients had epithelioid subtype (89.58%). 91.67% had microscopic residual tumour (R1). Median PFS and OS were 162.50 and 387.50 days respectively. PFS and OS had a moderate correlation (0.68). Pancytokeratin loss and high Ki67 were associated with much worse outcomes when compared to tumors which retained pancytokeratin (p=0.0005). Gene set enrichment analysis showed strong EMT scores in pancytokeratin-negative, high Ki67 tumours (p=0,0047). A significant difference was also noted in signalling pathways such as TGF=beta (0,0012350, hypoxia (0,00946) and angiogenesis (0,000781).

CONCLUSIONS
Epithelial-to-mesenchymal transition and associated signalling pathways appear to have a prognostic factor in malignant mesothelioma. Investigation of chromosomal deletions associated with EMT is underway.

Disclosure: No significant relationships.
Keywords: Mesothelioma, Cytoreductive, Epithelial-To-Mesenchymal Transition.

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LUNG CANCER SURGERY IN PATIENTS WITH REDUCED DIFFUSION CAPACITY: PREDICTIVE ROLE OF DIFFUSION CAPACITY PER ALVEOLAR VOLUME

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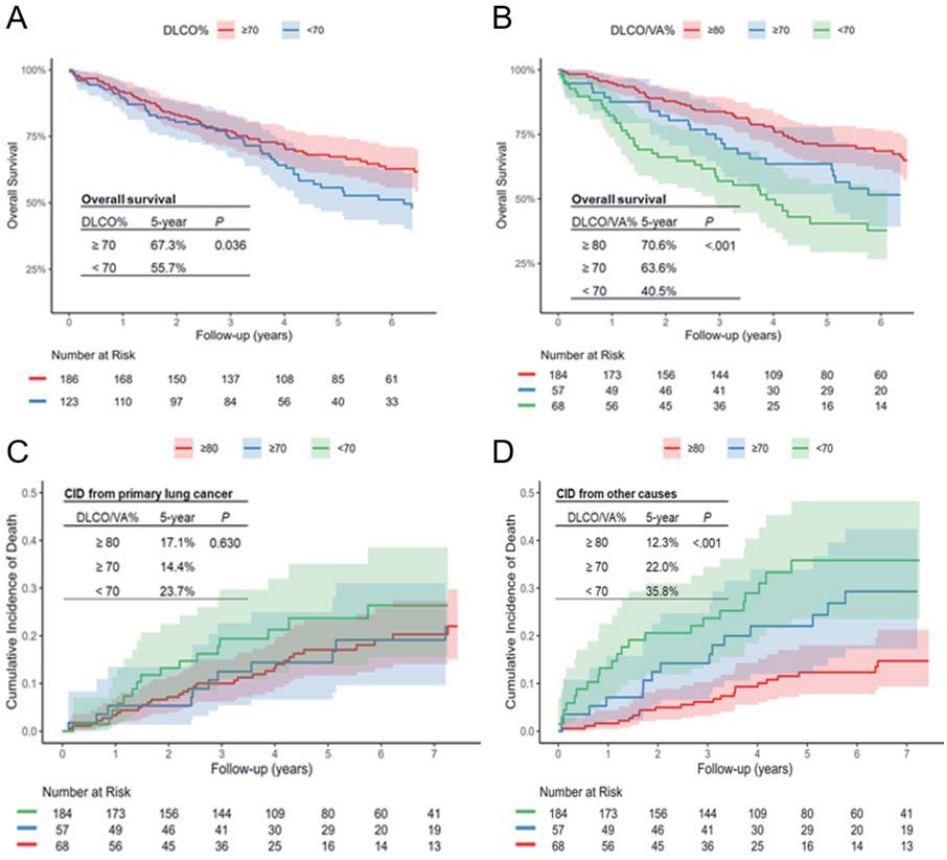
OBJECTIVES
This study aims to identify the predictive role of diffusion capacity per alveolar volume (DLCO/VA) in long-term survival following curative resection of lung cancer, particularly in patients with low diffusion capacity.

METHODS
From January 2005 to December 2019, patients with preoperative diffusion capacities lower than 80%, who underwent complete resection beyond lobectomy, were included in this study. Multivariable Cox regression analysis for all causes of death and competing risk regression analysis using the Fine-Gray model for deaths due to primary lung cancer and other causes were conducted.

RESULTS
A DLCO/VA ≥ 80% was observed in 59.5% of patients (184 out of 309). The 5-year overall survival rates significantly differed according to the percent of predicted DLCO/VA (≥ 80%: 70.6%; 70-79%: 63.6%; <70%: 40.5%; log-rank P < .001). Multivariable analysis revealed that a decrease in DLCO/VA was associated with poor prognosis for all-cause mortality (hazard ratio 1.16, 95% confidence interval 1.03 – 1.30, P = 0.016). In competing risk regression analysis, the risk of death from causes other than lung cancer increased in accordance with the DLCO/VA in the multivariable analysis (hazard ratio 1.2, 95% confidence interval 1.01 – 1.43, P = 0.041).

CONCLUSIONS
DLCO/VA is an independent and clinically significant determinant of long-term survival in patients with low diffusion capacity following major lung cancer surgery.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Carcinoma, Pulmonary Function Test, Diffusing Capacity, Diffusing Capacity Per Alveolar Volume.


A
DLCO% ≥70 <70
Overall Survival
Overall survival
DLCO% 5-year P
≥ 70 67.3% 0.036
< 70 55.7%
Follow-up (years)
Number at Risk
186 168 150 137 108 85 61
123 110 97 84 56 40 33
B
DLCO/VA% ≥80 ≥70 <70
Overall Survival
Overall survival
DLCO/VA% 5-year P
≥ 80 70.6% <.001
≥ 70 63.6%
< 70 40.5%
Follow-up (years)
Number at Risk
184 173 156 144 109 80 60
57 49 46 41 30 29 20
68 56 45 36 25 16 14
C
≥80 ≥70 <70
Cumulative Incidence of Death
CID from primary lung cancer
DLCO/VA% 5-year P
≥ 80 17.1% 0.630
≥ 70 14.4%
< 70 23.7%
Follow-up (years)
Number at Risk
184 173 156 144 109 80 60 41
57 49 46 41 30 29 20 19
68 56 45 36 25 16 14 13
D
≥80 ≥70 <70
Cumulative Incidence of Death
CID from other causes
DLCO/VA% 5-year P
≥ 80 12.3% <.001
≥ 70 22.0%
< 70 35.8%
Follow-up (years)
Number at Risk
184 173 156 144 109 80 60 41
57 49 46 41 30 29 20 19
68 56 45 36 25 16 14 13

P-170

LUNG METASTASES TREATED BY BRONCHOSCOPIC MICROWAVE ABLATION: INNOVATIVE APPROACH: FRENCH ONE YEAR EXPERIENCE

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OBJECTIVES

Transbronchial microwave ablation (TMWA) is an alternative treatment modality for small pulmonary oligometastases (<2cm). The recent NAVABLATE study reported no mortality and fewer complications (13,3%) than the percutaneous approach. Based on these results, we developed the first bronchoscopic TMWA program in France.

METHODS

Patients ≥18 years of age with a metastatic pulmonary nodule, ≤20 mm in diameter were recommended for TMWA in case they declined surgery or to spare parenchyma. All cases were reviewed at the institution multi-disciplinary tumor board to determine whether they were candidates for surgery, radiotherapy or ablation. TWMA was carried out under general anesthesia in a hybrid theatre (Allia, GE) with navigation bronchoscopy (Illumisite, Medtronic) and cone-beam computed tomography. Ablation was performed using the Emprint ablation catheter (Medtronic).

RESULTS

Between December 2022 and December 2023, we performed TMWA to 9 metastases in 8 patients in our surgical department. 7 patients had previous lung surgery. Median nodule size was 10 mm (range 8-13 mm). Median procedure time was 153 min (range 121-240 min). Procedure-day technical success was 100%. Length of stay was 1 days for all patients. There were no deaths, haemoptysis, pleural effusion or chest pain. Complications occurred in two patients, both were pneumothoraces. One patient had a pleural puncture during navigation which spontaneously resolved. Another patient developed a post procedure pneumothorax and persistent airleak requiring drainage for 15 days. One year imaging showed adequate ablation coverage of lesion and no evidence of recurrence.

CONCLUSIONS

Bronchoscopic lung thermal ablation is an innovative therapy, it adds to the treatment options for oligometastatic disease. It is safe, has a fast recovery and preserves parenchyma. The

procedure is complex and long in our early experience, but a learning curve is expected. The addition of robotic assisted bronchoscopy is likely to streamline the navigation process, further improve accuracy and thus reduce procedure time.

Disclosure: Medtronic, GE, consultant.
Keywords: Lung, Ablation, Metastasis, Bronchoscopy, Innovation.

P-171

LUNG RESECTION TRAINING MODEL WITH BLOOD BEATING USING EXCISED PORCINE LUNGS

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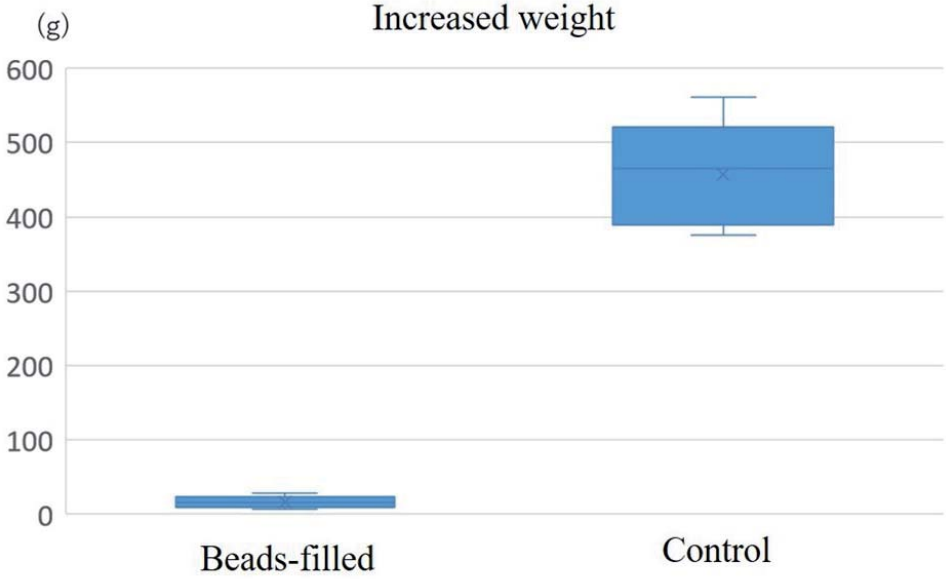
OBJECTIVES
Surgical training is an essential part of thoracic surgery. However, the dry lab lacks of sense of actual surgery, and the wet lab opportunities are diminishing due to animal welfare concerns. In the excised lungs, the lack of beating of blood vessels and the bleeding from damaged blood vessels was the cause of the poor reality. In this study, a training model with simulated blood beating was created and evaluated.

METHODS
The pseudo blood was pumped into the right ventricle with the device which produce pulsatile pressure to produce the pulsation of the pulmonary artery. To avoid the parenchymal pulmonary edema by infusing pseudo blood into the pulmonary artery, which could complicate the training, pulmonary microvessels were embolized by infusing micro-beads (50μm diameter) beforehand.
To evaluate the prevention of pulmonary edema with micro-beads infusion, the weight gain was compared between the beads-filled group and the control group. When the pulmonary artery is injured, pseudo-blood, rather than beads, has to bleed for training. The pulmonary artery was injured 20 minutes after the start of the pulse to evaluate for bleeding.

RESULTS
The increased weight at 20 minutes after beating of the beads-filled group (16.4±7.0g) was significantly lower than that of the control group (457.0±64.7g) (p=0.008). The beads-filled group did not develop pulmonary edema, while the control group developed pulmonary edema making the lungs unsuitable for training. Even in the beads-filled group, injury to the pulmonary artery resulted in beating bleeding, not beads, and was available for training. This model provided realistic training to the surgeons in training, and the average operation (lobectomy) time was shortened from 42 minutes to 39 minutes.

CONCLUSIONS
Our beating model prevents pulmonary edema and is suitable for lung resection training. It is recommended for all surgeons, especially surgeons in training, and students.

Disclosure: No significant relationships.
Keywords: Lung Resection, Training Model.


Increased weight
(g)
600
500
400
300
200
100
0
Beads-filled
Control

P-172

LUNG TRANSPLANTATION IN PATIENTS WITH PULMONARY FIBROSIS: A REFERRAL CENTER'S EXPERIENCE

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OBJECTIVES
To scrutinize the outcomes of lung transplantation (LTx) in individuals with pulmonary fibrosis.

METHODS
A prospective cohort of lung transplant recipients between 2015 and 2023 at a referral hospital. Variables, including age, gender, diagnosis, transplant type, use of pre-, intra-, and post-operative ECMO assistance, Primary Graft dysfunction (PGD) at 48-72 hours, intrahospital mortality, and survival were assessed. Qualitative variables are expressed as percentages and were compared using chi-square or Fisher's exact test. Multivariate analysis was conducted using logistic regression. Quantitative variables are presented as mean ± deviation. Significance was set at $p \leq 0.05$.

RESULTS
Out of 524 lung transplant patients (66.2% males, mean age 54.43±13.48 years), 199 were diagnosed with pulmonary fibrosis (PF) (37.9%)(79% males, mean age 58.79±8.46 years). Recipient and procedural details are outlined in Table 1. A total of 159 double lung transplants (79.9%) were performed, with a mean ischemia time of 296.68±80.37 minutes. In 122 cases (61.3%), intraoperative assistance was required (central V-A ECMO in 104, peripheral V-A ECMO in 10, and CPB in 8). Postoperatively, ECMO extension was necessary in 26 patients (13.1%), averaging 4.6±3.1 days. 51% experienced PGD (36.2% grade 3). Intrahospital mortality was 12.6%, higher in patients over 70 years old (p=0.03), those requiring postoperative ECMO (p=0.001), and those developing PGD grade 3 (p=0.001). Survival rates at one year (82.7%) and five years (53.8%) were lower among patients over 70 years old (p=0.001), with BMI over 28 (p=0.036), those undergoing single lung transplants (p=0.008), and those with PGD 3 (p=0.027).

CONCLUSIONS
Postoperative ECMO requirement, PGD grade 3, and age over 70 are risk factors that increase mortality in lung transplant recipients with pulmonary fibrosis. The latter two and a BMI over 28 correlate with diminished short- and medium-term survival.

Disclosure: No significant relationships.

DIAGNOSIS	N	%	
USUAL INTERSTITIAL PNEUMONIA	99	49.70	
SECONDARY TO SYSTEMIC DISEASES	24	12.10	
Sjögren Syndrome	6	25	
Scleroderma	5	20.8	
Rheumatoid arthritis	4	16.6	
Dermatomyositis	3	12.5	
Others	6	25	
COMBINED EMPHYSEMA-FIBROSIS	19	9.5	
HYPERSENSITIVITY PNEUMONITIS	19	9.5	
NONSPECIFIC INTERSTITIAL PNEUMONIA	15	7.5	
PNEUMOCONIOSIS	11	5.5	
SARCOIDOSIS	4	2	
OTHERS	8	4	
	MEAN	**STANDARD DEVIATION**	**RANGE**
WEIGHT (Kg)	74.26	11.66	43-100
HEIGHT (m)	1.68	0.08	1.41-1-94
BMI (Kg/m²)	26.11	3.47	16.30-33.90

P-173

LY6C+ CDC2-SPECIFIC CXCR1 DEFECTS MITIGATE ACUTE LUNG INJURY BY SUPPRESSING THE TH17/TREG IMBALANCE VIA MEK1/ERK SIGNALING DOWNREGULATION

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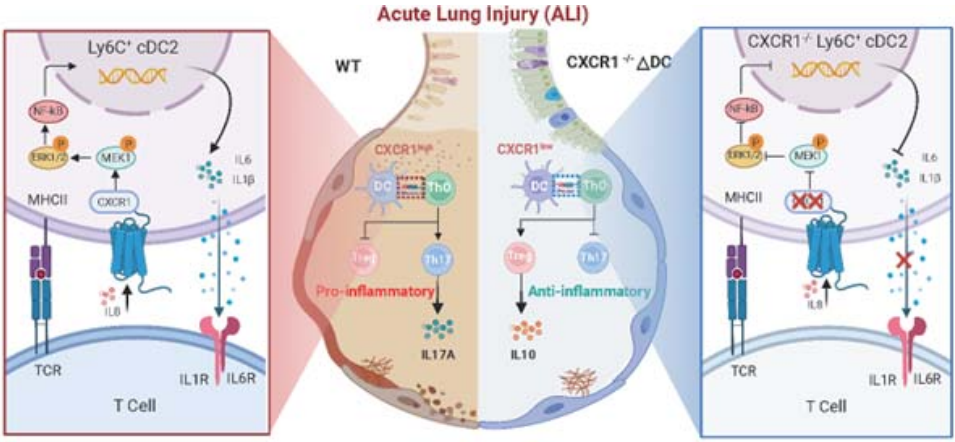
OBJECTIVES
In this study, we aim to explore the effect of dendritic cells (DC)-specific C-X-C motif chemokine receptor (CXCR1) deletion on acute lung injury (ALI) development and identified its certain regulatory mechanisms.

METHODS
Lipopolysaccharides (LPS) inducing ALI model and DC-specific CXCR1 deletion model were generated to evaluate the regulatory effect of CXCR1 within DC. DC-T crosstalk and certain effector DC population were identified via single-cell RNA sequencing. The influence of CXCR1 deletion in DC was verified by Enzyme linked immunosorbent assay (ELISA) and DC-T coculture. Downstream signaling of CXCR1 was demonstrated using western blot and polymerase chain reaction.

RESULTS
Our study revealed that mice with DC-specific deletion of CXCR1 exhibited improved outcomes in ALI. We observed a significant expansion of Treg cells in mice with DC-specific deletion of CXCR1 via single-cell RNA sequencing. Additional investigations substantiated that the primary consequence of CXCR1 deficiency within LY6C+ cDC2, was reduction in the generation of interleukin-6 (IL-6) and interleukin-1β (IL-1β), which favors the conversion of Treg cells over Th17 cells. Adoptive transfer of CXCR1-deficient Ly6C+ cDC2 significantly reduced the Th17/Treg ratio in the lungs and spleens of recipient mice, thereby alleviating ALI. Mechanistically, we identified that CXCR1 activated the MEK1/ERK signaling pathway to initiate NF-κB-dependent inflammatory responses, thereby regulating the transcription and production of IL-6 and IL-1β.

CONCLUSIONS
CXCR1 defects specified by LY6C+ cDC2 is essential for converting its inflammatory phenotype and suppressing the Th17/Treg imbalance, dampening the ALI development.

Disclosure: No significant relationships.
Keywords: Acute Lung Injury, LY6C+ CDC2, CXCR1, Th Differentiation.


Acute Lung Injury (ALI)
WT
CXCR1 -/- ΔDC
Ly6C+ cDC2
CXCR1 -/- Ly6C+ cDC2
NF-kB
ERK1/2
MEK1
IL6
IL1β
MHCII
CXCR1
IL8
TCR
IL1R
IL6R
T Cell
CXCR1high
CXCR1low
DC
Th0
Th1
Th17
Pro-inflammatory
Anti-inflammatory
IL17A
IL10

P-174

MAGNETIC-GUIDED OCCULT LESION LOCALIZATION IN AID OF SURGICAL RESECTION OF SUBCENTIMETRIC PULMONARY NODULES: A NON-INFERIORITY TRIAL

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OBJECTIVES

Small pulmonary nodules and ground glass opacities are frequently incidental discoveries, as a manifestation of primary lung cancer or a metastatic tumors.
When using minimally invasive surgery, they are always a challenge for the surgeon. Therefore, many intraoperative tracking methods have been developed.
Magnetic-guided occult lesion Localization (M-GOLL) has been recently adapted for its use to aid uniportal-VATS lung resections by our study group.
In this study we compare M-GOLL with other intraoperative localization methods to ensure non-inferiority and contrast its safety.

METHODS

This is a retrospective, observational, cohorts study, with 48 patients from two different hospitals, that required different kind of lung resections.
Three different techniques for intraoperative lesion localization were used, and preoperative CT-guided punctions were required to tag the pulmonary lesions.
1) Radioactive occult lesion localization (ROLL) was used in 21 patients.
2) Magnetic-guided occult lesion localization (M-GOLL) was used in 18 patients, placing 21 fiducials.
3) Hookwire was use in 9 patients.
The fiducials used for M-GOLL were placed several days-weeks before the surgical procedure, while hookwires and radioisotopes were placed immediately before surgery.
The groups were compared by a single-sided propensity score (non-inferiority test).
Variables were retrieval rate, different complication rates, scheduling difference, in-hospital stay, surgical time and positive margins rate.
Effectiveness and safety were established with a threshold of 0.05% for developing hypotheses.

RESULTS

Effectiveness:
-100% of the pulmonary lesions were retrieved along with the different types of fiducials/tags.
Safety:
-Odds-Ratio and Relative Risk demonstrated negative association of M-GOLL with complications, in comparison with the other two techniques.

-Less prevalence of complications was found in the M-GOLL group. The same as risk reductions, absolute and relative, indicated negative association.

CONCLUSIONS

Impact and association measures indicate non-inferiority of M-GOLL towards the other two techniques, in safety and effectiveness.

Ease of use and flexible scheduling give M-GOLL interesting advantages among other techniques.

Disclosure: No significant relationships.

Keywords: Anatomic Segmentectomy, M-GOLL, Subsolid Pulmonary Nodules, Subcentimetric Pulmonary Lesions, Ground Glass Opacity.

Technique	Mean Day Diff. TAG-Surg.	Mean PO Stay	VATS %	Previous surg.	Mean nod.size	Mean Depth-mm (pleura)	Mean surg. sample	Mean surg. Time	Mean nod. size
M-GOLL	16,6 (0-75)	4,52 (3-24)	73,33	26,32%	9,46	33,18	117,2	115	7,3
ROLL	0	3,9 (2-15)	100	4,80%	8,15	17,74	141,79	100	9
Hookwire	0	6,3 (1-23)	55,55	33,33%	12,79	9,86	177,275	107	10

	n	Frec. Abs.	Frec. Rel.	%	Frec. Abs.	Frec. Rel.	%	Frec. Abs.	Frec. Rel.	%	Frec. Abs.	Frec. Rel.	%	Frec. Abs.	Frec. Rel.	%
M-GOLL	21	1,00	0,05	4,76	0,00	0,00	0,00	4,00	0,19	19,05	1,00	0,05	4,76	0,00	0,00	0,00
ROLL	21	6,00	0,29	28,57	1,00	0,05	4,76	7,00	0,33	33,33	2,00	0,10	9,52	1,00	0,05	4,76
Hookwire	9	3,00	0,33	33,33	0,00	0,00	0,00	6,00	0,67	66,67	0,00	0,00	0,00	0,00	0,00	0,00

	Safety Table	Alveolar Hemorrhage	Hemothorax	Pneumothorax	Migration	Positive Margins
Rel. Freq.	M-GOLL	0,05	0,00	0,19	0,05	0,00
	ROLL	0,29	0,05	0,33	0,10	0,05
	Harpon	0,33	0,00	0,67	0,00	0,00
Vs ROLL	OR	0,13	0	0,47	0,48	0
	RR	0,24	0	0,57	0,5	0
	PR	0,24	0	0,57	0,5	0
	ARR	0,24	0,048	0,14	0,05	0,05
	RRR	0,83	1	0,43	0,5	1
	FAE	-5	-	-0,75	-1	-
	AR	-0,24	-0,048	-0,14	-0,05	-0,05
	NNT	4,2	21	7	21	21
Vs Hookwire	OR	0,1	-	0,12	-	-
	RR	0,14	-	0,29	-	-
	PR	0,14	-	0,29	-	-
	ARR	0,29	0	0,48	-0,5	0
	RRR	0,86	-	0,71	-	-
	FAE	-6	-	-2,5	1	-
	AR	-0,29	0	-0,48	0,5	0
	NNT	3,5	-	2,1	-21	-

Retrieval Rate	FA	FR	%
M-GOLL	21	1	100
ROLL	21	1	100
Hookwire	9	1	100

Surgery Type	M-GOLL	ROLL	Harpon
Wedge	14	18	8
A. Segmentectom	3	0	1
Lobectomy	2	3	0

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WITHDRAW

P-176

MANAGEMENT OF PROLONGED AIR LEAK AND PREVENTION OF SUBCUTANEOUS EMPHYSEMA IN UNIPORTAL-VIDEO ASSISTED THORACIC SURGERY (VATS) SURGERY. IS THERE A RELATION WITH INTERCOSTAL LEVEL-SITE CHEST TUBE INSERTION? A MONOCENTRIC EXPERIENCE

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OBJECTIVES
Prolonged air-leak (PAL) is the most common complication after lung resections (10-20%), many of which are further complicated by subcutaneous emphysema (SE) that can lead to a significantly prolonged hospital stay. PAL was defined as an air-leak longer than 5 days. SE was defined as clinically significant when it required operative manoeuvres. The aim of this study is to investigate if the intercostal level-site chest tube insertion after lung surgery can influence the air-leak verification, the management of PAL and the development of SE.

METHODS
We retrospectively selected 459 patients (Table 1) who underwent major/minor lung resection in uniportal-VATS from Jan-2019 to Sept-2023. We composed two groups based on the intercostal level-site chest tube insertion. In 358 patients, chest tube was placed from the U-VATS access at 4th or 5th intercostal space (U-Tube), while in 101 patients it was placed at 7th or 8th intercostal space (St-Tube). This depended by the surgeon's policy based on high risk factors for PAL.

RESULTS
The overall rates of PAL and SE were 13.1% (60/459 patients) and 8.1% (37/459 patients), respectively. We observed differences in the distribution of air-leakage and SE in the two groups. Air-leak was greater in the St-Tube group (17.8% vs 11.7%). However, the development of SE in these patients was lower than that in the U-Tube group (4.9% vs 8.9%).

CONCLUSIONS
According to preliminary results, the placement of a chest tube at the 7th or 8th intercostal space (St-tube group) in patients with high risk of PAL permit a better verification of a pulmonary air-leak in the post-operative period. Furthermore, this allows to reduce the occurrence of clinically significant SE. This evidence could be linked to the malfunction of the drainage in U-Tube group due to the kinking that it may have if placed at 4th or 5th intercostal space.

Disclosure: No significant relationships.
Keywords: Uniportal-VATS, Air Leak, Subcutaneous Emphysema.

Variable	Number of patients 459 (100%)
Smoke Former/ex-smoker Never	 311 (67.8%) 148 (32.2%)
Resection Wedge Lobe Bilobe Segmentectomy	 150 (32.7%) 260 (56.7%) 3 (0.6%) 46 (10.0%)
Side resection Right Left	 264 (57.5%) 195 (42.5%)
Drain access U-Tube St-Tube	 358 (78%) 101 (22%)
Air leak Yes No	 60 (13.1%) 399 (86.9%)
Subcutaneous Emphysema Yes No	 37 (8.1%) 422 (91.9%)

Air leak U-Tube Yes No Air leak St-Tube Yes No	 42 (11.7%) 316 (88.3%) 18 (17.8%) 83 82.2
Subcutaneous Emphysema U-Tube Yes No Subcutaneous Emphysema St-Tube Yes No	 32 (8.9%) 326 (9.1%) 5 (4.9%) 96 (95.1%)

P-177

MANUAL VERSUS ENERGY STAPLERS IN MINIMALLY INVASIVE LUNG SURGERY

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OBJECTIVES
Manual surgical staplers currently play a dominant role in minimally invasive lung surgery, but disposable or not powered staplers represent a new option in suturing devices. In this study, we analized the advantages of the new powered staplers in terms of ergonomics, device malfunctions and tightness of the suture on lung parenchimal tissue.

METHODS
From January to December 2023 150 major lung resections were included, because 5 ones were excluded for open conversion. Standard staplers were used in 75 cases (Group A), powered surgical staplers in the remaining 75 cases (Group B). We analyzed operative time, post-operative length of stay, post-operative complications, serum/blood loss, air leaks, comparing the data between the two groups. The surgeon's degree of satisfaction in terms of ergonomics was also analyzed.

RESULTS
No significative differences were noted in age, sex, comorbidity, post-operative atelectasis (9.3% vs. 10.7% p = 0.6480) and length of stay (2.5±0.5 days vs. 2.9±0.7 days – p = 0.2274). Operative time was significative reduced in Group B (65.5±7.2 minutes vs. 69.7±5.2 minutes – p = 0.0193) as the serum/blood loss (81.1±9.6 ml vs. 95.2±8.9 mL – p = 0.0032) and in air leaks (12% vs. 9.3% - p = 0.0052).

CONCLUSIONS
Our experience showed that the use of energy staplers makes it easier for the surgeon to perform the procedure without affecting its quality. We reported reduced operating times compared using standard staplers, less intraoperative serum/blood loss and lower air leak. Furthermore, the average firing force reduced by at least 95% than manual staplers to reduce operator fatigue and minimal distal movement to enhance staple line integrity. Another advantage is the reusable or/and single use optional. The learning curve for using these devices is rapid and the ability to control opening and firing with one hand translates into economy of movement for the surgeon.

Disclosure: No significant relationships.
Keywords: Lung Resection, Stapler, Energy Devices.

Tabla 1. Comparison of selected variables. No difference for age, sex and comorbidity

Variables	Total (n= 150)	Group A (n = 75)	Group B (n = 75)	p
Length of stay (days)	2.7 ± 0.6	2.5 ± 0.5	2.9 ± 0.7	0.2274
Complications	15 (10%)	7 (9.3%) atelectasis	8 (10.6%) atelectasis	0.6480
Air leaks	**16 (10.6%)**	**9 (12%)**	**7 (9.3%)**	**0.0052**
Serum/Blood loss (ml)	88.9 ± 11.5	95.2 ± 8.9	**81.1 ± 9.6**	**0.0032**
Operative time (min)	66.5 ± 7.0	69.7 ± 5.2	**65.5 ± 7.2**	**0.0193**

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MESOTHELIOMA-ASSOCIATED-FIBROBLASTS (MAFS) AS MODULATORS OF THE RESPONSE TO CHEMOTHERAPY IN CULTURES OF MESOTHELIOMA-PATIENTS-DERIVED-CANCER-ORGANOIDS (MPDOS)

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OBJECTIVES

Malignant Pleural Mesothelioma (MPM) is an aggressive cancer. Surgery had a limited role and Chemotherapy remained the treatment of choice. Mesothelioma-patients-derived-cancer-organoids (MPDOs) hold great potential to accurately model and predict therapeutic responses and the Cancer-Associated-Fibroblasts (MAFs) were shown in many tumor settings to modulate resistance to therapy. Herein, we investigated for the first time the role of MAFs in mesothelioma-organoid-culture to predict the resistance to chemotherapy.

METHODS

Organoid cultures and MAFs were obtained by pleural exudates or solid specimens from eight MPM-patients and, after mechanical and enzymatic disaggregation, embedded in Matrigel drops and submersed in an Organoid-Growth-Medium for MPDOs. Flow-cytometry was used to validate similar expression of markers between the sourcing specimen and the MPDOs. ELISA was employed to quantify cytokines levels in co-culture supernatants. The organoid cultures were tested with increasing doses of pemetrexed + cisplatin and the response to chemotherapy was then measured.

RESULTS

We proved that primary MPM-specimens and serially passaged (p3) MPDOs were cytologically similar ($p<0.0001$). Indeed, the obtained MPDOs expressed mesothelial markers similarly to the originating specimen (MSLN; CALB2; KRT5/6; PDPN). When challenged with clinically relevant doses of cisplatin + pemetrexed the MPDOs cultures responded heterogeneously,

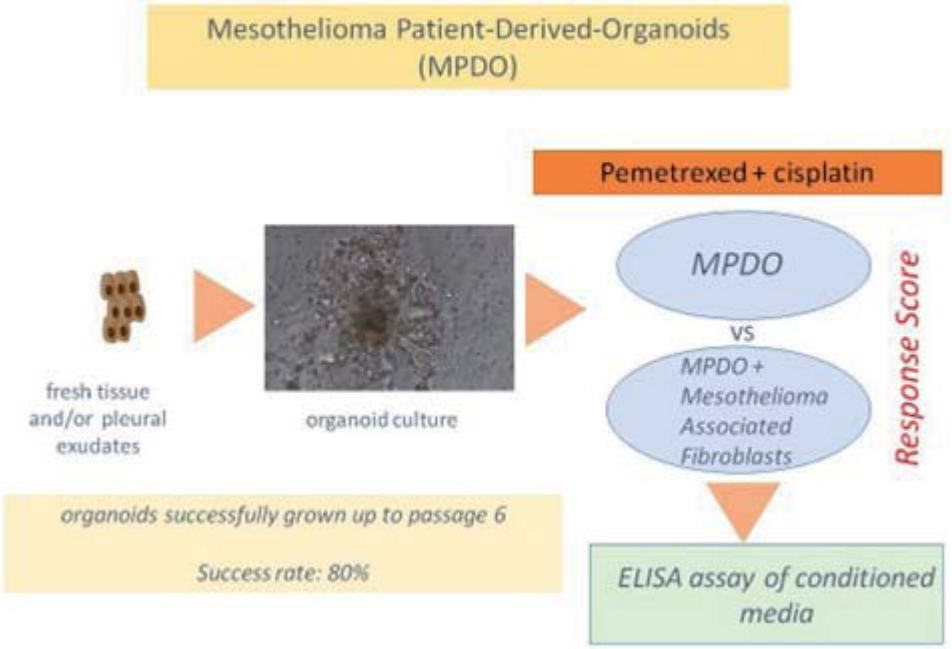
as expected. Size and number of MPDOs were altered, in a patient-specific way, when the pharmacologically relevant doses of chemotherapy drugs were added. Finally, we have derived mesothelioma-associated-fibroblasts (MAFs) with the possibility of culturing with MPDOs. The addition of MAFs, to various ratios, altered the response of the MPDOs to pemetrexed + cisplatin, in a dose dependent way. We showed increased levels of IL-6 in the supernatant of the co-cultures derived from the MAFs.

CONCLUSIONS

The increased secretion of IL-6 by mesothelioma-associated-fibroblasts (MAFs) seemed to contribute to the resistance of the MPM to therapy.

Disclosure: No significant relationships.

Keywords: Mesothelioma Biology And Etiology, MAFs, Organoid Culture, Mechanisms Of Treatment Resistance/Failure.



P-179

MICRORNA-299-3P CAN TELL HOW LARGE A LUNG TUMOR IS

Ibrahim Emre Tunca[1], Maruf Sanli[2], Demet Tasdemir Kahraman[3], Ahmet Ulusan[2], Ahmet Feridun Isik[2], Seval Kul
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OBJECTIVES

Lung cancer is a significant cause of mortality globally, with non-small cell lung cancer (NSCLC) accounting for 85% of all cases (1,2). Disturbances in telomerase activity can cause abnormal cell proliferation and immortality, leading to cancer development (3). During cancer initiation and progression, miRNAs can function as either tumor suppressors or oncogenes (4). Bioinformatic analysis revealed that miRNA-299-3p interacts significantly with the active telomerase enzyme (5). The study analyzed the levels of miRNA-299-3p in pre-operative and postoperative blood samples. If there is a significant difference in miRNA-299-3p levels, it is predicted that miRNA-299-3p could be used as a non-invasive biomarker for disease prognosis.

METHODS

After power analysis, this prospective study analyzed the levels of miRNA-299-3p in the venous blood of 15 volunteers diagnosed with NSCLC who underwent anatomic surgical resection at our tertiary hospital. Blood samples were collected prior to and three weeks after the surgery. Commercial kits were used to isolate miRNA according to the manufacturer's instructions. The study excluded patients who had undergone chemotherapy and/or radiotherapy previously, those who were deemed inoperable and/or irresectable, those who had two or more primary malignant tumors, and those who did not provide written consent. The study was approved by the Clinical Research Ethics Committee.

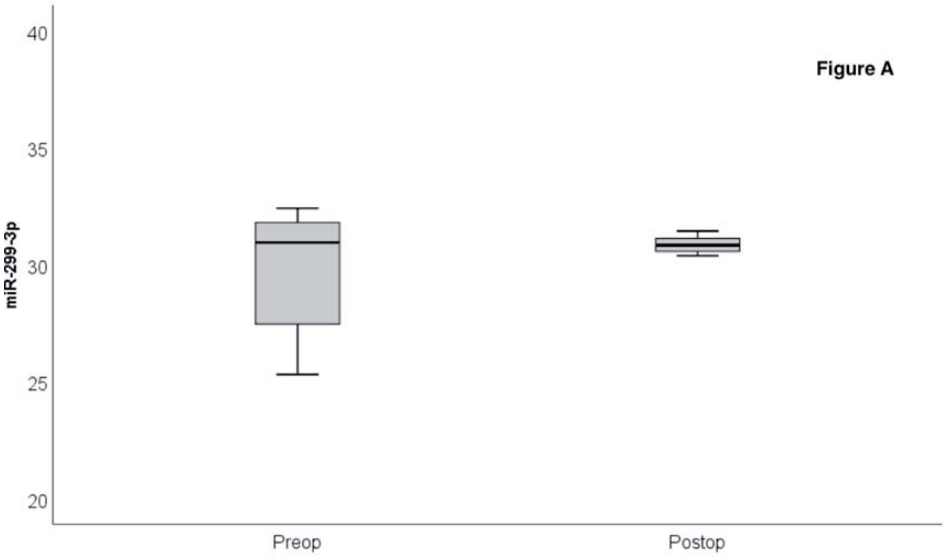
RESULTS

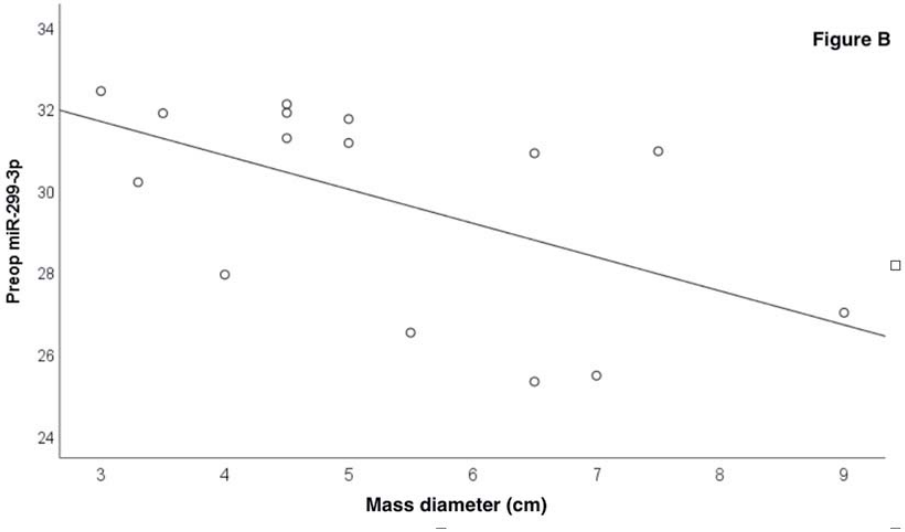
The data obtained did not reveal any significant difference between the miRNA-299-3p values obtained from the serum before and after the operation at the third week (Figure A). Additionally, a negative correlation was observed between the preoperative miRNA-299-3p values and the diameter of the tumor mass. (r=-0.592, p=0.020) (Figure B).

CONCLUSIONS

miRNA-299-3p levels are associated with tumor mass diameter. It is hypothesized that decreased miRNA-299-3p levels remove telomerase suppression, allowing cells to achieve infinite proliferation and immortality. Further research is needed to determine whether miRNA-299-3p can serve as a non-invasive biomarker for NSCLCs.

Disclosure: No significant relationships.
Keywords: Lung Cancer, PCR, Molecular Genetic, Thoracic Surgery, Micro RNA.





P-180

MINIMALLY-INVASIVE SINGLE-PORT SEGMENTECTOMY VERSUS LOBECTOMY IN STAGE IA LUNG CANCER

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OBJECTIVES
The indication for anatomic sublobar resection in solid or predominantly solid stage IA non-small cell lung cancer is still debated despite recently published prospective randomized trials. Our aim was to evaluate the long-term oncologic outcome after these two surgical approaches and assess clinical and histopathologic parameters influencing overall mortality and recurrence rate.

METHODS
Retrospective analysis of all patients who underwent uniportal anatomic segmentectomy or lobectomy for pathologic stage IA lung cancer (8th edition) from January 2015 to December 2021. Data up to December 31, 2023 were included for oncological follow-up. The primary endpoints were overall survival and recurrence. Univariate and multivariate logistic regression were used to predict indicators for mortality and recurrence.

RESULTS
A total of 232 consecutive patients were included in the analysis. A segmentectomy was performed in 160 patients and a lobectomy in 72 patients. The distribution of histological subtypes was comparable, with adenocarcinoma being the most common histology (67.6%). The mean tumor size in the segmentectomy and lobectomy groups was 1.59 ± 0.63 and 1.71 ± 0.61, respectively. The mean number of resected lymph nodes was 10.38 ± 7.43 in 4.66 ±1.99 lymph node stations in the segmentectomy group and 14.07 ± 8.69 in 5.04 ± 1.58 lymph node stations in the lobectomy group. The 5-year overall survival rate were 76.9% in the segmentectomy group compared to 87.5% in the lobectomy group. A statistically non-significant difference. Multivariate analysis showed that men (OR = 3.21; CI: 1.33 to 7.75) and patients with lymphatic invasion (L) (OR = 4.60; CI: 1.27 to 16.66) had a higher risk of death. The probability of recurrence was higher in patients with a larger number of removed lymph node stations (OR = 1.93; CI: 1.01 to 1.92).

CONCLUSIONS
Our results support anatomic sublobar resection as an acceptable alternative to lobectomy with comparable oncologic results.

Disclosure: No significant relationships.
Keywords: Stage IA Lung Cancer, Uniportal Segmentectomy, Uniportal Lobectomy.

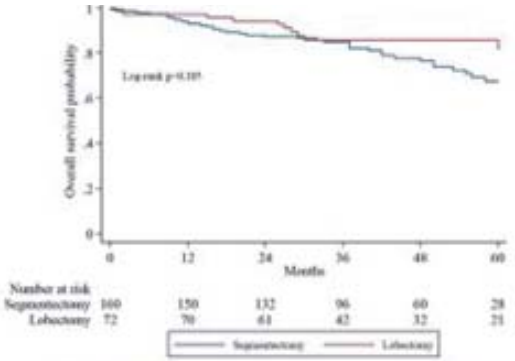

Figure 1. Kaplan-Meier analyses of overall survival (OS) by operation group

P-181

MODERNISING OUTPATIENT CLINICS IN THORACIC SURGERY - PATIENT PERSPECTIVES FROM A SINGLE INSTITUTION

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[3]*Leicester University Medical School, Leicester, United Kingdom*

OBJECTIVES
Remote consultations offer an alternative to conventional face-to-face outpatient visits - with potential environmental, cost and time-saving benefits. We sought to evaluate the acceptability of various appointment types to thoracic surgical follow-up patients at a single UK institution.

METHODS
A survey was designed and validated with patient and clinician input. This was delivered, electronically or by telephone interview, to all patients registered in a single Consultant Surgeon's follow-up clinic between September 2022 and April 2023. UK Index of Multiple Deprivation (2019) data were linked. Statistical analysis was performed in SPSS v.29.

RESULTS
128 responses were included from 157 eligible patients (81.5% response rate; mean age 64.32 ± 16.12 years; 78 (60.9%) male; 79 (61.7%) malignant diagnoses).
Patients expressed a preference for face-to-face appointments (9.11 ± 1.915). All remote appointment types were rated significantly lower than face-to-face ($p < 0.01$): telephone (7.06 ± 2.910), video (5.42 ± 3.590) and SMS (5.30 ± 3.581), with no difference between them. Patient age and gender did not influence declared preference. Patients with malignant diagnoses were less accepting of SMS-based follow-up ($p = 0.044$), as were those from higher socioeconomic backgrounds ($p=0.021$). This difference was not noted across other appointment types.
Patients reported placing variable value on the benefits of remote consultations, including: the efficient use of healthcare resources (scored 8.20 ± 2.453/10), saving time and disruption (6.65 ± 3.481), reducing environmental impact (6.28 ± 3.775), and saving on travel costs (5.64 ± 3.800). There was no difference across age, gender, diagnostic or deprivation groups.

CONCLUSIONS
Patients express a preference for face-to-face consultations, however, understand the multifaceted value of the various types of remote consultations. Consultative approaches to determining individual patient follow-up may be key in maximising resource use and sustainability, whilst maintaining patient satisfaction.

Disclosure: No significant relationships.
Keywords: Outpatient Clinics, Sustainability, Patient Experience.

Figure 1a: Satisfaction by Appointment Type

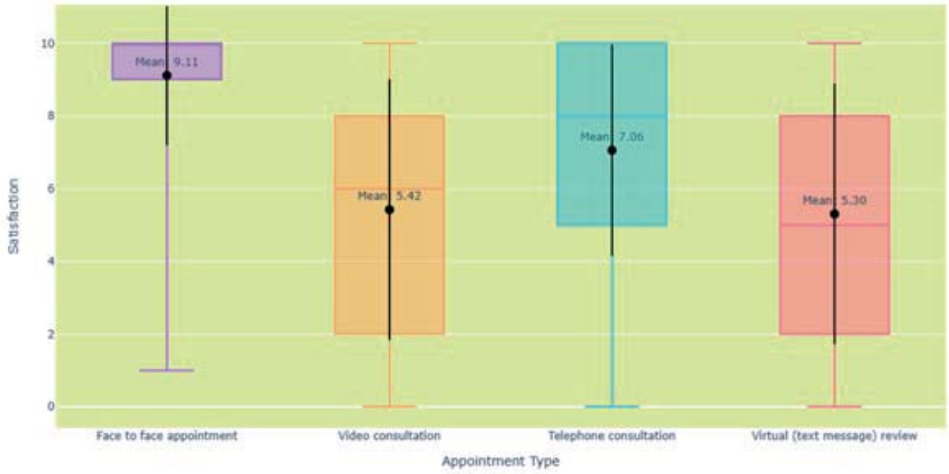
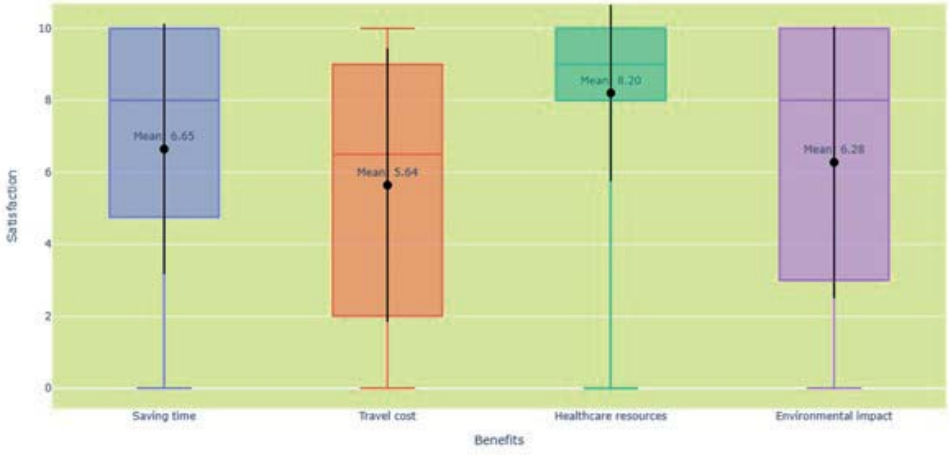


Figure 1b: Declared Value of Purported Benefits



P-182

MOLECULAR CHARACTERIZATION AND VALIDATION OF LIVE CELL BIOBANK FOR PLEURAL MESOTHELIOMA

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OBJECTIVES
The use of primary cells cultivated from patient material for research approaches, especially for in vitro drug testing, can overcome the drawbacks of long-term cultures of cell lines. Here we aim to characterize 196 pleural mesothelioma (PM) low passage primary cell lines generated over the past 16 years at our hospital.

METHODS
For the identification of tumor cells, we performed a stepwise characterization. To exclude fibroblasts, we evaluated epithelial cell origin by immunohistochemical staining (IHC) of pan-Cytokeratin (pan-CK) in FFPE cellblocks. Pan-CK staining intensity was scored as weak (1), moderate (2) and strong (3). Finally, histo (H)-score (sum of intensity multiplied with % positive cells, range 0-300) was calculated. We performed cell growth characterization using colorimetric assay for cell metabolic activity (MTT assay).

RESULTS
We have taken all the frozen stock cell lines to grow in culture using our established workflow. 117 cell lines (60%) grew after thawing and we could generate more frozen aliquots. Median pan-CK H-score analyzed from 67 cell lines was 49 and ranged from 0-300 (figure 1a). Among them, 23 cell lines have an H-score over 100. The doubling time, analyzed from 14 cell lines so far, ranged from 37-292 hours (median 83.6 hours) (figure 1b).

CONCLUSIONS
We have successfully re-cultured a large number of primary cell stocks, and shown that the doubling time of those of epithelial origin is within a good range for future experiments. Only pan-CK high expressing cell lines (H-score >100) will be selected for further staining with additional PM tumor markers by IHC compared to the original tumor tissues. The cell lines with concordant marker expression compared to the original will be further selected for assessment of copy number variation assay for the final validation. These primary cells represent an invaluable tool for the future use as translational research model for PM.

Disclosure: No significant relationships.
Keywords: Pleural Mesothelioma, Primary Cells, Biobank.

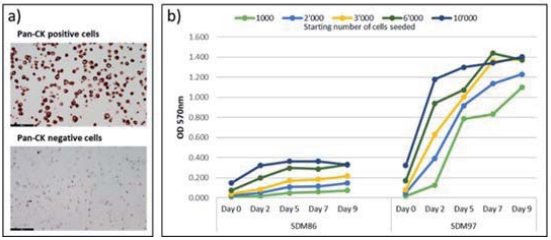

Figure 1

a) Examples of pan-CK staining in positive (H-score 300) and negative cell lines (H-score <100)

b) Growth curve of 2 cell lines performed over 9 days with MTT assay (optical density measurement with 570 nm light). We show here examples of slow growing (SDM86) and fast growing (SDM97) cell lines.

P-183

MORBIDITY AND MORTALITY RISK FACTORS ASSOCIATED TO LUNG HYDATIDOSIS SURGERY FOR CHILDREN: OVER 33-YEARS EXPERIENCE RESULTS

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OBJECTIVES

Several studies reported the results of surgical management of Lung Hydatidosis (LH) but only few ones were focused in the determination of the associated mortality and morbidity risk factors. The aim of this study was to determine the possible mortality and morbidity risk factors associated to LH surgery in children.

METHODS

This was a retrospective and analytical study including all children aged under 17, and who were operated-on for confirmed LH in the department of thoracic surgery in Habib Bourguiba University Hospital between 1987 and 2022. Different possible risk factors were analyzed with $\chi 2$ or Fisher test and a (p) value < 0,05 was taken as significative.

RESULTS

Our study included 506 children operated-on for LH with a mean age of 10,3 years (2 – 16 years) and a majority of boys (57,5%). There were a total of 577 cysts, with a median of 1 cyst (1-11 cysts) and a median size of 60 mm (10-200 mm). Cystectomy (aspiration of hydatid fluid and evacuation of the hydatid membrane) was used in 80% of cases, and cyst's enucleation was performed in 15%. Anatomical lung resection was made for 1.6% of children and a decortication was performed in 5.7% of cases. Thirty-seven percent of the cysts were complicated. Bronchial fistulas were objectified in 90.1% of cases with a median number of 3 (0-9 fistulas). The morbidity and mortality rates were 25.5%, and 0.2% respectively. Morbidity factors were: complicated cysts (p=0.036), associated pleural effusions (p=0.01), per operative bleeding (p=0.012), fistulas number >3 (p<0.001), anatomical resection (p=0.029) and passage through ICU after surgery (p<0.001). Surgical revision was the only associated mortality risk factor (p=0.012).

CONCLUSIONS

LH surgery is associated with significant morbidity in children. A good knowledge of the various possible risk factors would reduce the rate of complicated postoperative course.

Disclosure: No significant relationships.
Keywords: Lung Hydatidosis, Surgery, Results, Morbi-Mortality, Results.

P-184

MT1 GENE FAMILY SERVE AS POTENTIAL THERAPEUTIC TARGETS FOR LUNG REPAIR DURING HUMAN EX VIVO LUNG PERFUSION

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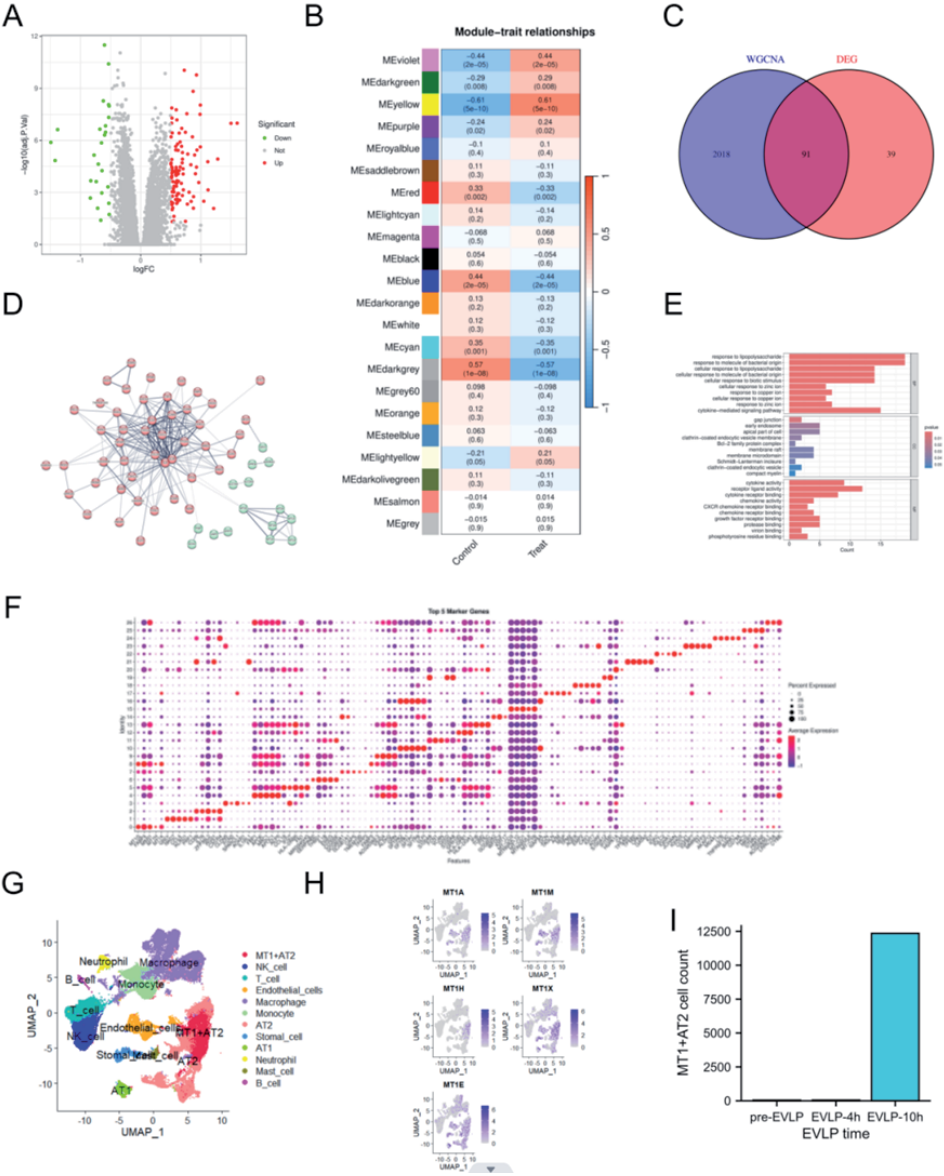
OBJECTIVES
The ex vivo lung perfusion (EVLP) method has been devised for evaluating the performance of marginal donor lungs. EVLP can also serve as a platform for targeted repair of donor lungs through specific treatments. This study aims to uncover potential therapeutic targets for lung repair within the EVLP processing, focusing on alterations in gene expression of pre-/post-EVLP pairs.

METHODS
Comprehensive analysis were performed with bulk RNA sequencing (49 pairs) and single cell RNA sequencing (2 pairs) of pre-/post-EVLP lung tissues from public data. Differential expression analysis and weighted correlation network analysis (WGCNA) were used to identify EVLP-related key genes. Single cell sequencing analysis is used to explore changes in cell composition and gene expression in different cell types of pre-/post-EVLP.

RESULTS
140 genes were identified as differentially expressed genes (DEGs) in pre-/post-EVLP pairs by differential expression analyzing (FDR<0.05,log|Fold Change|>0.5). WGCNA analysis clustered 22 modules based on gene expression, among which 2109 genes in the violet and yellow modules were correlated with EVLP (cor>0.4). Finally, 91 EVLP-related key genes were identified through intersection of DEGs and related module genes. Protein-protein interaction networks and pathway enrichment analysis suggest that the metallothionein 1(MT1) gene family plays an important role in the EVLP through zinc binding, which may have anti-inflammatory effects. Single cell sequencing analysis determined the changes in cell composition during EVLP and found that MT1 are mainly expressed in AT2 cells, which can also serve as a marker gene for cell clustering. The proportion of MT1+AT2 cells continuously increases with EVLP progression.

CONCLUSIONS
The MT1 gene family can serve as a potential therapeutic target during EVLP, and activating the MT1 related anti-inflammatory pathway may contribute to lung repair.

Disclosure: No significant relationships.
Keywords: Lung Transplantation, EVLP, Bioinformatic.


A
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Module–trait relationships
MEviolet
MEdarkgreen
MEyellow
MEpurple
MEroyalblue
MEsaddlebrown
MEred
MElightcyan
MEmagenta
MEblack
MEblue
MEdarkorange
MEwhite
MEcyan
MEdarkgrey
MEgrey60
MEorange
MEsteelblue
MElightyellow
MEdarkolivegreen
MEsalmon
MEgrey
Control
Treat
WGCNA
DEG
2018
91
39
Significant
Down
Not
Up
logFC
Neutrophil
Macrophage
B_cell
Monocyte
T_cell
Endothelial_cells
NK_cell
Stomal_cell
AT1
AT2
MT1+AT2
Mast_cell
UMAP_1
UMAP_2
MT1A
MT1M
MT1H
MT1X
MT1E
MT1+AT2 cell count
pre-EVLP
EVLP-4h
EVLP-10h
EVLP time

P-185

MULTICENTER RETROSPECTIVE COHORT STUDY ON PULMONARY LIGAMENT RESECTION IN UPPER LOBECTOMIES.

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OBJECTIVES

Lobectomy is the established gold standard for treating early-stage non-small cell lung cancer. While the division of the pulmonary ligament is standard in lower lobectomies to isolate and divide the inferior pulmonary vein, its application in upper lobectomies remains debatable. Ligament division may ease lung occupation in the chest cavity but could also elevate perioperative and long-term complications, including atelectasis and bronchial kinking. This retrospective case-control study aimed to assess the efficacy and safety of ligament resection in upper lobectomies for oncological purposes.

METHODS

Our retrospective analysis included 880 consecutive patients undergoing minimally invasive upper lobectomies (right and left) for neoplastic disease across five centers from January 2015 to December 2020. Patients were categorized into ligament resection (436) and no resection (444) groups. Propensity score-matched (PSM) analysis yielded 222 patients in each group. Endpoints included mean operative time, pleural effusion, complications (frequency and Clavien-Dindo scores), chest drainage removal (days), length of stay, re-expansion of residual lobes, collapse rate, and bronchial kinking. The significance level was set to 5% (α=0.05), and statistical tests were applied accordingly.

RESULTS

After PSM, patient characteristics were similar between groups (Table.1). Ligament resection correlated with longer median operative time ($p<0.001$) and more frequent lymphadenectomy of station 9. Complication incidence did not significantly differ, but severity according to Clavien Dindo varied ($p=0.003$). No significant differences were observed in residual pleural cavity, drained fluid volume, and bronchial angle changes. However, the collapse rate was significantly different ($p=0.025$). Multivariate analyses failed to identify any protective or risk factors for complications, air leak, pleural space, or mortality.

CONCLUSIONS

No substantial differences emerged between the two techniques in terms of perioperative complications, postoperative stay, or oncological outcomes. The decision to resect the pulmonary ligament during upper lobectomies appears discretionary and operator-dependent.

Disclosure: No significant relationships.
Keywords: Lung Cancer; Minimally Invasive; Lobectomy; Pulmonary Ligament.

Table 1. Characteristics and postoperative results of Patients after PSM analysis

	No ligament resection (n=222)	Ligament resection (n=222)	p-value
Male gender, n (%)	123 (55,4)	117 (52,7)	0,57
Age>66, n (%)	121 (54,5)	119 (53,6)	0,85
Smoking, n (%) no Former or active	 77 (34,7) 145 (65,3)	 78 (35,1) 144 (64,9)	0,92
CCI, n (%) 0-3 4-10	 108 (48,6) 114 (51,4)	 109 (49,1) 113 (50.9)	0,92
Upper Lobectomy, n(%) Right Left	 141 (63,5) 81 (36,5)	 136 (61,3) 86 (38,7)	0,62
Operative time minutes, mean±SD	120,4 ±36,7	140,7±48,8	<0,001
Intraoperative blood loss(mL), mean±SD	89,8±129,8	87,6±82,5	0,89
station #9 lymphadenectomy, n(%) no yes	 166 (74,8%) 56 (25,2%)	 133 (59,9%) 89 (40,1%)	0,001
station #9 positive lymphnodes, n(%) no yes	 52 (92,9%) 4 (7,1%)	 77 (86,5%) 12 (13,5%)	0,23
Postoperative complications, n (%) no yes	 195 (87,8%) 27 (12,2%)	 181 (81,5%) 41 (18,5%)	0,065
Clavien-Dindo scores, n (%) 1 2 3A 3B 4A 4B 5	 1 (3,7%) 25 (92,6%) 1 (3,7%) 0 (0,0%) 0 (0,0%) 0 (0,0%) 0 (0,0%)	 14 (34,1%) 20 (48,8%) 4 (9,8%) 2 (4,9%) 1 (2,4%) 0 (0,0%) 0 (0,0%)	0,003
III postoperative day pleural fluid (mL), mean±SD	200,8±169,7	211,1±146,7	0,65
Prolonged air leak, n(%) no yes	 204 (91,9%) 18 (8,1%)	 196 (88,3%) 26 (11,7%)	0,21
Pleural space, n(%) no yes	 109 (83,9%) 21 (16,1%)	 63 (87,5%) 9 (12,5%)	0,48
Apical space (mm), mean±SD	7,8 ±18,5	10,3±20,2	0,37
Collapse rate, mean±SD	8,8 ±7,3	5,6±10,9	0,025
Drainage removal (days), mean±SD	3,7 ±2,9	4,0±3,3	0,21

Table 1. Characteristics and postoperative results of Patients after PSM analysis (continuation)

	No ligament resection (n=222)	Ligament resection (n=222)	p-value
Length of stay (days), mean±SD	6,5 ±3,7	6,1±3,6	0,19
In-hospital mortality, n(%) no yes	 222 (100,0%) 0 (0,0%)	 222 (100,0%) 0 (0,0%)	 1,00
30-day mortality (%) no yes	 222 (100,0%) 0 (0,0%)	 221 (99,5%) 1 (0,5%)	 0,32
90-day mortality (%) no yes	 222 (100,0%) 0 (0,0%)	 220 (99,1%) 2 (0,9%)	 0,16
Bronchial kinking, n(%) no yes	 207 (93,2%) 15 (6,8%)	 199 (89,6%) 23 (10,4%)	 0,17

P-186

MULTI-REGION SEQUENCING REVEALS INTRA-TUMORAL AND INTER-TUMORAL HETEROGENEITY IN THYMIC EPITHELIAL TUMORS

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OBJECTIVES
Thymic epithelial tumors (TETs) exhibit a high degree of heterogeneity in pathology and clinical biology and studies about genomic heterogeneity of TETs are very limited.

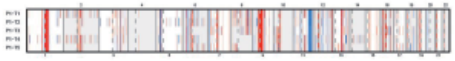
METHODS
This study analyzed the genetic characteristics and intra-tumoral and inter-tumoral genomic heterogeneity of TET through multi-regional whole-exome sequencing (WES).

RESULTS
We conducted multi-regional WES on 179 samples from 37 TET patients. Histological analysis revealed that the consistent pathological subtype across different regions of a primary lesion was observed in most patients. Mutated genes, the percentage of unique variations occurring in one region from an individual, tumor mutation burden (TMB), copy number variation (CNV) profiles, CNV burden, weighted genomic instability index (wGII) and mutation signatures all indicated high intra-tumoral heterogeneity of TET. Gene mutation profiles, TMB, CNV profiles, CNV burden, and wGII also exhibited variations across different patients. Type B1, B2, and B3 thymoma had higher CNV burden and wGII values than metaplastic, type A, and AB thymoma group. Higher intra-tumoral heterogeneity were observed in thymic carcinoma and neuroendocrine carcinoma of thymus (TC+NECT) and stage Ⅳ TET, by comparing the number of clones forming the tumor (ITH index) and Shannon diversity index (SDI). Gene mutation frequencies of MYH9, GNAQ, and MEN1 were significantly higher in TC+NECT, GTF2I was higher in the metaplastic, type A and AB thymoma group, and EIF1AX was significantly higher in type B3 thymoma. Clonal evolution analysis revealed different regions from a lesion had different evolutionary processes in most patients, and temporal heterogeneity of gene alterations was observed. Notably, all MEN1 mutations were classified as early-clonal in the clone analysis of somatic variants. Further analysis revealed that intertumoral heterogeneity was observed between primary and metastatic lesions.

CONCLUSIONS
Our results revealed the intra-tumoral and inter-tumoral genetic heterogeneity and clonal evolutionary trajectories of TETs, may providing a basis for potential personalized therapeutic strategies.

Disclosure: No significant relationships.
Keywords: Thymic Tumor, Heterogeneity, Multi-Region Whole-Exome Sequencing.

Metaplastic



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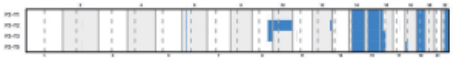

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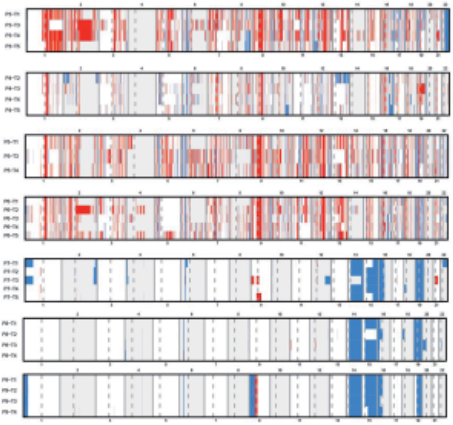

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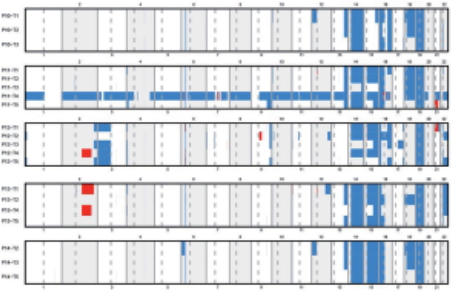

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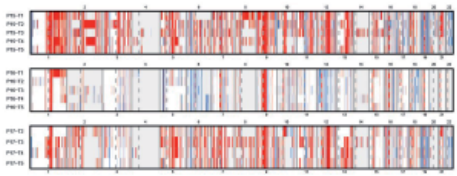

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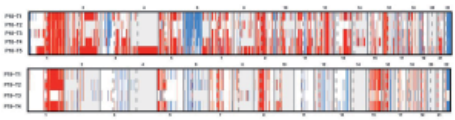

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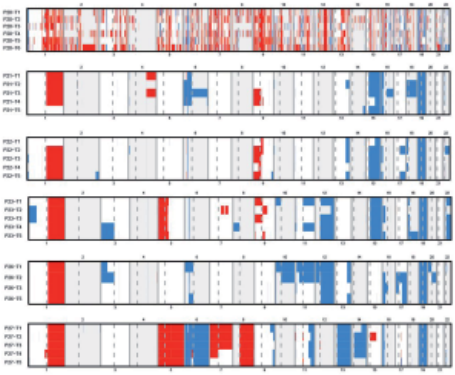

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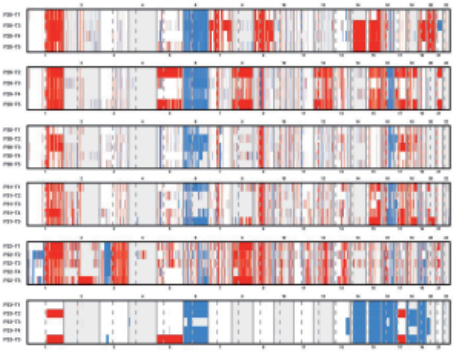

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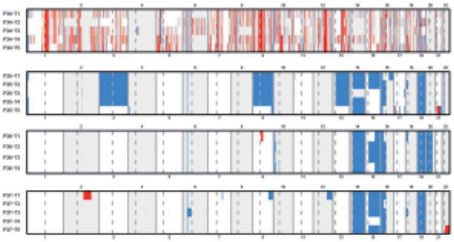

P-187

NATIONWIDE IMPLEMENTATION AND CURRENT PRACTICE OF UNIPORTAL VIDEO ASSISTED THORACIC SURGERY (VATS) ANATOMICAL LUNG RESECTIONS: RESULTS FROM THE DUTCH LUNG CANCER AUDIT FOR SURGERY

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OBJECTIVES

Uniportal video-assisted thoracoscopic surgery (VATS) is an accepted surgical technique for lung cancer surgery worldwide. This study aimed to provide a descriptive overview of the implementation over five years of uniportal VATS in the Netherlands, as well as the current practice in 2021.

METHODS

This retrospective cohort study requested data on anatomical lung resections performed between January 2017 and December 2021 from the Dutch Lung Cancer Audit for Surgery (DLCA-S) registry. Anatomical lung resections performed via uniportal VATS, multiportal VATS, robotic-assisted thoracoscopic surgery, or open surgery, were eligible for analysis. Procedures that were discontinued (e.g., irresectability) or performed in a registration year wherein a hospital had registered less than 20 anatomical lung resections were excluded. Descriptive analyses were performed on the implementation of uniportal VATS over time alongside the other surgical approaches, and on the patient characteristics and clinical outcomes for uniportal VATS anatomical lung resections in 2021.

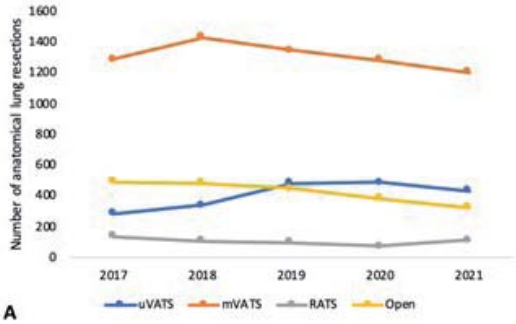
RESULTS

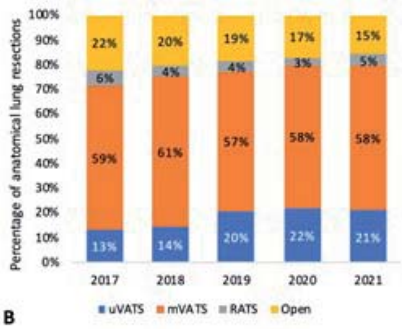
A total of 11,149 anatomical lung resections performed in 42 hospitals were included. Over five years, more anatomical lung resections were performed via uniportal VATS from 13% in 2017 to 21% in 2021 (Figure 1). Also, the number of Dutch hospitals increased from 30% (12 out of 40 hospitals) in 2017 to 41% (16 out of 39 hospitals) in 2021. In 2021, a total of 2,055 anatomical lung resections were performed in the Netherlands of which 429 using uniportal VATS, showing a median hospital duration of 4 days and a complication rate of 27%.

CONCLUSIONS

Uniportal VATS is an upcoming surgical technique in the Netherlands reaching a plateau in the last two years. This technique is associated with low morbidity and short length of hospital stay.

Disclosure: No significant relationships.
Keywords: Uniportal Video-Assisted Thoracoscopic Surgery, Lung Cancer, Non-Small Cell Lung Cancer, The Netherlands, Registries.





P-188

NECROPTOSIS INDUCED BY PROLONGED COLD STATIC PRESERVATION IMPLIES THE CGAS/STING PATHWAY AND CALCIUM HANDLING IN CELLULAR AND RAT MODELS OF COLD LUNG PRESERVATION

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OBJECTIVES
The aim is to determine if the pro-inflammatory cGAS/STING pathway is involved in cell death promoted by prolonged cold static lung preservation. Prolonged exposition to cold is known to induce a cell death termed necroptosis. Rat cells and lungs exposed to a 4°C temperature in preservation solution activated the cGAS-STING cytosolic DNA sensor and necroptosis in a calcium-dependent manner.

METHODS
L2 rat lung epithelial cell line and primary macrophages were incubated in preservation solution at 4°C for 4 to 18 hours to mimic cold static lung preservation in the presence of drugs blocking the cGAS/STING/TBK1 axis or calcium fluxes. Rat lungs were flushed with and preserved in preservation solution at 4°C for 18h directly after procurement. cGAS-STING activation was analyzed by western blot and confocal microscopy for the phosphorylation of TBK1, a hallmark of cGAS-STING activation. IFN-β production, a signature of cGAS-STING activation, was monitored by ELISA. Necroptosis was detected by western blot of phosphorylated MLKL which is responsible for the formation of pores and membranes rupture during necroptosis. Cell damage was measured by LDH activity in cell supernatants and in BALF.

RESULTS
TBK1 phosphorylation, a kinase downstream of STING, happened after 4 hours of preservation at 4°C and persisted after 18 hours in cells and lungs. The addition of cGAS or STING inhibitors in the preservation solution blunted TBK1 phosphorylation and reduced LDH activity in cell supernatants and BAL. Preservation at 4°C promoted a substantial phosphorylation of MLKL, a hallmark of necroptosis. Remarkably, inhibitors of cGAS and STING drastically reduced phosphorylation of MLKL. Chelation of intracellular calcium or depletion of calcium in the preservation solution reduced both necroptosis and cGAS/STING activation.

CONCLUSIONS

A previously undescribed crosstalk is engaged between cGAS-STING signaling and necroptosis during cold static preservation. Our results suggest that calcium could be the common trigger of these two processes.

Disclosure: No significant relationships.
Keywords: Lung Preservation, Inflammation, Necroptosis, CGAS/STING, Calcium.

P-189

NEGATIVE PRESSURE WOUND THERAPY IN THE MANAGEMENT OF OPEN WINDOW THORACOSTOMIES

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OBJECTIVES
Open window thoracostomy represents the last resort solution in otherwise unmanageable thoracic empyema. After a prolonged period of wound management, during which the cavity clears up, reconstructive surgery might be considered. In the case of smaller cavities, even spontaneous closure is possible. According to past years' experience, negative pressure wound therapy offers outstanding results in the management of open window thoracostomies.

METHODS
The main aim of this study was to determine the role of negative pressure wound therapy in shortening recovery time in thoracic empyema. In addition, clinical factors contributing to longer recovery periods will also be assessed. A total of 46 patients were enrolled who underwent open window thoracostomy surgery between 2017 and 2023, out of which 10 patients received negative pressure wound therapy. Until the time of data collection, spontaneous closure or reconstruction occurred in 27 cases.

RESULTS
Spontaneous closure or reconstruction took place in all 10 (100 %) patients treated with negative-pressure wound therapy, and in 17 patients (47,22%), treated the traditional way. In this aspect, we have found a significant difference between the two study groups, in favour of the one where negative pressure wound therapy was applied (p-value: 0.002). The median days until spontaneous closure or a condition adequate for reconstruction was 85.5 days and 180 days for patients treated with negative pressure wound therapy, and patients treated the traditional way, respectively. Factors contributing to a longer recovery period will be presented at the conference.

CONCLUSIONS
If used for the appropriate cases, negative pressure wound therapy provides excellent results, that can not only improve quality of life, but also contribute to a more reasonable distribution of financial and human resources.

Disclosure: No significant relationships.

Keywords: Open Window Thoracostomy, OWT, Negative Pressure Wound Therapy, NPWT, Empyema.

P-190

NEW INSIGHTS IN NON-INVASIVE MARKERS FOR REJECTION IN LUNG TRANSPLANTED PATIENTS

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OBJECTIVES
Easily accessible and non-invasive markers of rejection after lung transplantation need to be identified. We tested soluble immune-check-points in plasma and extracellular-vesicles in bronchoalveolar-lavage.

METHODS
Plasma samples were collected from 20 patients at 72-hours and at 3, 6, 12 and 17 months after lung-transplant. Soluble immune-checkpoints (Galectin9, TIM3, PD1 and PDL1) were evaluated by ELISA at each time points; surveillance transbronchial-biopsy were performed at 3, 6, 12 months for diagnostic purposes and clinical parameters were recorded. At the same time as the transbronchial-biopsy, we do the bronchoalveolar-lavage. Extracellular-vesicles were isolated from bronchoalveolar-lavage and were phenotyped using the ExoView platform and antibodies against CD45, EpCam and CD68.

RESULTS
At 18 months, plasma Galectin9 was significantly reduced in patients with rejection compared to those without rejection ($p<0.05$). More in detail: patients with acute rejection have Galectin9 reduction starting from 3 months up to 18 months ($p<0.05$). In patients with chronic rejection a similar trend was observed from 6-month. Similar behaviour was observed for other soluble immune-checkpoints. Note that PD1 was highly expressed on biopsy tissue.
Sixty-five per cent of extracellular-vesicles from bronchoalveolar-lavage expressed the CD45 antigen on their surface, suggesting a lymphocyte origin. Intriguingly, the exposure of bronchial recipient cells to extracellular-vesicles from patients with chronic rejection induced expression of the Aryl-Hydrocarbon-Receptor gene, a transcription factor involved in differentiation of T-cells in Th17 (a subset of pro-inflammatory T-cells defined by their production of interleukin-17).

CONCLUSIONS
Since the identification of soluble markers of rejection would be of great importance in supporting the clinical management of patients with lung transplant, our pilot study opens a new scenario dedicated to soluble immune-check-points. Early results seems to promote Galectin9 as a possible rejection marker. In addition, we found that extracellular-vesicle

isolated from broncoalveolar-lavage could be another marker do to their property of activate the pro-inflammatory differentiation of T-lymphocytes.

Disclosure: No significant relationships.
Keywords: Lung Transplantatio, Rejection, Immune Check Points, Extracellular Vescicles.

P-191

NEXT STEP FOR R1 RESECTION OF TRACHEAL/BRONCHIAL MALIGNANT TUMOR - ORGANOIDS PREDICT ADJUVANT THERAPY RESPONSES

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OBJECTIVES
This pilot prospective study will determine whether patient-derived organoids (PDOs) can model or predict postoperative outcomes for tracheal/bronchial cancers with positive resection margins (R1 resection).

METHODS
Patients with R1 resection of tracheal/bronchial malignancy were enrolled to establish PDOs from surgical specimens. PDOs were verified by histological staining, of which interests were analyzed through drug and radiation sensitivity tests. Utilizing a comparative analysis in cellular viability pre- and post-exposure, alongside morphological observations via light field illumination, sensitivities were categorized into distinct tiers: highly sensitive, moderately sensitive, mildly sensitive, or non-sensitive. The most discerning therapeutic regimen was subsequently selected for implementation in patient's adjuvant treatment. The assessment of adjuvant treatment efficacy adhered to the RECIST version 1.1 criteria, thereby facilitating a comprehensive appraisal of the viability of PDO-based detection therapy sensitivity.

RESULTS
Totally 6 patients received surgeries, with distinct pathological types. PDOs cultures were successfully established, including nuclear protein testis carcinoma (NUT-C) (1/6), mucoepidermoid carcinoma (MEC) (2/6), adenoid cystic carcinoma (ACC) (2/6) and squamous cell carcinoma (SCC) (1/6). NUT-C showed high sensitivity to chemotherapy and SCC revealed mildly sensible to immunotherapy, while the others showed high sensitivity to radiotherapy. All patients received adjuvant therapies. Repeated computed tomography (CT) scans and surveillant bronchoscopy were performed for therapeutic evaluation. For the patients underwent respective adjuvant treatment regimens, the median follow-up time was 4.5 months (ranging from 3 to 8 months), and neither lesion recurrences nor metastases, with a noticeable improvement in the quality of life compared to preoperative state.

CONCLUSIONS
Tracheal/Bronchial malignancy PDOs may be feasible for prediction of adjuvant therapeutic sensitivity and has clinical benefit to reduce the recurrence risk and improve prognosis for R1 resection cases. The prediction by PDOs will inform larger trials designed to further investigate the accuracy on the forecast of outcomes as well as strategies for airway cancers.

Disclosure: No significant relationships.
Keywords: Tracheal Malignant Tumor, Organoid, Adjuvant Therapy, Response.

Table 1 Patient characteristics*.

	Age (y)	Gender	Lesion Position	Preoperative Pathological Finding	Surgical Procedure	Post-operative Pathological Finding	Surgical Margin		Most Sensitive Therapy	Adjuvant Strategy	Recurrences/ Metastases
							Proximal Margin	Distal Margin			
Case 1	43	Male	Intrathoracic Trachea	SCC	Partial Resection and Reconstruction of Trachea	NUT-C	Squamous dysplasia	Neg	Chemo-therapy	Abraxane 100mg/m2+ Carboplatin (AUC=6)	None
Case 2	46	Male	Cervical Trachea	ACC	Tubeless Resection of Tracheal Tumor+ Laryngotracheal Reconstruction	ACC	ACC	Neg	Radiation Therapy	-	None
Case 3	62	Male	Right Main Bronchi & Right Upper Lobe Bronchus	SCC	VATS Radical Resection for Right Bronchial Cancer + Reconstruction of Carinal	SCC	Squamous dysplasia	Neg	Chemo-immuno-therapy	Abraxane 100mg/m2+ Carboplatin (AUC=6)+ Nivolumab 200mg	None
Case 4	14	Male	Right Upper Lobe Bronchus	Salivary Gland-derived Tumor	VATS Radical Resection for Right Bronchial Cancer + Sleeve Lobectomy and Reconstruction of Right Main Bronchus	MEC	MEC	Neg	Radiation Therapy	-	None
Case 5	42	Male	Right Middle Lobe Bronchus	-	VATS Reconstruction of Right Middle Lobe Bronchus + Secondary Carinal Reconstruction	MEC	MEC	Neg	Radiation Therapy	-	None
Case 6	41	Male	Intrathoracic Trachea, Right Main Bronchi, & Right Lung	-	Right pneumonectomy + Carinal Reconstruction	ACC	ACC	Neg	Radiation Therapy	-	None

* VATS: Video-assisted Thoracic Surgery; SCC: squamous cell carcinoma; NUT-C: nuclear protein in testis carcinoma; ACC: adenoid cystic carcinoma; MEC: mucoepidermoid carcinoma; Neg: negative.

P-192

NODAL UPSTAGING IN ROBOTIC ASSISTED VERSUS VIDEO ASSISTED LOBECTOMY FOR CLINICAL N0 LUNG CANCER: SINGLE CENTRE EXPERIENCE OVER 3 YEARS PERIOD

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OBJECTIVES
Thorough lymph node sampling to identify the subclinical metastatic lymph nodes is associated with improvement of oncologic outcomes. Hence, Pathological nodal upstaging has been considered an important predictor of the completeness of lung cancer surgery.

METHODS
Retrospective study of patients who underwent lobectomy through minimal invasive techniques by RATS or VATS approach from October 2019 to October 2022 for clinically node-negative lung cancer at a single institution. Staging was done based on 8th edition of the AJCC.

RESULTS
A total of 178 patients met the inclusion criteria, 96 of them had RATS and 82 had VATS lobectomy. Patients' demographics, co-morbidities, smoking, pre- operative lung function, clinical T stage and tumour location were statistically non-significant between both groups. The mean overall operative time was significantly longer in RATS group ($p<0.05$). The number of LN stations sampled was higher among RATS group (3.95 +/- 1.2Vs 3.63 +/- 1.2; $p=0.08$). Within the RATS group, 14 patients experienced nodal upstaging (14.6%) with 8.3% having pN1 and 6.2% having pN2. Within VATS group, 14 patients experienced nodal upstaging (17%) with 13.4% having pN1 and 3.6% having pN2. Regarding postoperative complications and in hospital mortality, there was no statistically significant difference between the 2 groups. However, chest drain duration and post-operative stay were shorter among RATS group ($p=0.14$) and ($p=0.3$) respectively. There was no significant difference in survival between the 2 groups (16.5 vs 17 months; $p=0.39$).

CONCLUSIONS
Both RATS and VATS lobectomy achieved similar rates of pathologic nodal upstaging in the current study with more N1 upstaging towards VATS group and N2 upstaging towards RATS group. On the other hand, associated with higher mean of the sampled LN stations, shorter chest drains time and hospital stay. Overall survival was similar in both groups.

Disclosure: No significant relationships.

Variables	RATS (N= 96)	VATS (N=82)	P value
Age, years	70.4 +/- 8.6	72 +/- 8	0.21
Male sex	48 (50%)	37 (45%)	0.52
White British ethnic origin	90 (93.75%)	78 (95.12%)	0.62
BMI Kg/m^2	27.2 (23-31)	26.4 (23-30)	0.51
Smoking status Current or ex-smoker Never smoked Unknown	 80 12 4	 71 6 5	0.46
Performance status Fully active (0) Light work (1) Self-caring. No light work. Mobile >50% waking hours. (2) Self-caring limited. Mobile <50% waking hours. (3	 30 60 6 0	 25 51 4 2	0.47
ASA grade Normal healthy individual (1) Mild systemic disease (2) Severe systemic disease (3) Incapacitating systemic disease - Life threatening (4)	 2 20 70 4	 0 14 62 6	0.41
Diabetes mellitus	13 (13.5%)	16 (19.5%)	0.28
Hypertension	33 (34.3%)	32 (39%)	0.52
Ischemic heart disease	12 (12.5%)	10 (12.1%)	0.95
COPD	36 (37.5%)	40 (48.7%)	0.13
FEV1 % Predicted	86 (72-97)	78.15 (66-95)	0.1
DLCO % Predicted	80.5 (67-94)	74.5 (60-86)	0.07
Primary tumour side Right Left	 52 44	 56 26	0.05
Primary tumour location LLL LUL RLL RLL, RML RML RUL	 14 29 21 1 4 27	 10 16 16 1 3 36	0.36
Pre-operative tissue diagnosis	67 (69.8%)	59 (72%)	0.75
Clinical T stage T1 T2 T3 T4	 72 15 6 3	 49 21 11 1	0.08

Variables	RATS (N= 96)	VATS (N=82)	P value
Overall operative time	**4.5 +/- 1.2**	**3.6 +/- 0.9**	**0.003**
Number of LN stations sampled	3.96 +/- 1.2	3.63 +/-1.2	0.08
Tumour Histology			
Adenocarcinoma	61	47	
Squamous cell carcinoma	22	26	
Small cell	0	1	
Others	13	8	
Pathological T stage			
T1a	5	0	
T1b	24	15	
T1c	14	22	
T2a	29	28	
T2b	4	4	0.14
T3	15	12	
T4	4	1	
Tis	1	0	
Pathological N stage			
N0	82 (85.5%)	68 (83%)	
N1	8 (8.3%)	11 (13.4%)	0.43
N2	6 (6.2%)	3 (3.6)	
Pathological R1 status	4 (4.2%)	5 (6.1%)	0.56
Pathological TNM stage			
1A	38	33	
1B	25	24	
2A	4	2	
2B	16	14	0.95
3A	11	8	
3B	1	1	
4	1	0	
Nodal upstaging	14 (14.5%)	14 (17%)	0.65
Morbidity	41 (42.7%)	28 (34.2%)	0.24
ICU admission	12 (12.5%)	9 (11%)	0.51
Post-operative infection	14 (14.5%)	11 (13.4%)	0.82
AKI	6 (6.25%)	6 (7.3%)	0.78
Chest drain duration	2 (1-6)	3 (1-9)	0.14
Hospital stay, days	3 (2-5)	4 (2-7)	0.3
Mortality	1 (1.04%)	2 (2.4%)	0.47

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NON-SMALL CELL LUNG CANCER SURVIVAL AND THE CRUCIAL ROLE OF TIMELY SURGICAL INTERVENTION

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OBJECTIVES
This study was conducted to explore the influence of pre-operative time delays on oncological outcome of resectable NSCLC.

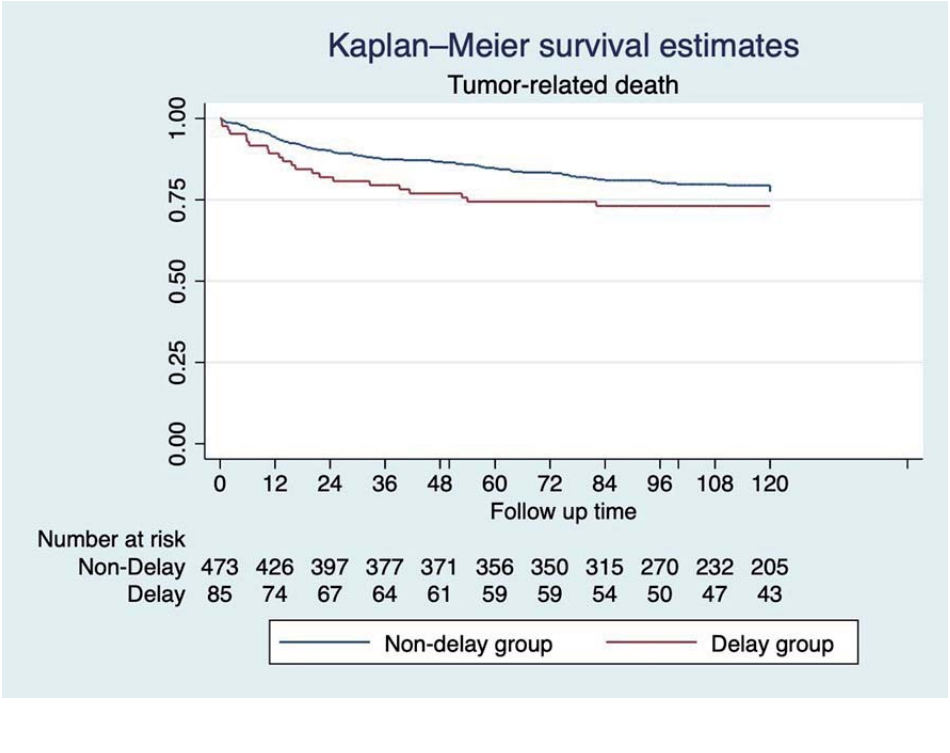
METHODS
This study is a retrospective cohort study that focuses on patients with resectable non-small cell lung cancer at Maharaj Nakorn Chiangmai Hospital between Jan 2015 - Dec 2022. The patient who underwent surgery after definite diagnosis by imaging (CT scan) more than 45 days were classified as delayed surgery. Oncological outcomes were compared between delayed and non-delayed groups as time-to-event analysis by Cox's proportional hazard model.

RESULTS
There were 567 resectable NSCLC patients included in this study. Eighty-five patients were classified as delayed group while the others were non delayed group. Mean age of the patients were 63 years. baseline characteristics and pathological features were comparable between the two groups. However, in the delay group, there was a higher prevalence of active smokers 55.29% when compared to non-delay group 38.17% (p=0.030). Regarding the types of surgeries performed, the delay group exhibited a higher frequency of lobectomy, whereas the non-delay group had a greater incidence of wedge resection (p=0.006). Moreover, there was a heightened incidence of lymphatic invasion observed in the delay group (66, 78.57%) compared to the non-delay group (342, 71.55%) (p=0.036).
Tumor-related death was found in 22 patients (25.88%) in delay group and 94 patients (19.62%) in non-delay group. In multivariable analysis, the hazard ratio (HR) of tumor-related death in delay group was 1.70 (95 %CI: 1.03-2.80, p=0.036) However, tumor recurrence in delay group was not different from non-delay group.

CONCLUSIONS
Extended pre-operative waiting time exceeds 45 days in lung cancer patients increases mortality without impacting disease recurrence.

Disclosure: No significant relationships.
Keywords: Delay Surgery, Resectable Lung Cancer, Non-Small Cell Lung Cancer, Prognosis.

Characteristic	Adjusted hazard ratio	95% confidential interval	P value
Tumor recurrence			
Delay surgery > 45 days	1.14	0.68-1.91	0.632
Overall survival			



P-194

NOVEL NON-INVASIVE PULMONARY TUMOR MARKING METHOD BASED ON EXTENDED-REALITY TECHNOLOGY DURING SUB-LOBAR RESECTION

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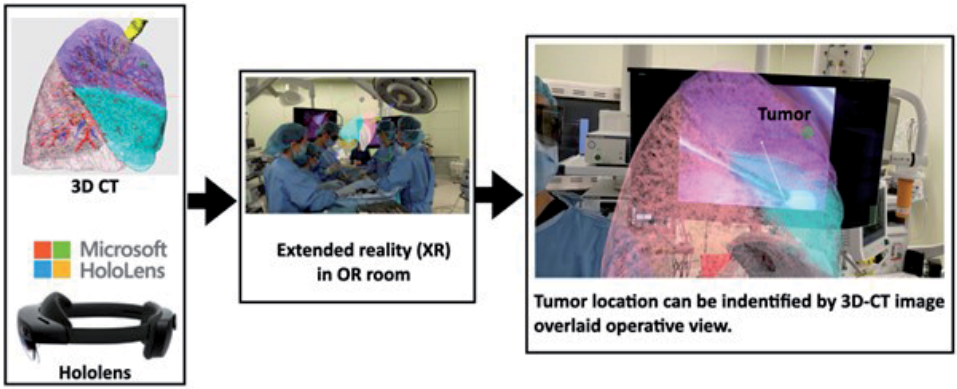
OBJECTIVES
While various marking methods for identifying the tumor localization have been introduced, these methods normally require preoperative invasive procedures. We have developed a novel non-invasive extended reality (XR) aided marking procedure. The aim of this study is to evaluate the feasibility and safety of this novel XR-aided marking method during sub-lobar resection.

METHODS
We prospectively evaluated the concordance rate between the XR-aided marking and the actual tumor localization in the 10 patients who underwent sub-lobar resection including wedge resection and segmentectomy. During sub-lobar resection, the augmented reality image of the three-dimensional pulmonary anatomy and the tumor was overlaid onto the thoracoscopic monitor, which enables surgeons to see the tumor location with HoloLens in the operative view (Figure). The concordance of the tumor location was defined as the difference between the distance from the tumor to margin and the distance from the identified marking point on XR to the margin within 10mm.

RESULTS
In the current study, 8 patients who underwent wedge resection and 2 patients who underwent segmentectomy were included. For each case, pulmonary anatomy and tumor was successfully overlaid to the operative image. The rate of concordance using XR-aided marking method was 90%. The median operative time was 90 minutes and the postoperative courses were uneventful in all cases.

CONCLUSIONS
This novel non-invasive XR-aided marking method is safe and feasible for the identification of the tumor location during sub-lobar resection.

Disclosure: No significant relationships.
Keywords: Extended Reality, Sub-Lobar Resection, Marking.


3D CT
Microsoft HoloLens
Hololens
Extended reality (XR) in OR room
Tumor
Tumor location can be indentified by 3D-CT image overlaid operative view.

P-195

NOVEL PREOPERATIVE PREDICTOR OF RESECTABILITY IN THORACOSCOPIC PULMONARY WEDGE RESECTION

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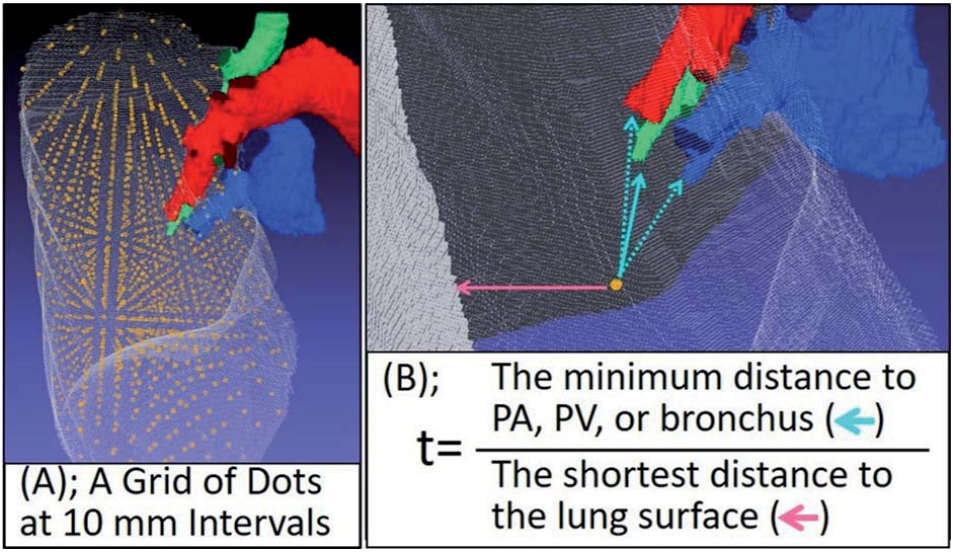
OBJECTIVES
The decision of whether to apply thoracoscopic pulmonary wedge resection (TWR) based on preoperative computed tomography (CT) can vary among thoracic surgeons. Peripheral lesions (outer third of the lung) are traditionally considered suitable for TWR; however, there is no quantitative indicator for suitability. The objective of the study was to evaluate a quantitative CT-based method for preoperative identification of regions deemed resectable by expert surgeons.

METHODS
Four expert surgeons participated in this study. Grid dots spaced at 10 mm intervals were superimposed on CT image data of the right lower lobe in two patients (Case 1, Case 2) (Fig. A). Employing custom-developed software, each surgeon assessed the resectability of each dot by TWR. Dots were classified as resectable (R) if over 75% of surgeons deemed them so, or non-resectable (NR) otherwise. The shortest distances from each dot to the central pulmonary artery (PA), pulmonary vein (PV), bronchus, and the lung surface were measured. The ratio of the minimum distance to PA, PV, or bronchus to the shortest distance to the lung surface was denoted 't' (Fig. B). Using 't' as the independent variable and R or NR as the dependent variable, the cut-off value, sensitivity, and specificity of 't' were determined by ROC analysis.

RESULTS
The cut-off value, sensitivity, and specificity were 0.73, 0.94, and 0.90, respectively, for Case 1, and 0.71, 0.91, and 0.92, respectively, for Case 2. Based on the cut-off value, most incorrectly classified dots were located in deep lung regions or near the pulmonary hilum.

CONCLUSIONS
Classification of dots using the derived cut-off values aligned closely with the judgments of expert surgeons. Inaccurately classified dots were located primarily where assessing TWR feasibility is challenging. This method quantitatively replicates expert surgeons' assessments of TWR resectability from preoperative CT, based on lung anatomy and structure.

Disclosure: No significant relationships.
Keywords: Sublobar Resection, VATS, Surgical Education.


(A); A Grid of Dots at 10 mm Intervals
(B);
t= The minimum distance to PA, PV, or bronchus (←) / The shortest distance to the lung surface (←)

P-196

OBSERVED TO RESECTED RATIO OF PULMONARY METASTASES THAT WERE RESECTED VIA VIDEO-ASSISTED THORACOSCOPIC SURGERY

Ömer Faruk Saglam[1,2], Burcu Kiliç[1], Levani Chikvaidze[1], H.Volkan Kara[1], Ezel Ersen[1], Akif Turna[1], Kamil Kaynak[1], Ahmet Demirkaya[3]
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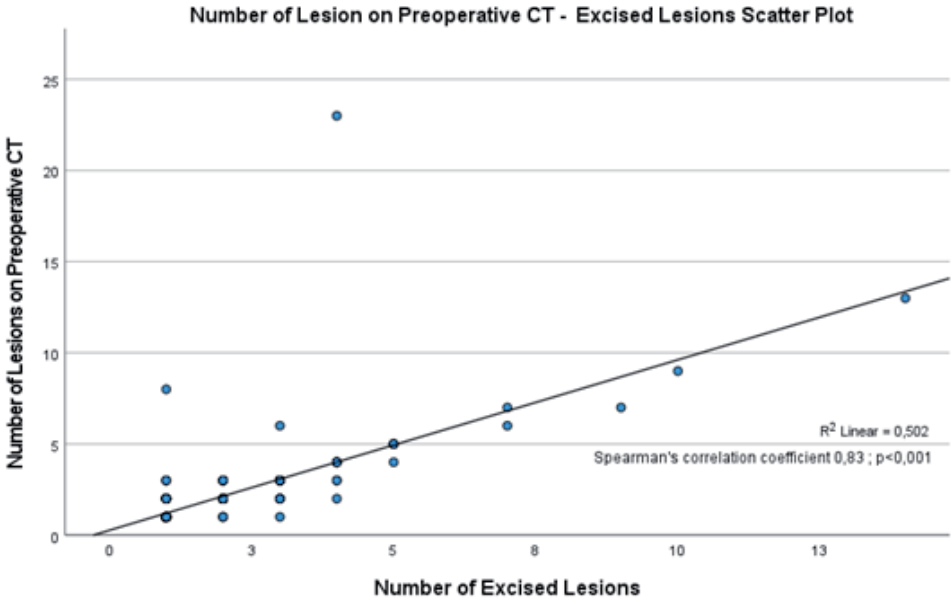
OBJECTIVES
Surgical resection is widely employed as an established treatment option for patients with lung metastases originating from a wide range of primary tumours. Video-assisted thoracoscopic surgery (VATS) resection of metastases has been accepted as a viable and minimally invasive option. However, the ratio of missed lesions compared to resected ones has not been established. In our study, we aimed to investigate the ratio of resected to total number of metastases.

METHODS
Demographic and operative data, the number of lesions reported on preoperative thoracic CT scans and the number of lesions reported in the final pathology report of 241 patients who underwent VATS metastasectomy with wedge, segmentectomy or lobectomy between September 2010 and September 2023 were retrospectively analyzed.

RESULTS
Of 241 patients, 133 (55.2%) were male and 108 (44.8%) were female. Median patient age was 56 years. VATS metastasectomy was performed in 131 patients with a single lesion on preoperative imaging, while 110 patients underwent metastasectomy for multiple lesions. In the final pathology, single lesions were excised in 147 patients (61.0%), while multiple lesions were excised in 94 patients (39.0%). The median number of lesions found on preoperative thorax CT scans was 1 (1-23) and the median number of excised lesions was 1 (1-13). The total number of missed metastatic lesions that were found to have been missed at a later view was 37. There was a significant correlation between the number of lesions excised by VATS metastasectomy and the number of lesions reported on preoperative images (n: 418/455) (Spearman's correlation coefficient 0.83; $p<0.001$).

CONCLUSIONS
We have found that, utilization of VATS in metastasectomies led to few missed lesions. However, the best operative approach for pulmonary metastases has yet to be identified.

Disclosure: No significant relationships.
Keywords: Minimally Invasive Thoracic Surgery, Pulmonary Metastasectomy, Video Assisted Thoracic Surgery.


Number of Lesion on Preoperative CT - Excised Lesions Scatter Plot
Number of Lesions on Preoperative CT
Number of Excised Lesions
0
5
10
15
20
25
0
3
5
8
10
13
R² Linear = 0,502
Spearman's correlation coefficient 0,83 ; p<0,001

P-197

ONCOLOGICAL OUTCOMES AND PROGNOSTIC FACTORS OF PULMONARY METASTASECTOMY IN PANCREATIC CANCER

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OBJECTIVES

The number of long-term survivors after pancreatic cancer is increasing due to recent advances in diagnosis and multidisciplinary treatments. However, the effectiveness of pulmonary metastasectomy remains uninvestigated. This study aims to evaluate the oncological outcomes and to identify potential prognostic factors of pulmonary metastasectomy in pancreatic cancer.

METHODS

Patients who had undergone pulmonary metastasectomy were accurately selected among patients with radical pancreatic cancer surgery and no evidence of disease in other organs. Clinical data of 56 selected patients from 7 high volume centers were retrospectively analyzed. Long-term oncological outcomes and prognostic factors were evaluated.

RESULTS

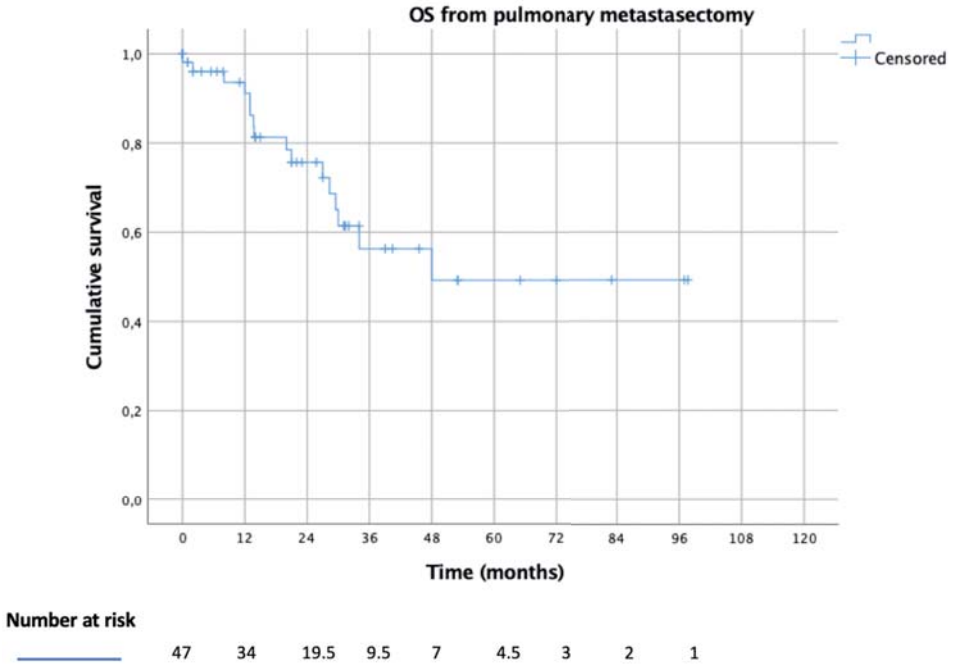
Five- and 10-year OS from pancreatectomy was 76% and 42%, respectively. Multivariable analyses confirmed as negative prognostic factors: male sex (HR=25.7, 95%CI: 3.5-190.2, p=0.001), major lung metastasis diameter >1.3 cm (HR=50.8, 95%CI: 3.7-692.2, p=0.003) and synchronous metastases with primary cancer (HR=61.2, 95%CI:3.1-1203.2, p=0.007). The five-year DFI from pancreatectomy and first lung metastasis was 13%, with a median of 32

months. The only prognostic factor affecting DFI was pN2 pancreatic disease (p=0.008) at multivariable analysis. The 1-year DFI between first and second lung metastasis was 9%, with a median of 11 months. The 5-year OS from the first pulmonary metastasectomy was 47%. The main prognostic factors at univariable analysis were pT (p<0.001), RT/CT neoadjuvant or adjuvant therapy after pancreatectomy (p=0.01), major lung metastasis diameter >1.3 cm (p=0.04) and reiterative lung surgery for pulmonary recurrence after first metastasectomy (p=0.04). No factor was confirmed in the multivariable analysis.

CONCLUSIONS

Pulmonary metastasectomy after radical surgery for pancreatic cancer seems to be a valuable treatment in well-selected patients. Furthermore, some patients, such as females with metachronous metastases smaller than 1.3 cm, would benefit from a better prognosis. Reiterative pulmonary surgery could also have an essential role in selected cases. Further studies are needed to confirm our results.

Disclosure: No significant relationships.
Keywords: Pulmonary Metastasectomy, Pancreatic Cancer, Oncological Outcomes.



P-198

ONE HUNDRED CASES OF PULMONARY RESECTION FOR METASTATIC UROTHELIAL CARCINOMA OF THE URINARY TRACT

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OBJECTIVES

The efficacy of lung metastasectomy in urothelial carcinoma cases remains inconclusive, primarily due to limited evidence from small-scale studies, with the largest sample size being n=69. This study aimed to assess the clinical significance of pulmonary metastasectomy for urothelial carcinoma of the urinary tract.

METHODS

The study utilized data from the Metastatic Lung Tumor Study Group of Japan database, a multi-institutional prospective database of pulmonary metastasectomy. We examined cases that underwent pulmonary metastasectomy for urothelial carcinoma between 1985 and 2021. Exclusion criteria included insufficient clinical information and a follow-up period of less than three months. Prognostic analyses were conducted on the remaining cases.

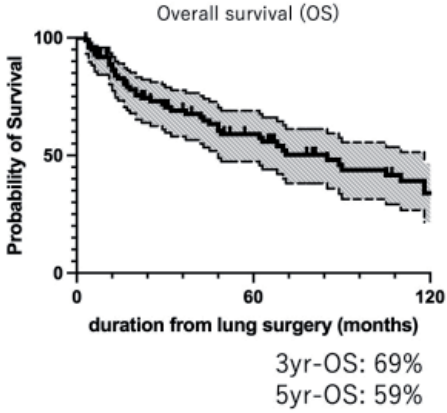
RESULTS

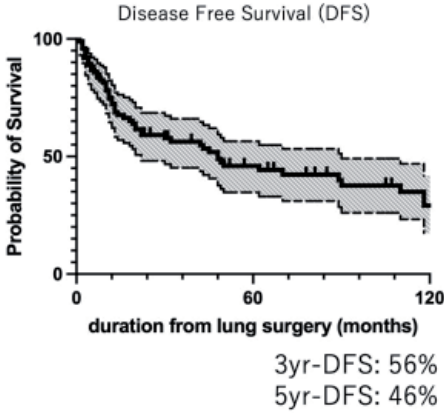
The study comprised 100 cases (63 bladder cancer, 37 renal pelvic and ureteral cancer), with a median follow-up period of 34 months. There were 70 male and 30 female patients, with an average age of 66.5±10.4 years at lung resection. The median interval from primary lesion treatment to lung metastasis surgery was 19 months, and the maximum tumor diameter was 21±15mm. Three-year and five-year overall survival rates were 69% and 59%, respectively. Three-year and five-year disease-free survival rates were 56% and 46%, respectively. Multivariate analysis identified larger tumor diameter (Hazard ratio: 1.62, 95% Confidence Interval: 1.21-2.17) and distant metastasis at the time of primary cancer treatment (Hazard ratio: 4.23, 95% Confidence Interval: 1.54-11.6) as significant adverse prognostic factors for overall survival. Cases after 2016 (n=26), coinciding with the introduction of immune checkpoint inhibitors on urothelial carcinoma in Japan, showed significantly worse disease-free survival compared to those before 2015 (n=74) (p=0.0006), while no significant difference in overall survival was observed.

CONCLUSIONS

This study presents the largest case series of pulmonary resection for metastatic urothelial carcinoma of the urinary tract, providing benchmark data for future assessments of long-term outcomes in this rare entity.

Disclosure: No significant relationships.
Keywords: Pulmonary Metastasectomy, Urothelial Carcinoma, Lung Metastasis.





P-199

ONE-STAGE INTRAOPERATIVE ELECTROMAGNETIC NAVIGATION BRONCHOSCOPY GUIDED MARKING FOR RESECTION OF SMALL SOLID AND SUBSOLID PULMONARY LESIONS: EXPERIENCE FROM 51 RESECTED LESIONS IN 36 CONSECUTIVE PATIENTS

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OBJECTIVES
Video-assisted thoracoscopic (VATS) resection of small and non-palpable lesions can be challenging. Single-stage intraoperative electromagnetic navigation bronchoscopy guided transbronchial marking (ENB-TBM) is an emerging technique that enables improved resection of small solid and subsolid pulmonary lesions. The aim of this study is to review our experience with intraoperative ENB-TBM of pulmonary lesions prior to resection.

METHODS
Prospectively collected data of patients undergoing ENB marking and resection were retrospectively reviewed. ENB-TBM was performed immediately prior to surgery. Depending on lesion size and location, marking was either performed by ENB-guided injection of an indigo carmine dye combined with placement of a metal fiducial marker (MFM) or by placing a MFM alone. Intraoperative localization of MFM was facilitated by fluoroscopy.

RESULTS
51 lesions in 36 patients were marked and resected. Indication for resection was diagnostic in 8 and curative in 28 patients. We marked 21 pure ground glass, 8 part-solid and 22 solid lesions. 12 patients underwent combined dye/MFM marking and 24 patients MFM marking alone. No ENB-TBM related complications occurred. All targeted lesions were successfully resected, although there was a divergence between the MFM placement and the actual lesion in 2 marked lesions (4%). 32 patients underwent VATS resection and 4 required conversion to thoracotomy. All lesions were initially excised by wedge resection, 7 patients underwent completion lobectomy and 1 completion segmentectomy due to frozen section results. Median times of ENB marking and surgical resection were 25 (IQR 17) and 75 (IQR 54) minutes, respectively. No major surgical complications occurred. Primary lung cancer was found in 26, metastases of other malignancies in 7 and benign disease in 3 patients.

CONCLUSIONS

Our experience with single-stage intraoperative ENB-TBM showed that the technique is feasible, safe and successful for the diagnostic and curative-intent resection of small solid and subsolid pulmonary lesions.

Disclosure: No significant relationships.

Keywords: GGO, Subsolid, ENB, VATS.

P-200

ONE-STAGE REPAIR OF ANASTOMOTIC TRACHEAL FISTULA FOLLOWING MCKEOWN ESOPHAGECTOMY VIA ORIGINAL CERVICAL INCISION: A CASE REPORT

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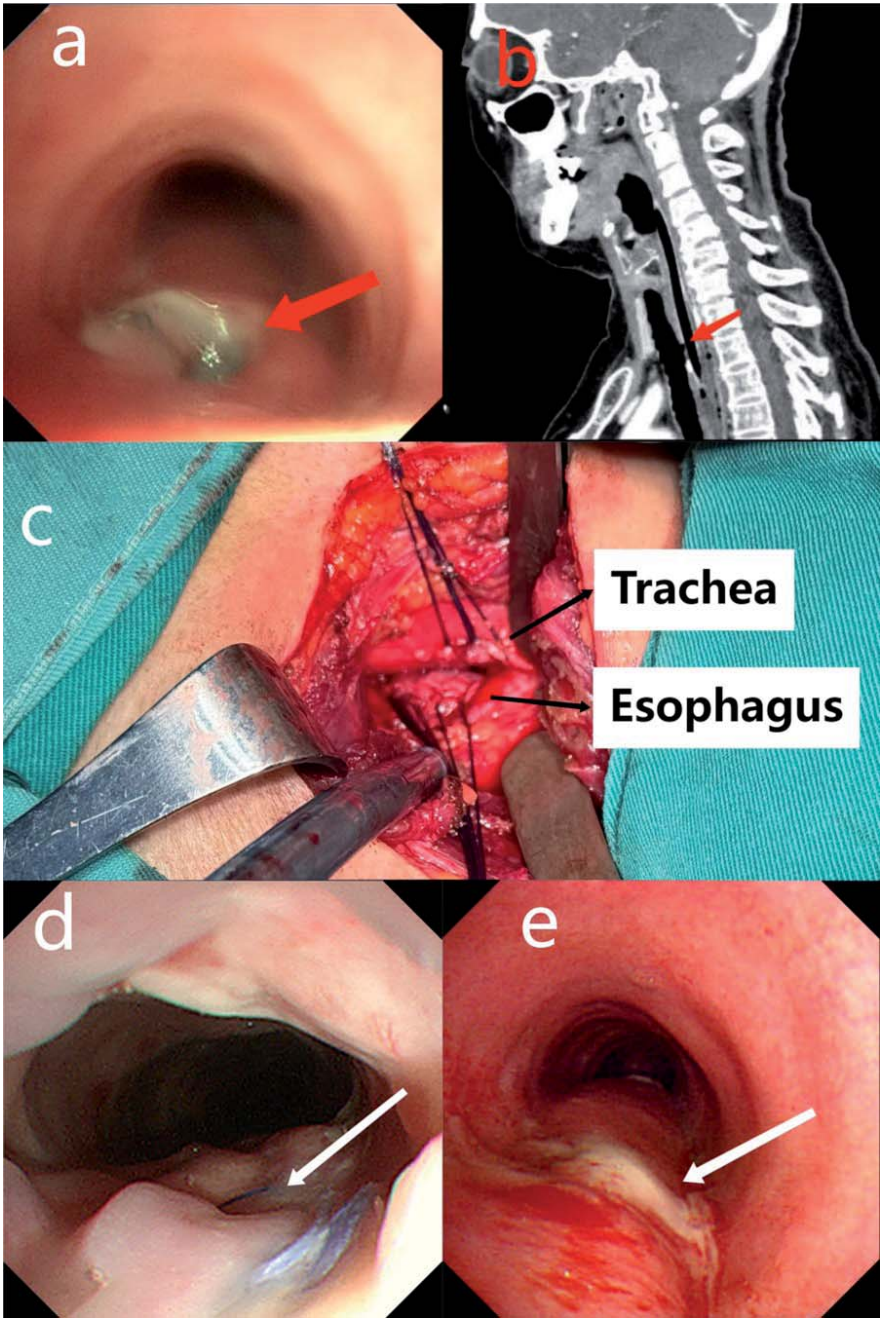
OBJECTIVES
This study aims to describe the successful repair of an anastomotic tracheal fistula following the resection of esophageal squamous cell carcinoma through the original cervical incision.

CASE DESCRIPTION
A 68-year-old female patient with esophageal squamous cell carcinoma underwent thoracoscopic Mckeown esophagectomy with tubular gastric conduit reconstruction. On the 10th day post-surgery, the patient experienced severe coughing after oral fluid intake, leading to the confirmation of an anastomotic tracheal fistula through gastroscopy and bronchoscopy. Following a period of fasting, continuous gastrointestinal decompression, anti-infection measures, and nutritional support, a mediastinal abscess was ruled out, and pulmonary infection subsided based on CT scan findings. Four weeks later, an exploratory operation was performed through the original cervical incision, revealing no obvious pus and displaying fresh and healthy granulation tissue in the esophagus and tracheal membrane. Direct repair of the esophagus and the membranous portion of the trachea was carried out using intermittent sutures, with separation of the esophageal-tracheal space accomplished by a sternothyroid muscle flap. The neck incision was left open, and routine dressing changes were performed. Following the operation, the patient's cough improved, and no pus was observed during dressing changes. Nutritional support via tube feeding was continued. One week later, gastroscopy and bronchoscopy confirmed complete healing of the trachea and resolution of the anastomotic tracheal fistula. No abnormalities were detected following oral intake.

CONCLUSIONS
This case demonstrates that a one-stage suture repair of the esophagus and trachea through the original cervical incision can successfully treat anastomotic tracheal fistulas following esophagectomy when complete drainage, anti-infection measures, and improved nutritional status are ensured.

Disclosure: No significant relationships.
Keywords: Anastomotic Tracheal Fistula, Esophagectomy, Cervical Incision.


a
b
c
Trachea
Esophagus
d
e

P-201

ONE-YEAR PATIENT-REPORTED OUTCOMES AND OVERALL SURVIVAL AFTER UPPER VS LOWER LOBECTOMY FOR LUNG CANCER: A MULTICENTER COHORT STUDY

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[5]*Copenhagen University Hospital, Copenhagen, Denmark*

OBJECTIVES
To elucidate one-year long-term patient-reported outcomes (PROs) and overall survival (OS) in people who receive upper versus lower lobectomy for lung cancer.

METHODS
This multicenter prospective cohort study enrolled people who underwent lung surgery between November 2017 and November 2019 across six hospitals in China. PRO data were longitudinally collected using the MD Anderson Symptom Inventory–Lung Cancer module (MDASI-LC). Participants underwent either upper or lower lobectomy for primary lung cancer . From September 1, 2022, to June 6, 2023, we compared the trajectories of symptoms, functional interference between the two groups (1 year postoperatively), and OS (up to five years). The primary outcome was MDASI-LC item scores, and the secondary outcomes were OS at 12 months, three years, five years, and the five-year cancer-specific OS.

RESULTS
Among the 226 lobectomy patients (137 upper; 89 lower), those who underwent lower lobectomy reported more severe fatigue ($P = 0.039$) and poorer levels of general activity, ($P < 0.05$) than those in the upper lobectomy group. People who underwent lower lobectomy had greater work interferences during hospital stay ($P = 0.002$) and post-discharge ($P = 0.008$), than that in the upper group. No significant differences in OS rates were observed between the two groups (all $P > 0.05$).

CONCLUSIONS
People who underwent lower lobectomy experienced more pronounced interferences in daily functioning up to one-year post-surgery. This study serves as a foundation for informing surgical decision-making, refining follow-up strategies, and elevating personalized care for patients with lung cancer.

Disclosure: No significant relationships.
Keywords: Patient-Reported Outcomes (PROs), Overall Survival (OS), Lung Cancer, Surgery, Upper Vs. Lower Lobectomy.

Table 1. Baseline characteristics and patient demographic data

Variables	Total (n = 226)	upper (N = 137)	lower (N = 89)	*P* value
Before surgery				
Age (years), Mean ± SD	56.14±9.72	55.83±10.26	56.61±8.86	0.554[a]
Age group (years)				0.801[c]
≤55	109 (48.23%)	67 (48.91%)	42 (47.19%)	
>55	117 (51.77%)	70 (51.09%)	47 (52.81%)	
BMI (kg/m^2), Mean ± SD	22.90±2.73	23.09±2.86	22.61±2.52	0.205[a]
Sex				0.117[c]
Male	120 (53.10%)	67 (48.91%)	53 (59.55%)	
Female	106 (46.90%)	70 (51.09%)	47 (52.81%)	
Education level				0.454[c]
Middle school graduate or below	120 (53.10%)	70 (51.09%)	50 (56.18%)	
Above middle school graduate	106 (46.90%)	67 (48.91%)	39 (43.82%)	
Smoking status				0.587[c]
Person who doesn't smoke	133 (58.85%)	84 (61.31%)	49 (55.06%)	
Person who smokes	70 (30.97%)	39 (28.47%)	31 (34.83%)	
Person with smoking history	23 (10.18%)	14 (10.22%)	9 (10.11%)	
ASA classification				0.951[c]
≤1	101 (44.69%)	61 (44.53%)	40 (44.94%)	
>1	125 (55.31%)	76 (55.47%)	49 (55.06%)	
CCI score				0.411[c]
≤1	137 (60.62%)	86 (62.77%)	51 (57.30%)	
>1	89 (39.38%)	51 (37.23%)	38 (42.70%)	
FEV 1 (L), Mean ± SD	2.38±0.63	2.36±0.63	2.40±0.64	0.600[a]
FEV 1 (measured/predicted %), Median (IQR)	91.35 (18.05)	91.95 (18.75)	90.85 (17.55)	0.674[b]
MVV (L/min), Mean ± SD	95.43±28.45	93.42±27.85	98.51±29.22	0.192[a]
MVV (measured/predicted %), Mean ± SD	93.3±25.4	90.91±22.11	94.48±21.21	0.233[a]
DLCO SB (mmol/min/kPa), Median (IQR)	7.33 (2.50)	7.38 (2.25)	7.20 (2.74)	0.984[b]
DLCO SB (measured/predicted %), Mean ± SD	92.67±21.73	92.95±22.49	90.82±20.56	0.306[a]
Surgical procedure				
Surgical approach				0.839[c]
Single port VATS	94 (41.59%)	59 (43.07%)	35 (39.33%)	
Multiple port VATS	82 (36.28%)	49 (35.77%)	33 (37.08%)	
open	50 (22.12%)	29 (21.17%)	21 (23.60%)	
Lymphadenectomy				0.264[d]
Systematic lymph node dissection	115 (50.88%)	71 (51.82%)	44 (49.44%)	
Selective lymph node sampling	109 (48.23%)	66 (48.18%)	43 (48.31%)	
Not performed	2 (0.88%)	0 (0.00%)	2 (2.25%)	

Table 1. Baseline characteristics and patient demographic data (continuation)

Variables	Total (n = 226)	upper (N = 137)	lower (N = 89)	*P* value
Thoracic drainage tube (s)				<0.001[c]
1	120 (53.10%)	51 (37.23%)	69 (77.53%)	
2	106 (46.90%)	86 (62.77%)	20 (22.47%)	
Operative time (min), median (IQR)	135.00 (68.00)	135.00 (65.00)	135.00 (65.00)	0.743[b]
After surgery (pathology)				
Pathological type				0.033[c]
Adenocarcinoma	183 (80.97%)	118 (86.13%)	65 (73.03%)	
Squamous cell carcinoma	28 (12.39%)	11 (8.03%)	17 (19.10%)	
Others	15 (6.64%)	8 (5.84%)	7 (7.87%)	
pTNM stage				0.150[c]
I	140 (61.95%)	90 (65.69%)	50 (56.18%)	
II	86 (38.05%)	47 (34.31%)	39 (43.82%)	
RIOT time (days), median (IQR), N=73	36 (13)	35 (13)	36 (17)	
Postoperative adjuvant therapy				0.590[c]
Yes	74 (32.74%)	43 (31.39%)	31 (34.83%)	
No	152 (67.26%)	94 (68.61%)	58 (65.17%)	
Traditional outcomes				
LOS (days), median (IQR)	13 (6)	13 (7)	14 (6)	0.835[b]
PHS (days), median (IQR)	7 (3)	7 (2)	7 (4)	0.809[b]
Perioperative complication, Clavien-Dindo Classification				0.084[c]
< grade 2 or no	207 (91.59%)	129 (94.16%)	78 (87.64%)	
≥ grade 2	19 (8.41%)	8 (5.84%)	11 (12.36%)	

[a], t-test; [b], Mann-Whitney U test; [c], Chi-square tests; [d], Fishers' exact test;

Abbreviation: BMI, body mass index; ASA, American Society of Anesthesiologists; CCI, Charlson Comorbidity Index; DLCO SB, Single-Breath Diffusing Capacity of the Lung for Carbon Monoxide; FEV 1, forced expiratory volume in 1 s; IQR, Interquartile Range, LOS, length of stay; MVV, maximal voluntary ventilation; PHS, postoperative hospital stay; RIOT, return to intended oncologic therapy; TNM, tumor-node-metastasis; VATS, Video-assisted thoracoscopic surgery.

Table 2. In-hospital patient-reported outcomes of the lower vs. upper (ref) lobectomy groups (1st to 7th day after surgery)

Items	Lower vs. Upper (ref), number of patients (137 vs. 89)								
	Group			Time			Group*Timea		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
Part I. Core items									
Pain	0.166	0.336	0.622	-0.475	0.038	<0.001	0.042	0.061	0.489
Fatigue (tiredness)	0.033	0.349	0.925	-0.448	0.037	<0.001	0.067	0.059	0.261
Nausea	-0.484	0.256	0.059	-0.184	0.029	<0.001	0.115	0.045	0.012
Disturbed sleep	0.468	0.355	0.187	-0.170	0.041	<0.001	-0.019	0.064	0.769
Distressed (upset)	-0.152	0.363	0.675	-0.230	0.037	<0.001	0.085	0.058	0.147
Shortness of breath	0.265	0.349	0.448	-0.183	0.038	<0.001	-0.054	0.060	0.375
Problem of remembering things	0.404	0.292	0.168	-0.050	0.029	0.143	0.034	0.045	0.457
Lack of appetite	0.038	0.318	0.905	-0.216	0.039	<0.001	0.049	0.062	0.431
Drowsy (sleepy)	-0.299	0.344	0.386	-0.359	0.035	<0.001	0.076	0.056	0.173
Dry mouth	-0.148	0.334	0.659	-0.36	0.036	<0.001	0.044	0.057	0.446
Sad	0.033	0.328	0.921	-0.105	0.035	0.003	0.044	0.055	0.433
Vomiting	-0.318	0.197	0.106	-0.073	0.023	0.011	0.052	0.037	0.159
Numbness or tingling	0.654	0.275	0.018	-0.056	0.03	0.001	-0.075	0.047	0.114
PART I. Lung cancer-specific items									
Coughing	0.066	0.323	0.839	-0.017	0.038	0.94	0.066	0.323	0.839
Constipation	0.542	0.386	0.160	0.002	0.049	0.769	0.542	0.386	0.160
Sore throat	0.399	0.329	0.226	-0.098	0.036	<0.001	0.399	0.329	0.226
PART II. Interfered items									
Activity	0.016	0.405	0.968	-0.427	0.044	<0.001	0.016	0.405	0.968
Mood	0.444	0.363	0.222	-0.135	0.040	<0.001	0.444	0.363	0.222
Work	0.526	0.508	0.301	-0.470	0.054	<0.001	0.526	0.508	0.301
Relations with other people	-0.067	0.365	0.854	-0.037	0.04	0.522	-0.067	0.365	0.854
Walking	0.381	0.407	0.350	-0.647	0.046	<0.001	0.381	0.407	0.350
Enjoyment of life	-0.003	0.420	0.994	-0.310	0.045	<0.001	-0.003	0.420	0.994

Adjusted variables: tube, histological type
a, Group*time refers to the interaction between groups and the total time
Abbreviation: SE, standard error.

Table 3. Patient-reported outcome of Lower vs. Upper (ref) lobectomy after discharge (discharge day to month 12 after discharge)

Items	Lower vs. Upper (ref), number of patients (137 vs. 89)								
	Group			Time			Group*Timea		
	Estimate	SE	p	Estimate	SE	p	Estimate	SE	p
PART I. CORE Items									
Pain	0.438	0.263	0.096	-0.205	0.027	<0.001	-0.038	0.042	0.361
Fatigue (tiredness)	0.526	0.254	0.039	-0.100	0.026	<0.001	-0.047	0.040	0.240
Nausea	0.019	0.172	0.911	0.010	0.020	0.788	-0.028	0.031	0.363
Disturbed sleep	0.176	0.305	0.565	-0.048	0.031	0.015	-0.023	0.049	0.640
Distressed (upset)	0.404	0.299	0.176	-0.056	0.028	0.001	-0.040	0.043	0.351
Shortness of breath	0.104	0.299	0.729	-0.096	0.029	<0.001	-0.019	0.045	0.667
Problem of remembering things	0.440	0.262	0.093	0.084	0.029	<0.001	-0.005	0.045	0.918
Lack of appetite	0.251	0.272	0.358	-0.083	0.027	<0.001	-0.006	0.042	0.878
Drowsy (sleepy)	0.002	0.255	0.993	-0.065	0.029	0.006	0.007	0.044	0.884
Dry mouth	0.099	0.275	0.720	-0.064	0.029	<0.001	-0.033	0.044	0.457
Sad	0.323	0.280	0.250	-0.044	0.025	0.007	-0.018	0.039	0.642
Vomiting	-0.167	0.149	0.264	-0.004	0.018	0.544	0.024	0.027	0.390
Numbness or tingling	0.113	0.228	0.621	-0.010	0.024	0.064	0.091	0.038	0.016
PART I. Lung cancer-specific items									
Coughing	0.075	0.277	0.786	-0.195	0.030	<0.001	-0.033	0.046	0.476
Constipation	0.058	0.228	0.798	-0.067	0.026	0.007	0.025	0.039	0.530
Sore throat	-0.168	0.217	0.440	-0.105	0.022	<0.001	0.040	0.034	0.237
PART II. Interfered items									
Activity	0.872	0.306	0.004	-0.147	0.032	<0.001	-0.078	0.049	0.112
Mood	0.667	0.297	0.025	-0.080	0.026	<0.001	-0.052	0.041	0.208
Work	0.856	0.358	0.017	-0.273	0.035	<0.001	-0.050	0.055	0.363
Relations with other people	0.376	0.310	0.226	-0.067	0.032	0.010	0.007	0.049	0.891
Walking	0.516	0.299	0.085	-0.143	0.034	<0.001	-0.018	0.053	0.737
Enjoyment of life	0.513	0.324	0.114	-0.110	0.034	<0.001	-0.038	0.053	0.480

Adjusted variables: tube, histological type;
a, Group*time refers to the interaction between groups and the total time;
Abbreviation: SE, standard error.

Table 4. Overall survival rates between patients undergoing upper vs. lower lobectomy at various time points

Variables	Upper	Lower	HR	95% CI	P Value
12-mo OS	2.2 (0.6–5.8)	3.4 (0.9–8.7)	0.559	0.089–3.511	0.535
36-mo OS	11 (6.4–16.9)	7.9 (3.4–14.7)	1.785	0.614–5.190	0.287
5y-OS	24.5 (15.6–34.5)	21 (8.8–36.8)	1.585	0.724–3.469	0.249
5y-cancer specific-OS	18.8 (11.4–27.8)	17.4 (6.2–33.3)	1.374	0.586–3.224	0.465
Follow-up time (months)	47 (p25–p75, 42–54; 95%CI: 45,48); range: 25–62				

Adjusted for pTNM stage, Age, Sex, Smoking status, surgical approach, thoracic drainage tube(s), Lymphadenectomy, Pathological type, ASA of Anesthesiologists classification, and CCI score;
Abbreviation: ASA, American Society of Anesthesiologists; CI, Confidence Interval; CCI, Charlson Comorbidity Index; HR, Hazard Ratio; OS, Overall Survival; mo, months; y, years.

Table S1. Compliance Rate for Patient-Reported Outcome Assessments

Time Point	Upper Lobe Resection (N = 137)	Lower Lobe Resection (N = 89)
	No. of Forms Completed (%)	No. of Forms Completed (%)
Preoperative	137 (100.00)	89 (100.00)
POD 1	128 (93.43)	86 (96.63)
POD 2	133 (97.08)	86 (96.63)
POD 3	136 (99.27)	86 (96.63)
POD 4	131 (96.32)	88 (98.88)
POD 5	120 (96.00)	78 (95.12)
POD 6	100 (90.91)	60 (92.31)
POD 7	68 (89.47)	51 (100.00)
Discharge Day	106 (77.37)	76 (85.39)
1 Week After Discharge	87 (63.50)	65 (73.03)
2 Weeks After Discharge	99 (72.26)	63 (70.79)
3 Weeks After Discharge	96 (70.07)	67 (75.28)
4 Weeks After Discharge	92 (67.15)	68 (76.40)
3 Months After Surgery	57 (41.61)	44 (49.44)
6 Months After Surgery	58 (42.34)	41 (46.07)
9 Months After Surgery	49 (35.77)	38 (42.70)
12 Months After Surgery	57 (41.61)	38 (42.70)

Abbreviation: No., number; POD, post-operative day.

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OPTIMAL PLANNING AND MANAGEMENT STRATEGIES IN MINIMALLY INVASIVE LUNG SEGMENTECTOMIES: AN INTERNATIONAL DELPHI CONSENSUS REPORT

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OBJECTIVES

Recent CALGB140503/JCOG0802 RCTs comparing lobectomy with sublobar resection in stage IA NSCLC have confirmed non-inferiority of segmentectomy. Given this potential paradigm change, additional insight to optimise preoperative work-up and intraoperative strategy is needed to improve safety and allow for dissemination of minimally invasive segmentectomy (MIS).
A Delphi panel study assessed the level of Consensus between surgeons for planning and management of MIS.

METHODS

Academic institutions, major teaching hospitals, and community hospitals from Europe, North America, and Asia were represented on panel by twenty-one expert lung surgeons.
Each panellist received a personalised e-mail link to a secure survey of sixteen questions (Table 1A).
Delphi methodology was employed to analyse the answers to the survey. To enhance authenticity, three rounds of voting were implemented. Anonymous replies were compiled and organised in a centralised database, inaccessible to the panel. A priori, a Consensus was established as panel's agreement was >50%. Clinical practice was recommended when 50–74% of panel reached a Consensus and strongly recommended when >75% achieved a Consensus.

RESULTS

The 21 panellists responded to all three rounds of questions (Table 1B).
The recommendation based on the strongest Consensus was: "3-D reconstruction of broncho-vascular structures on preoperative chest CT is necessary only before complex segmentectomies (Consensus=94.4%)".
Surgeons should perform 3-D reconstructions of structures on preoperative chest CT (Consensus=83.3%). Preoperative nodule localisation is needed only during complex segmentectomies (Consensus=61.1%), and most effective and safest preoperative technique is image-guided VATS in a hybrid operating room (Consensus=83.3%). Dyes with intravenous administration are the safest technique for identifying intersegmental plane during MIS (Consensus=72.2%). Augmented/mixed-reality will probably not immediately help reduce perioperative complications (Consensus=72.2%).

CONCLUSIONS

This Delphi Consensus supports 3-D reconstructions and preoperative pulmonary nodule localisation before complex MIS.
These recommendations could be used during internal negotiations with hospitals to invest resources to improve MIS's safety and oncological effectiveness in patients with stage IA NSCLC.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Minimally Invasive Segmentectomies, Delphi Methodology, Consensus Report, Methodology.

Table 1A. Questions answered by Delphi Panel. MIS = minimally invasive segmentectomies.

1. When planning an MIS, do you deem 3-D reconstructions of broncho-vascular structures necessary on preoperative chest CT?
2. When planning an MIS, who do you think should perform 3-D reconstructions of broncho-vascular structures on preoperative chest CT?
3. Can 3-D reconstructions of broncho-vascular structures on preoperative chest CT help prevent major intraoperative complications during MIS?
4. Can 3-D reconstructions of broncho-vascular structures on preoperative chest CT help reduce the operating time of MIS?
5. Can 3-D reconstructions of broncho-vascular structures on preoperative chest CT help improve oncological radicality during MIS?
6. Can 3-D reconstructions improve the management of air leaks during MIS?
7. Can the implementation of 3-D reconstructions reduce the need for additional staplers through more precise preoperative planning?
8. In case of difficult localisation of small and deep pulmonary nodules (pure or partial ground-glass opacities, solid nodules) where surgical excisional biopsy is indicated, which method of preoperative nodule localisation do you prefer?
9. Do you consider preoperative nodule localisation necessary before performing a segmentectomy?
10. Who should perform preoperative pulmonary nodule localisation?
11. What is the most effective and safest preoperative pulmonary nodule localisation technique?
12. Can image-guided VATS in a hybrid operating room help reduce complications during segmentectomy?
13. Can image-guided VATS in a hybrid operating room help reduce the operating time of segmentectomy?
14. Can image-guided VATS in a hybrid operating room help improve oncological radicality during segmentectomy?
15. What is the safest technique for identifying the intersegmental plane during segmentectomy?
16. Can augmented and mixed reality applied to MI thoracic surgery help reduce perioperative complications?

Table 1B. Summary table of recommendations. MIS = minimally invasive segmentectomies.

Statement	Score (%)	Clinical Practice
Only before complex segmentectomies 3-D reconstructions of broncho-vascular structures on preoperative chest CT is necessary	94.4	*Strongly recommended*
Thoracic surgeons should perform 3-D reconstructions of broncho-vascular structures on preoperative chest CT when planning an MIS	83.3	*Strongly recommended*
Only during complex segmentectomies, 3-D reconstructions of broncho-vascular structures on preoperative chest CT help prevent major intraoperative complications during MIS.	61.1	Recommended
3-D reconstructions of broncho-vascular structures on preoperative chest CT help reduce the operating time of MIS	55.6	Recommended
3-D reconstructions of broncho-vascular structures on preoperative chest CT help improve oncological radicality during MIS	72.2	Recommended
3-D reconstructions do not improve the management of air leaks during MIS	88.9	*Strongly recommended*
The implementation of three-dimensional reconstructions does not reduce the need for additional staplers through more precise preoperative planning	72.2	Recommended
Only during complex segmentectomies preoperative nodule localisation is necessary	88.9	*Strongly recommended*
Radiologists should perform preoperative pulmonary nodule localisation	72.2	Recommended
Thoracic surgeons should perform preoperative pulmonary nodule localisation	61.1	Recommended
Image-guided VATS in a hybrid operating room is the most effective and safest preoperative nodule localisation technique	83.3	*Strongly recommended*
Only during complex segmentectomies can image-guided VATS in a hybrid operating room help reduce complications.	72.2	Recommended
Image-guided VATS in a hybrid operating room help reduce the operating time of segmentectomy	55.6	Recommended
Image-guided VATS in a hybrid operating room help improve oncological radicality during segmentectomy	83.3	*Strongly recommended*
Identification by dyes with intravenous administration is the safest technique for identifying the intersegmental plane during segmentectomy	72.2	Recommended
Augmented and mixed-reality applied to MIS will probably help reduce perioperative complications, but not in the immediate future	72.2	Recommended

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OUTCOME AFTER SEGMENTECTOMY AND LOBECTOMY FOR HYPERMETABOLIC CLINICAL STAGE IA1-2 NON SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES

To evaluate the oncologic outcome of patients with hypermetabolic tumours resected by segmentectomy or lobectomy

METHODS

Retrospective analysis on all consecutive patients with peripheral clinical stage IA1-2 NSCLC(January 2017-June 2023) and resected by segmentectomy or lobectomy in a single centre.
A hypermetabolic tumour: PET-SUVmax>2.5.
Kaplan Meier and Cox regression analyses adjusting for tumour- and patient-related factors were used to evaluate overall survival(OS) and event-free survival(EFS). Competing regression analysis (competing variable:death from non-cancer reasons) was used to assess cancer specific survival.

RESULTS

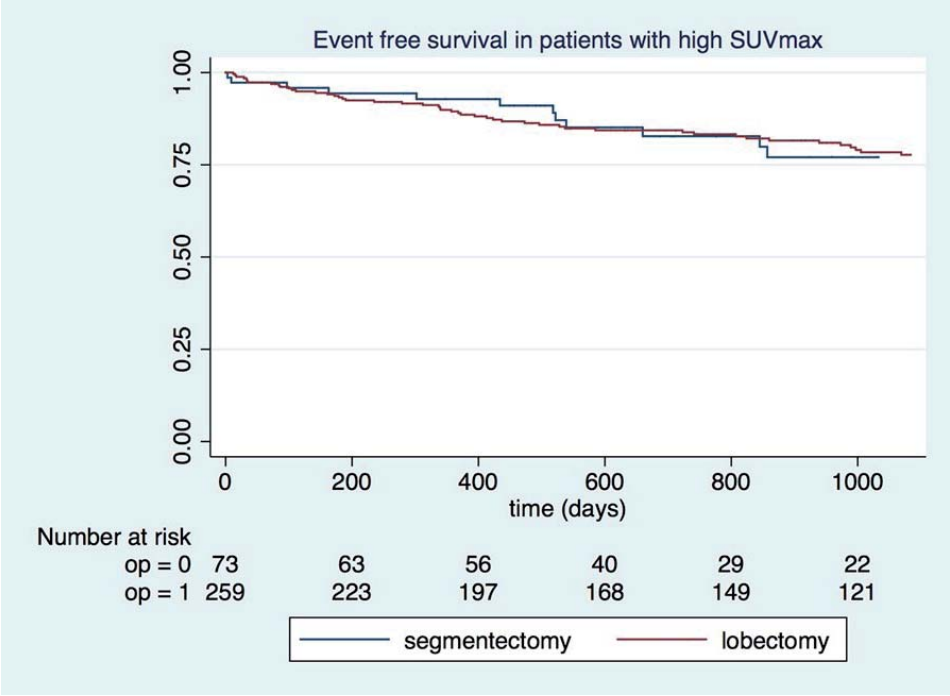
A total of 164 Segmentectomies and 234 lobectomies were analysed.
4-year EFS:segmentectomy 70% (95%CI 57-79) vs. lobectomy 75% (95%CI 68-80),p=0.58
4-year OS:segmentectomy 82% (95%CI 71-89) vs. lobectomies 83% (95%CI 77-88),p=0.78
Median PET-SUVmax was 2.75(IQR 1.8-4.9) after segmentectomy and 4.2(IQR 2.7-7.2) after lobectomy,p<0.001
There were 91(55%) hypermetabolic tumours in the segmentectomy group vs. 178 in the lobectomy group(76%),p<0.001.
4-year EFS after segmentectomy in hypermetabolic tumours was 59%(95%CI 41-73) vs. 78%(95%CI 60-89) in tumours with lower PET-SUVmax,p=0.003
The 4-year EFS in hypermetabolic tumours after lobectomy was 71%(95%CI 64-78) (p=0.14 vs. hypermetabolic segmentectomy-Figure)
4-year OS after segmentectomy in patients with hypermetabolic tumours was 71% (95%CI 53-83) vs. 97%(95%CI 89-99) in those with tumours with lower PET-SUVmax,p=0.002
The 4-year OS in patients with hypermetabolic tumours after lobectomy was 82% (95%CI 75-87) (p=0.21 vs. hypermetabolic segmentectomy)
A Cox regression analysis revealed that hypermetabolic tumours (HR 2.1, 95%CL 1.2-3.9,p=0.015) remained the only factors associated with EFS, but not the extent of operation.

Competing regression analysis found that PET-SUVmax was the only predictor of cancer specific death (SHR 1.14, 95%CI 1.05-1.23, p=0.001) after adjusting for patient and tumour variables. The extent of operation was not associated with cancer-specific death.

CONCLUSIONS

Early-stage peripheral hypermetabolic tumours are associated with poorer oncologic outcomes compared to less PET-avid tumours. Outcomes in this high-risk group were similar after lobectomy or segmentectomy.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Lobectomy, Segmentectomy.



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OUTCOMES OF ROBOTIC DOUBLE-LAYER TRIANGULAR STAPLING FOR INTRATHORACIC ESOPHAGOGASTRIC ANASTOMOSIS TO PREVENT ANASTOMOSIS LEAKAGE AND STRICTURE

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OBJECTIVES
The ideal surgical method for esophagogastric anastomosis after esophagectomy requires low leakage and stricture rate. We developed a robotic double-layer triangular stapling (RDTS) method to minimize anastomosis leakage and stricture. The aim of the study is to evaluate the outcomes of RDTS after esophagectomy.

METHODS
RDTS method consisted of inner and outer layer anastomosis. The inner layer was stapled with linear SureForm™ or Endo GIA™ staplers making a triangular shape. The outer layer was sutured with continuous barbed suture by robotic suturing technique to make a second-line barrier when leakage from the inner layer occurs. The outcomes of RDTS were compared to robotic single-layer triangular stapling (RSTS) anastomosis in our center.

RESULTS
Between 2015 and 2023, RDTS and RSTS were performed on 91 (51.1%) and 87 (48.9%) patients respectively. There was no difference in the distribution of age, sex, clinical stages and incidence of overall, cardiac, respiratory and gastrointestinal complications between the two groups. The overall anastomosis leakage rate was 3.3% and 6.9% in RDTS and RSTS respectively (p=0.322). However, leakage more than type II grade occurred in 0% and 5.7% in RDTS and RSTS (p=0.026), although induction treatment was more prevalent in RDTS than RSTS (38.5% vs, 24.1%, p=0.040). Intervention for anastomosis stricture within one year was necessary for 0% and 2.3% in RDTS and RSTS (p=0.237).

CONCLUSIONS
Robotic triangular stapling showed favorable results to prevent anastomosis stricture in both groups. Adding the second layer of barbed continuous suture prevented major anastomosis site leakage. RDTS appears to be a viable surgical method for addressing severe anastomosis leakage and stricture following esophagectomy.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer, Robotic Surgery, Anastomosis.

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OVERALL SURVIVAL (OS) AND DISEASE-FREE SURVIVAL (DFS) RELATED CELL CYCLE GENES IN LUNG ADENOCARCINOMA (LUAD) AND LUNG SQUAMOUS CELL CARCINOMA (LUSC): A LARGE RETROSPECTIVE ANALYSIS BASED ON TCGA DATABASE

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OBJECTIVES

Lung cancer is one of the deadliest cancers in the world. Two of the most common non-small cell lung cancer (NSCLC) subtypes are lung adenocarcinoma (LUAD) and lung squamous cell carcinoma (LUSC). The Cancer Genome Atlas (TCGA), a landmark cancer genomics program, molecularly characterized over 20,000 the deadliest cancers in the primary cancers spanning 33 cancer types. We aim to analyze the association of 31 previously identified recurrence-related cell cycle genes on overall survival (OS) and disease-free survival (DFS) in LUAD and LUSC, using TCGA database.

METHODS

We retrospectively analyzed the association between the expression of these 31 recurrence-related cell cycle genes and OS and DFS. Data included 740 patients from stage I to III by LUAD or LUSC. Results were reported as the hazard ratio (HR) related to a 1-unit increase in genes' FPKM-UQ, based on sex- and age-adjusted robust Cox analysis stratified by clinical stage. Statistical significance was set at $p < 0.05$.

RESULTS

740 patients were analyzed for OS, and 478 for DFS. For LUAD patients in stage I, the genes most associated with OS and DFS are DTL (HR=1.30, p=0.0083) and KIF20A (HR=1.34, p=0.0072), respectively. For LUAD stage II patients, the most impacted genes related with OS is PRC1 (HR=1.36, p=0.0033), whereas no gene was associated to DFS. For LUAD patients in stage III, the most impacted genes related with OS and DFS are PLK1 (HR=1.70, p=0.0000)

and PTTG1 (HR=2.51, p=0.0230), respectively. For stage I, II and III LUSC patients, no gene was associated to OS and DFS.

CONCLUSIONS

We aim to highlight, through a large scale of patients, the most expressed and impacting genes on OS and DFS on LUAD and LUSC. This will be helpful to set further studies on prognostic genes profile in terms of recurrence and more tailoring therapies.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Recurrence, TCGA.

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PATHOLOGICAL RESPONSE AND MEDIASTINAL CLEARANCE FOLLOWING THREE DIFFERENT NEOADJUVANT STRATEGIES IN LOCALLY ANVANCED NON-SMALL CELL LUNG CANCER

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OBJECTIVES
Pathologic complete response (pCR) is a crucial surrogate parameter for clinical outcome in locally advanced NSCLC patients undergoing modern induction therapy. However, data about mediastinal downstaging after such therapy remains limited. We analyzed local and mediastinal tumor control, focusing on pCR and major pathologic response (MPR) rates, after three neoadjuvant strategies: chemo/radiation (CR), chemo/radiation followed by durvalumab (CRI), and immuno-/chemotherapy (IC).

METHODS
We conducted a single-center retrospective cohort study (2015-2023). Locally advanced NSCLC patients who underwent curatively intended pulmonary resection after CR, CRI, or IC were analyzed. The study assessed MC (initial pN2-3 to ypN0-1), pCR, MPR and the correlation between pCR and PD-L1 expression.

RESULTS
Ninety-seven patients were identified (CR n=46, CRI n=9, IC n=41). CR achieved a pCR rate of 43% and an MPR of 76%, while CRI showed higher rates at 56% pCR and 89% MPR. IC resulted in a pCR of 49% and an MPR of 63%. Notably, the IC group exhibited no observed correlation between pCR and PD-L1 status: PD-L1 negative (pCR 50%), PD-L1 1-50% (pCR 44%), and PD-L1 >50% (pCR 57%). MC after CRI reached 100%, whereas the CR and IC groups achieved MC rates of 76% and 70%. Interestingly, five patients (4 after CR, 1 after IC) exhibited pCR in the tumor but vital tumor cells in the lymph nodes.

CONCLUSIONS
All three neoadjuvant strategies demonstrated superior local-regional responses compared to standard neoadjuvant chemotherapy. Our data indicates no correlation between a negative PD-L1 status and a poor pCR rate, highlighting the need for further investigation.
Despite sufficient local-regional control in all three groups, neoadjuvant CR did previously not show a survival benefit, in contrast to recent findings for induction IC. That is one compelling reason neoadjuvant IC therapy for locally advanced NSCLC should increasingly be considered the preferred choice for induction therapy.

Disclosure: No significant relationships.
Keywords: Locally Advanced NSCLC, Neoadjuvant Immune-/Chemotherapy, Multimodal Therapy, Mediastinal Clearance.

P-207

PROGRAMMED DEATH-LIGAND (PD-L1) EXPRESSION DYNAMICS IN ESOPHAGEAL SQUAMOUS CELL CARCINOMA CELLS DURING CHEMOTHERAPY

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OBJECTIVES
Immunotherapy combined with chemotherapy is widely used in the current treatment of esophageal squamous cell carcinoma (ESCC). However, the synergistic interaction between chemotherapy and immunotherapy, especially regarding the impact of chemotherapy on PD-L1 expression in tumor cells, remains unclear. This study aims to explore the dynamic changes in PD-L1 expression in ESCC cells during chemotherapy.

METHODS
Chemotherapy-resistant cell lines were induced in vitro using concentration escalation method. Two ESCC cell lines (TE-1, KYSE150) were treated with cisplatin (the most commonly used chemotherapy drug for ESCC). After three cycles at each concentration, the relative Resistance Index (RI) was determined using the CCK8 method, and total RNA was collected. The process was repeated with increasing cisplatin doses until the resistant cell lines were successfully established (RI > 5). PD-L1 expression at each induction stage was measured using qPCR with specific primers.

RESULTS
Two cisplatin-resistant ESCC cell lines were successfully established, with TE-1 reaching resistance criteria after nine cycles and KYSE150 after twelve cycles. During induction, both cell lines exhibited a continuous increase in resistance, but PD-L1 expression showed different trends. TE-1 cells initially showed an increase in PD-L1 expression in the early stages of chemotherapy (an average of 4.91-fold), followed by a gradual decrease, reaching significantly lower levels than the parental cells at resistance criteria (an average of 20.2%). In contrast, KYSE150 cells exhibited an initial upregulation of PD-L1 expression in the early stages of chemotherapy without statistical significance. By the time of resistance, PD-L1 expression had returned to levels comparable to the parental cells (an average of 1.37-fold).

CONCLUSIONS
Continuous use of cisplatin does not lead to a gradual increase in PD-L1 expression, suggesting that the synergistic effect of chemotherapy with immune checkpoint inhibitors may not be directly associated with PD-L1 pathways in ESCC.

Disclosure: No significant relationships.
Keywords: ESCC, PD-L1, Chemotherapy.

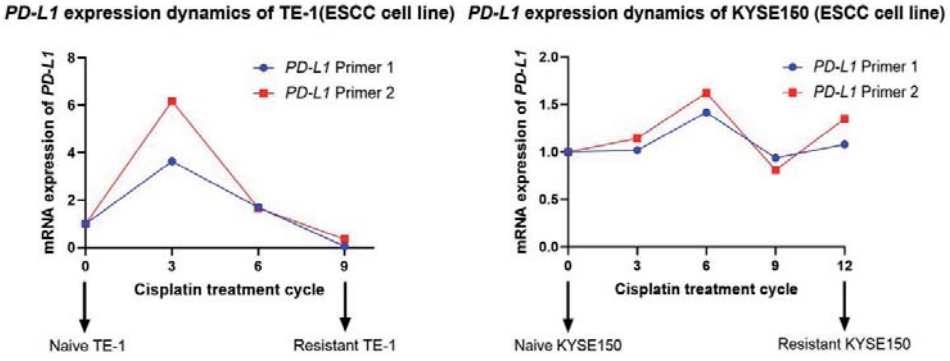

Figure 1- *PD-L1* expression dynamics of ESCC cell lines. The PD-L1 expression level of the original cell line was recorded as 1, and two different PD-L1 primers were used to measure the PD-L1 expression level of ESCC cells in each treatment cycle. The first detection data (Cycle 0) corresponded to the original cell line, and the last detection was cisplatin-resistant cell line (RI>5).

P-208

PROGRAMMED DEATH-LIGAND (PD-L1) EXPRESSION IN EARLY STAGE LUNG CANCER

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OBJECTIVES
Immune checkpoint inhibitors have become the standard for perioperative treatment of resectable non-small cell lung cancer. PD-L1 is used as an biomarker of the efficacy of immune checkpoint inhibitors. However, the expression of PD-L1 in patients with early stage lung cancer patients is unknown. This study aimed to evaluate PD-L1 expression in early stage lung cancer.

METHODS
We included 658 patients with stage pIA-IIIA NSCLC who underwent complete resections at Tohoku University Hospital between January 2017 and December 2022. We retrospectively compared PD-L1 expression at each pathological stage. Additionally, We searched for groups with high PD-L1 expression in pathological stage IA non-small cell lung cancer.

RESULTS
The median age was 71 (20-89) years; 389 (59.1%) patients were men. The pathological stages were 414 (62.9%) /104 (15.8%) / 82 (12.5%) / 58 (8.8%) for IA/IB/II/III, respectively. In pathological stage IA, PD-L1 expression were 47.6%, 39.4%, and 13.0% in the negative group (<1%), low (1-49%), and high (≥50%) groups, respectively, whereas in pathological stage III, these were 25.9%, 37.9%, and 36.2% in the negative, low, and high groups, respectively, indicating that PD-L1 positivity increased as the disease stage progressed. PD-L1 expression was higher in patients with high serum CEA, high SUVmax, and squamous cell carcinoma in pathologic stage IA non-small cell lung cancer.

CONCLUSIONS
PD-L1 expression was low in early stage non-small cell lung cancer, but it was high in patients with high serum CEA, high SUVmax, and squamous cell carcinoma in pathologic stage IA. PD-L1 expression may be higher in patients with higher oncologic grades.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Early Stage, PD-L1.

P-209

PERIOPERATIVE OUTCOMES FOLLOWING LUNG RESECTION IN METASTATIC NON-SMALL CELL LUNG CANCER: RESULTS OF A LARGE MULTICENTER DATABASE

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OBJECTIVES

Surgical decision-making in non-small-cell lung cancer (NSCLC) relies on balancing operative risks with oncologic benefits. Recent data have emerged demonstrating survival advantages following pulmonary resection as local consolidative therapy in stage IV NSCLC, yet operative risks for these potentially more challenging surgical procedures are not well-described. We sought to characterize perioperative outcomes within a multicenter cohort of patients with resected stage IV NSCLC.

METHODS

We retrospectively reviewed patients with metastatic NSCLC who underwent resection of primary lung tumors from 1996-2023 from 2 large academic institutions. Clinicopathologic, operative, and perioperative details were obtained from patient records. Predictors of pulmonary, cardiac, renal, and wound complications were assessed and multivariable regression model performed.

RESULTS

179 patients were included, at median age of 59.0 (51.8-66.5) years. Neoadjuvant therapy was received by 116 (64.8%), including chemotherapy 73 (40.8%), immunotherapy in 4 (2.2%), and targeted therapy in 48 (26.8%). Most patients underwent thoracotomy (141, 78.8%). Operations included 130 (72.6%) lobectomies, 24 (13.4%) wedges, 7 (3.9%) segmentectomies, 12 (6.7%) bilobectomies, and 6 (3.4%) pneumonectomies. Median blood loss was 150 (62.5-300) mL, and median operative duration was 236 (183-286) minutes. Typical length of stay was 5.0 (3.0-8.0) days. Postoperative complications occurred in 46 (25.7%), including 18 (10.1%) pulmonary, 19 (10.6%) cardiac, 5 (2.8%) renal, and 4 (2.2%) wound-related. MVA did not identify intrathoracic stage, extent of resection, nor neoadjuvant treatment as independent predictors of postoperative complication (Table). All patients survived 30 days, and 2 deaths (1.1%) occurred within 90 days. Complications did not impact 90-day survival (p=0.36).

CONCLUSIONS

Surgery for stage IV NSCLC is well-tolerated, regardless of receipt of neoadjuvant therapy, intrathoracic stage, or extent of lung resection. Most complications are cardiopulmonary,

without downstream impact on survival. These findings inform multidisciplinary and informed consent discussions, setting a baseline for future assessments of outcomes in this patient population.

Disclosure: Bristol Myers Squibb: Advisory Board.
Keywords: Lung Cancer, NSCLC, Pulmonary Neoplasm.

Table:

Variable	Odds Ratio	95% Confidence Interval	P-Value
Smoking History	1.20	0.44 - 3.26	0.72
Clinical T Stage (Ref: T1)			
T2	0.72	0.24 - 2.14	0.55
T3	1.28	0.40 - 4.15	0.68
T4	1.19	0.29 - 4.96	0.81
Clinical N Stage (Ref: N0)			
N1	1.80	0.62 - 5.22	0.28
N2	0.79	0.22 - 2.77	0.71
N3	0.99	0.21 - 4.60	0.99
Receipt of Neoadjuvant Treatment	0.93	0.37 - 2.35	0.88
Surgical Extent (Ref: Lobar Resection)			
Wedge	1.09	0.27 - 4.46	0.90
Segmentectomy	3.85	0.72 - 20.54	0.11
Bilobectomy	4.52	0.81 - 25.07	0.08
Pneumonectomy	1.97	0.28 - 13.7	0.49
Operative Duration (min)	1.00	0.99 - 1.01	0.19

Table: Results of multivariable logistic regression demonstrating odds of development of any perioperative complication (pulmonary, cardiac, renal, and/or wound) following surgical resection of stage IV non-small-cell lung cancer, N = 179 patients.

P-210

PERIOPERATIVE OUTCOMES OF LUNG CANCER SURGERY IN WOMEN: A CANADIAN NATIONWIDE RETROSPECTIVE COHORT STUDY

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OBJECTIVES
To determine sex differences in perioperative outcomes of curative intent lung cancer surgery.

METHODS
Data for patients who underwent curative intent lung cancer surgery between January 1st, 2021 and December 31st, 2022 at 12 hospitals were extracted from the Canadian Association of Thoracic Surgeons National Database. Data collected included pre-operative characteristics, surgery-related data, tumour-related data, and post-operative outcomes. The Student's t-test was used to compare continuous variables and the Fisher's exact test was used to compare categorical variables between sexes. A series of bivariate logistic regression models were used to determine perioperative variables associated with female sex.

RESULTS
A total of 9,187 patients were included (55.2% female and 44.8% male). More females were non-smokers ($p<0.0001$). We found sex-specific differences in tumour-related outcomes, where males had higher rates of squamous cell carcinoma ($p<0.0001$). Males had longer length of stay by 0.67 days ($p=0.0001$). According to the Clavien-Dindo classification of complication severity, female patients had higher rates of minor complications and had lower rates of major complications compared to male patients. Logistic regression showed that females were less likely to be active smokers (OR=0.67; 95%CI 0.54, 0.82) or have comorbidities such as diabetes, coronary artery disease, and peripheral vascular disease. Females were also less likely to have squamous cell carcinoma (OR=0.38; 95%CI 0.29, 0.48), air leak complications (OR=0.74; 95%CI 0.58, 0.95), but were more likely to have stage T1A pathology tumours (OR=1.30; 95%CI 1.02, 1.65).

CONCLUSIONS
Our findings are consistent with previous studies, where females had less smoking history and fewer comorbidities, different tumour types, and better post-operative outcomes compared to males. Understanding the pre-operative factors that contribute to sex differences in adverse events can pave the way for improved management strategies, enhancing the quality of life and survival rates for lung cancer patients.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Sex, Surgical Outcomes.

P-211

PNEUMONIA AFTER MAJOR LUNG RESECTION FOR LUNG CANCER: PREVALENCE, RISK FACTORS, TREATMENT AND OUTCOME

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OBJECTIVES
Surgery is the mainstay treatment of early stage NSCLC and selected cases of locally advanced disease. Cardio-pulmonary complications after major lung resection are frequent and, among them, pneumonia is one of the most common and dangerous. Aims of this study were to define the incidence of post-operative pneumonia and to analyze risk factors, treatment and outcome of these patients.

METHODS
Seven hundred and fifty patients submitted to major lung resection in a 3-years period were prospectively collected. Demographic data, perioperative and postoperative variables were analyzed. Postoperative pneumonia was diagnosed according to radiological criteria, laboratory and microbiological features and clinical manifestations. All these patients had routine blood tests including C-reactive protein and Procalcitonin and most of them a bronchoscopy with bronchoalveolar lavage.

RESULTS
Eighty-one (10.8%) patients developed postoperative pneumonia. All patients firstly received empiric antibiotic therapy which was then modified in 15 cases according to indications of the antibiogram performed on the pathogen detected. Forty-eight (59.3%) patients had a complete resolution, 23 (28.4%) partial resolution with radiological residual findings, 9 (11.1%) required hospitalization in ICU with subsequent recovery and 1 (1.2%) died. Hospitalization was significantly higher in pneumonia group (11 vs 6 days, p=0.001).
The uni-multivariable analysis found BMI (p=0.001), lower FEV1 (p=0.002) and DLCO values (p=0.02), smoking-status (p=0.009;RR:2.25 IC(1.71-3.65)), diabetes (p=0.01;RR:1.86 IC(1.3-2.8)) and BPCO (p=0.001;RR:4.4 IC(3.9-5.7)) as significant pre-operative risk factors. Bilobectomy (p=0.006;RR:2.5 IC(1.6-4.9)), conversion from minimally invasive to open surgery (p=0.001;RR:2.9 IC(2.1-5.8)), need for re-operation (p=0.03;RR:2.1 IC(1.3-3.8)) and longer duration of surgery (p=0.001) were identified as perioperative risk factors.

CONCLUSIONS
Pneumonia after major lung resection for NSCLC has a not negligible incidence leading to complex management and longer hospitalization. Various features, both pre-operative and post-operative, proved to be statistically significant risk factors. Attention must

therefore focus on the modifiable characteristics in order to prevent this complication or improve the outcome.

Disclosure: No significant relationships.
Keywords: Post-Operative Pneumonia, Lung Resection Complications, Post-Operative Complication, Oncological Thoracic Surgery Outcome.

P-212

POST-LOBECTOMY PREVENTION AND EVALUATION OF DIAPHRAGM WITH A NON-INVASIVE METHOD

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OBJECTIVES

Background: This study aimed to assess all the patients post-lobectomy of possible complications such as diaphragmatic paralysis or paresis by evaluating the Diaphragmatic Excursion, Respiratory Variation, and Thickness of Diaphragm Muscles with just an ultrasound. Method: Post-op patients were recruited. The two hemidiaphragms' thicknesses were measured using B mode and M mode, during respiratory maneuvers such as quiet breathing, voluntary coughing, and deep inspiration. We performed a complete observation by studying all patients over 6 months undergoing lobectomy in which lung re-expansion was assessed daily with chest ultrasound (CUS) until chest drainage was removed.

CASE DESCRIPTION

Results: 54 patients (35 men and 19 women) were included in the study. The statistical analysis revealed Sensitivity, specificity, PPV, and NPV of early diaphragmatic impairment by using only the CUS was, respectively: 85% ($p = 0.002$); 99% ($p = 1.0$); 90% ($p = 0.231$); and 92% ($p = 0.7$).

CONCLUSIONS

Conclusion: These methods are particularly useful after an oncological lung surgery where there is a high risk of phrenic nerve injury or in diseases affecting the contractility or the motion of the diaphragm. The US can offer a simple means of detecting early dysfunction. Repetitive examinations are beneficial in assessing recovery or progressive impairment.

Disclosure: No significant relationships.
Keywords: Lobectomy, Chest Ultrasound, Diaphragm, Non-Invasive, Thoracic Surgery.

P-213

POSTOPERATIVE BRONCHOPLEURAL FISTULA CLOSED BY FILLING ENDOBRONCHIAL WATANABE SPIGOT (EWS) FROM OPEN THORACIC CAVITY SIDE

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OBJECTIVES

Bronchopleural fistula is one of the life-threatening complications after lung cancer surgery. When empyema with fistula occurs, urgent open window thoracotomy is performed to clean up the pleural cavity, as it can be fatal due to inhalation pneumonia. Once the pleural cavity has been cleaned, closure of the cavity should be planned.
Endobronchial Watanabe Spigot (EWS) is a silicone bronchial filling material developed for the treatment of intractable pneumothorax and bronchopleural fistula. Although there is a report of transbronchial EWS placement in the bronchopleural fistula after open window thoracotomy, we experienced a postoperative bronchopleural fistula where the fistula was closed by placing EWS from the open pleural cavity side.

CASE DESCRIPTION

A 63-year-old man underwent a left lower lobectomy, mediastinal lymph node dissection, and adjuvant chemotherapy for left lung cancer. Seven months post-treatment, he presented with fever and increased sputum production. Computed tomography revealed an air-fluid level in the left thoracic cavity, and bronchoscopy showed ulceration in the lingular bronchus. Diagnosed with bronchopleural fistula and empyema, he underwent urgent open window thoracotomy. A grayish-white, cauliflower-like structure around the bronchopleural fistula in the pleural cavity was found. This structure, identified as an Aspergillus fungal body, was removed as thoroughly as possible. Despite continued cleaning of the open pleural cavity, the fistula remained open six months after the thoracotomy. After inserting EWS into the fistula from the open pleural cavity side, granulation tissue formed over the EWS, resulting in the closure of the fistula within a month.

CONCLUSIONS

EWS placement from the open pleural cavity side is much easier than using transbronchial techniques and was shown here to be an effective approach.

Disclosure: No significant relationships.
Keywords: Bronchopleural Fistula, Open Window Thoracotomy, Endobronchial Watanabe Spigot.

P-214

POSTOPERATIVE CHEST TUBE MANAGEMENT AFTER VIDEO ASSISTED THORACIC SURGERY (VATS) FOR PRIMARY SPONTANEOUS PNEUMOTHORAX - A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES
The optimal timing of postoperative chest tube removal after surgery for primary spontaneous pneumothorax remains a matter of debate. Historically, chest tubes are left in place for several days, which was deemed necessary for adequate pleurodesis and prevention of early recurrence. Currently, early chest tube removal (defined as immediate removal once there is absence of air leak, irrespective of time from surgery) is increasingly applied. The aim of this systematic review and meta-analysis is to evaluate the safety of early against late chest tube removal.

METHODS
Medline, Embase and Cochrane databases were searched until March 2022. Patients undergoing pleurodesis through video-assisted thoracoscopic surgery for primary spontaneous pneumothorax were included if chest tube management was transparently described to discriminate between early and late chest tube removal, and recurrence rate with a postoperative follow-up period of at least 6 months was reported. The primary outcome was recurrence rate and secondary outcomes were postoperative length of stay, prolonged air leakage and hemothorax. Subgroup analysis was performed for type of pleurodesis and study design. The quality of evidence was evaluated with the Grading of Recommendations Assessment, Development and Evaluation method.

RESULTS
A total of 32 studies comprising 5,374 patients were included. The overall recurrence rate with 95% confidence interval and heterogeneity (I2) was 0.04 (0.03-0.06; I2 = 57.6%) after late and 0.06 (0.05-0.08; I2 = 53.9%) after early removal. Secondary outcomes and subgroup analyses showed no significant differences (table 1).

CONCLUSIONS
Although the level of evidence was low, early chest tube removal seems safe as this meta-analysis demonstrated similar recurrence rates compared to late removal. Length of stay was also comparable, probably due to high heterogeneity as a result of different discharge criteria. To gain reliable insight into the benefits of early removal, a prospective study should be conducted.

Disclosure: No significant relationships.
Keywords: Primary Spontaneous Pneumothorax, Chest Tube Management, Recurrence Rate.

Outcomes	Control group: late chest tube removal	Intervention group: early chest tube removal	Number of participants (studies)	Quality or certainty of evidence (GRADE)	Comments
Recurrence rate*	0.04 [0.03 – 0.06] I2 57.6%	0.06 [0.05 – 0.08] I2 53.9%	Control group: 2732 (17 studies) Intervention group: 2554 (15 studies)	Control group: ???? LOW Intervention group: ???? LOW	The control and intervention group have moderate to serious risk of bias due to lack of RCT's. Also, potential indirectness in both groups.
Length of stay (days)**	4.78 [4.00 – 5.71] I2 99.0%	4.58 [4.27 – 4.91] I2 97.7%	Control group: 2067 (12 studies) Intervention group: 1872 (10 studies)	Control group: ???? LOW Intervention group: ???? LOW	The control and intervention group have moderate to serious risk of bias due to lack of RCT's. Also, potential indirectness in the control group. High heterogeneity in both groups.
Prolonged air leakage (> 5 days)*	0.05 [0.04 – 0.07] I2 0.0%	0.05 [0.03 – 0.09] I2 59.1%	Control group: 589 (5 studies) Intervention group: 791 (4 studies)	Control group: ?? MODERATE Intervention group: ?? MODERATE	The control group have possible risk of bias due to lack of RCT's. The intervention group have small amount of included studies, therefore optimal information size probably not met.
Hemothorax requiring intervention*	0.02 [0.01 – 0.04] I2 75.6%	0.01 [0.01 – 0.02] I2 0.0%	Control group: 2110 (10 studies) Intervention group: 861 (4 studies)	Control group: ???? LOW Intervention group: ???? LOW	Both groups have potential indirectness. Also control group have possible risk of bias due to lack of RCT's and intervention group small amount of included studies, therefore optimal information size probably not met.

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PREDICTION OF EPITHELIAL-MESENCHYMAL TRANSITION AND THE IMPACT OF VASCULAR DIVISION SEQUENCE ON POSTOPERATIVE PROGNOSIS IN LUNG ADENOCARCINOMA

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OBJECTIVES
We have reported that the upfront pulmonary artery division might be a risk factor in lung cancer patients without epithelial-mesenchymal transition (EMT) activation. EMT status was determined by staining results with the resected samples; therefore, a surrogate marker for EMT activation is needed to decide the vascular division sequence to improve the postoperative outcome. The purpose of this study was to develop and validate an EMT prediction model using factors that can be assessed preoperatively and intraoperatively, and to examine the prognostic impact of the vascular division sequence with the prediction model.

METHODS
A total of 282 cases of lung adenocarcinoma resected between 2001 and 2007 were enrolled in this retrospective study, and tissue microarray was assembled. The association between clinical characteristics and EMT activation was evaluated. The EMT prediction model (predEMT) was scored based on the factors associated with EMT activation. The impact of vascular division sequence on postoperative prognosis was examined with the EMT prediction model.

RESULTS
EMT status was significantly associated with gender (male, odds ratio 2.05, 95% confidential interval 1.25-3.35), smoking history (smoker, 2.79, 1.52-5.12), tumor diameter (≥30 mm, 1.90, 1.13-3.19), lymph node metastasis (cN1/2, 3.80, 1.87-8.41), and pleural indentation (PL1/2/3, 1.98, 1.17-3.34). The EMT prediction model based on these five factors (perdEMT score; 5-13) with a cutoff of perdEMT score 9 predicted EMT activation with a sensitivity of 42% and specificity of 86%. In the case without EMT activation (predEMT < 9), the upfront pulmonary artery division group had a worse prognosis (p=0.028, 5-year recurrence-free survival; 76.3% in the artery-first group and 92.1% in the vein-first group).

CONCLUSIONS
Since the upfront pulmonary artery division group showed poor prognosis in the case without EMT activation (perdEMT <9), the upfront pulmonary vein division may improve the prognosis in lung adenocarcinoma.

Disclosure: No significant relationships.
Keywords: Epithelial-Mesenchymal Transition, Vascular Division Sequence, Lung Adenocarcinoma.

P-216

PREDICTION OF POSTOPERATIVE PULMONARY COMPLICATIONS IN SURGICALLY RESECTED NON-SMALL CELL LUNG CARCINOMA WITH DEEP LEARNING MODELS

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OBJECTIVES
The most common problem after NSCLC surgery is postoperative pulmonary complications. Estimating the risk of possible postoperative pulmonary complications in the preoperative period is important in preventing them and improving clinical outcomes.In our study, we aimed to predict postoperative pulmonary complications using artificial intelligence models.

METHODS
The data of 953 patients operated for NSCLC in our clinic between January 2001 and 2023 were analyzed.Demographic, clinical, laboratory, respiratory, radiological and surgical intervention features were included as input data in the study.The pulmonary complications were output data.Deep learning was performed with the FCNN algorithm and K-Layer Cross Validation method.90% of the data was used for training and 10% for testing.The success of the model was evaluated by specificity, sensitivity, negative predictive value, positive predictive value, accuracy, F1 score and area under the curve in the ROC curve.

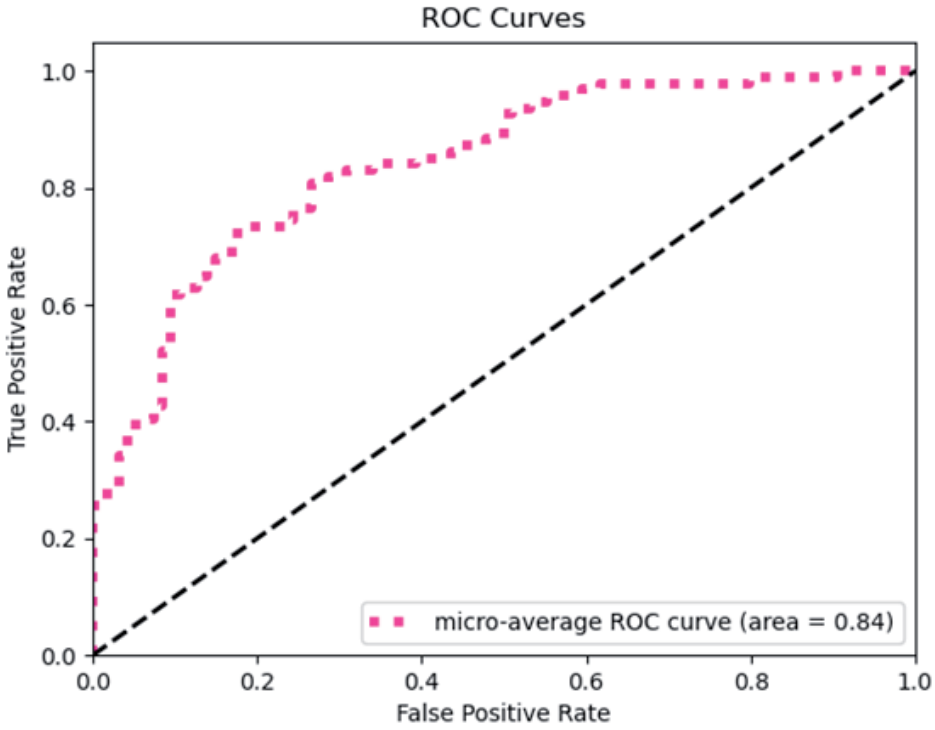
RESULTS
The training sensitivity value of the algorithm was 66.4%, the training positive predictive value was 89.8%, and the training accuracy value was 88.6%.The training F1 1 score of the algorithm was 76.3%, the training F1 0 value was 92.5%, and the training F1 average score was 84.4%. The test sensitivity value of the algorithm is 65.4%, the test positive predictive value is 100%, the test accuracy value is 90.4%.The test F1 1 score was 79.1%, the test F1 0 score was 93.8%, and the test F1 average score was 86.4(Table 1).The AUC in the ROC curve created for the purpose of success analysis for the test data of the algorithm was 0.84(AUC: 84%)(Figure 1).

CONCLUSIONS
This study revealed that with the use of deep learning algorithms, in surgically resected NSCLC patients postoperative pulmonary complication prediction was achieved with high confidence and success.Clinical use of the application will help classify patients as high and low risk in terms of postoperative pulmonary complications thus this would contribute to preventing complications.

Disclosure: No significant relationships.

Keywords: Artificial Intelligence, Postoperative Pulmonary Complications, Non-Small Cell Lung Cancer.

	Train	Test
Specificity	97.1 %	100 %
Recall (Sensitivity)	66.4 %	65.4 %
Negative Predictive Value	88.3 %	88.3 %
Positive Predictive Value (Precision)	89.8 %	100 %
Accuracy	88.6 %	90.4 %
F1 1 Score	76.3 %	79.1 %
F1 0 Score	92.5 %	93.8 %
F1 Average Score	84.4 %	86.4 %



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PREDICTION OF PROLONGED AIR LEAKAGE BY LUNG FIELD ANALYSIS USING 3D COMPUTED TOMOGRAPHIC IMAGE

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OBJECTIVES

Prolonged air leakage (PAL) is a common and worrying complication in lung surgery since it often prolongs hospital stays. In this study, we examined pulmonary fragility which was evaluated by calculating low attenuation volume (LAV) and lung volume planned for resection using 3D-CT, to investigate whether LAV and lung volume planned for resection could project the occurrence of PAL.

METHODS

We retrospectively examined whether clinical backgrounds, including %LAV and lung volume planned for resection, could predict PAL in patients who underwent anatomical lung resection in 2020. PAL was defined as persistent air leakage for more than three days after surgery, and %LAV and lung volume planned for resection were calculated from preoperative chest 3D-CT image analysis using ziostation REVORAS.

RESULTS

Of 189 patients (121 for lobectomy and 68 for segmentectomy), 18 (9.5%) had PAL (PAL group). In comparison with the patients without PAL (171: nPAL group), the PAL group exhibited more lobectomy cases (88.8 % vs. 61.4 %, p=0.02), but other clinical backgrounds, such as Brinkman Index, FEV 1.0%, considered as a measure of lung fragility, were similar between the groups. In the 3D-CT image analysis, the PAL group demonstrated significantly higher %LAV (22.8% vs. 16.2%, p=0.02) and greater lung volume planned for resection (1053 ml vs. 639 ml, p<0.001) than the nPAL group. However, in a multivariate analysis, these two factors did not show significant differences and univariate analysis showed significant differences. In ROC analysis for projection of PAL, cutoff values were 18.3% for %LAV (AUC 0.665, p=0.03) and 1048 ml for lung volume planned for resection (AUC 0.782, p=0.001).

CONCLUSIONS

Pulmonary fragility and a massive postoperative dead space are risk factors for PAL.
PAL may be predicted by quantitative evaluation of %LAV and lung volume planned for resection, which can be calculated from preoperative simulations using a 3D-CT image analysis system.

Disclosure: No significant relationships.
Keywords: Air Leakage,3D-CT Image Analysis, Low Attenuation Volume.

P-218

PREDICTIVE MARKERS OF RECURRENCE FOLLOWING LUNG CANCER RESECTION WITH CURATIVE INTENT

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OBJECTIVES
Surgical resection offers the best chance of long term survival in patients with early stage cancer; however approximately 30-55% of patients with resectable tumours recur within 5 years. Pathological indicators for recurrence are not well understood; however factors including tumour size, rate of growth and pathological staging have demonstrated association with recurrence. We performed a retrospective analysis of a single centre's experience to determine clinicopathological markers predictive of recurrence.

METHODS
We analysed all consecutive lung cancer resections at our institution from 01/01/2012 to 31/10/2019. Patients with synchronous primaries or metastatic disease at presentation were excluded. Univariate analysis was conducted to identify predictors of recurrence.

RESULTS
1244 patients were identified. 451(36.3%) suffered from recurrence. 263(58.3%) had locoregional recurrence, 78(17.3%) distant recurrence and 110(24.4%) were found to have both locoregional and distant recurrence. Recurrence rates per cell type were; adenocarcinoma 39.9%, squamous cell carcinoma 34.4%, carcinoid tumours 10%, small cell 55% and large cell neuroendocrine tumours 71.4%. As expected, increasing stage was predictive of recurrence; 1b: OR 2.0 (1.39-2.91), 2a: OR 2.29 (1.47-3.58), 2b: OR 3.71 (2.37-5.85), 3a: OR 3.15 (2.03-4.86), 3b: OR 3.66 (1.07-13.03), as was positive resection margin, pleural or lymphovascular invasion (Table 1). Poorly differentiated tumours had significantly higher risk of recurrence when compared to tumours with moderate differentiation: OR 1.53 (1.16-2.02) and well differentiated tumours significantly lower risk of recurrence: OR 0.44 (0.20-0.87).

CONCLUSIONS
As well as increasing stage, pleural invasion, lymphovascular invasion and distance from resection margin were found to be strong predictors of recurrence in keeping with published literature. This data supports the proposition that both pleural and lymphovascular invasion are indicators for adjuvant therapy.

Disclosure: No significant relationships.
Keywords: Recurrence, Curative, Markers.

	Odds ratio	95 % CI for odds ratio	p value
PL1 (Invasion to visceral pleura)	1.52	(1.1,2.1)	0.01
PL2 (Invasion through visceral pleura)	2.47	(1.64,3.73)	<0.001
PL3 (Invasion to parietal pleura)	1.99	1.11 - 3.56	0.02
R1 (Microscopic tumor at margin)	1.47	1.01 - 2.15	0.04
R2 (Macroscopic tumor at margin)	2.41	0.76 - 8.22	0.14
RX (Possible positive margin)	2.01	0.66 - 6.30	0.21
Lymphovascular invasion	2.19	1.66 - 2.89	<0.001
Spread through air-spaces	1.41	0.76 – 2.61	0.27
Distance from closest resection margin	0.99	0.986 – 0.996	<0.001

P-219

PREDICTIVE SCORE FOR LOCAL RELAPSE AFTER PULMONARY METASTASECTOMY

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OBJECTIVES

Curative-intent pulmonary metastasectomy (PM) is a valuable treatment option for patients with limited metastatic disease. Accurate selection of surgical candidates is crucial to maximize survival and reduce postoperative morbidity. Particularly, local relapse after PM remains

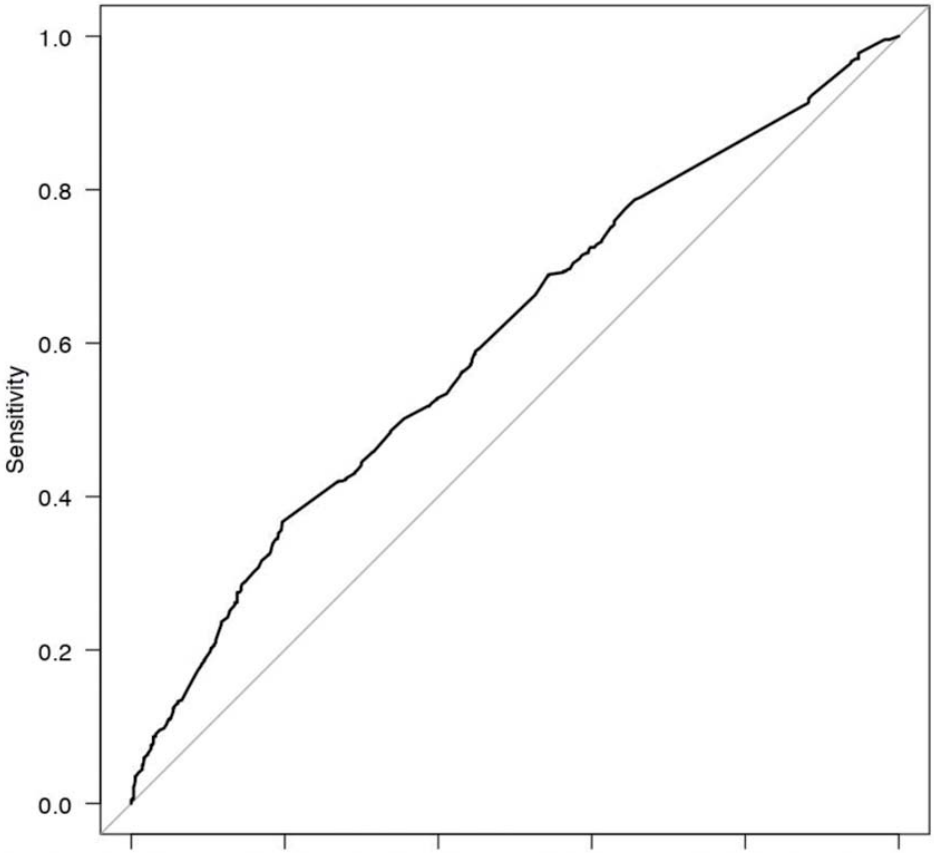
high (~50%), bringing into question the appropriateness and ultimate efficacy of this surgical approach. Common patient eligibility criteria do not include estimations of risk for local relapse due to a lack of evidence.
This study aimed to build a predictive score for local relapse after PM.

METHODS
Multicentre retrospective analysis on patients ≥18 years who underwent PM (01/2010-12/2018). Exclusion criteria were: previous metastasectomy, pneumonectomy, non-curative intent, extrapulmonary relapse at the time of PM.
Local relapse was defined as any relapse occurring in the lungs, hilar-mediastinal lymph nodes, and/or pleurae.
The model was built on a derivation set of independent predictors of relapse. Potential predictors of relapse were analysed using multivariable logistic regression. The significant independent predictors were employed to construct a predictive score, based on natural logs of multivariable analyses ORs. A ROC was employed to determine an appropriate score cut-off.

RESULTS
1,647 patients were included. 676 (41%) developed local relapse after PM.
Number of metastases, diameter of largest metastasis, and induction therapy (before PM) were identified as independent predictors of local relapse within 1 year.
Based on these factors, the following simplified predictive scoring system for relapse was developed: 1.7*[metastases number]+0.8*[diameter of largest metastasis]+1.4*[induction therapy]. With a ROC=0.60 [95% CI: 0.58-0.63] (Figure), a cut-off point>6 indicated an increased probability of relapse within 1 year.

CONCLUSIONS
This predictive model is a valuable support for multidisciplinary teams to stratify surgical candidates before PM. External validation is necessary to assess the reproducibility of the model.

Disclosure: No significant relationships.
Keywords: Lung Metastases, Pulmonary Metastasectomy, Relapse.


1.0
0.8
0.6
0.4
0.2
0.0
Sensitivity

P-220

PREDICTIVE VALUE AND PROGNOSTIC IMPACT OF SENTINEL LYMPH NODE IN LUNG CANCER SURGERY

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OBJECTIVES
In lung cancer surgery, the safety and feasibility of sentinel lymph node (SLN) using indocyanine green and infrared fluorescence imaging has recently been demonstrated. Lymph node dissection (LND) has been associated to an impairment of patient's immune response, possibly increasing the recurrence rate, questioning the place of LND in the era of immunotherapy.
The aim of our study was to evaluate predictive value and prognostic impact of SLN in patients undergoing anatomical resection for primary lung cancer.

METHODS
We retrospectively reviewed patients undergoing anatomical resection for stage I-IIa lung cancer with SLN protocol and radical LND between December 2020 and December 2023. Primary endpoint was to assess pathological concordance of cancer cell involvement between the SLN and the rest of the lymphadenectomy. Secondary endpoint was to evaluate overall survival (OS) and disease-free survival (DFS) according to SLN involvement: pN0 SLN (no neoplastic involvement) versus pN+ SLN (neoplastic involvement) groups.
Appropriate statistical tests were applied.

RESULTS
This study included 106 patients (59 (55.7%) lobectomies, 47 (44.3%) segmentectomies): 96 (90.6%) pN0 SLN and 10 (9.4%) pN+ SLN. All patients with a pN0 SLN were pN0 on the entire LND.
Median follow-up time was 20 months (IQR = 12.5). Median DFS was significantly lower in the pN+ SLN group compared to the pN0 SLN group (20 months vs not reached, respectively ($p<0.0001$)). DFS at 24 months was 26.7% (95% CI: 0.08-0.86) in the pN+ SLN group vs 87.7% (95% CI: 0.80-0.96) in the pN0 SLN group ($p<0.0001$). Median OS was not reached in either group.

CONCLUSIONS
Our results suggest that pN0 SLN may predict pN0 overall LND, which may help to avoid LND in this group of patients, particularly to preserve an effective immune response. These results should be interpreted with caution and need to be validated in larger cohorts.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Sentinel Lymph Node, Electromagnetic Navigation Bronchoscopy, Lymph Node Dissection, Immunotherapy.

P-221

PREDICTORS OF COMPENSATORY SWEATING AND SATISFACTION FOLLOWING ENDOSCOPIC THORACIC SYMPATHETIC CHAIN CLIPPING FOR PALMAR/AXILLARY HYPERHIDROSIS

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OBJECTIVES
Endoscopic thoracic sympathetic (ETS) chain clipping is a definitive treatment for palmar and/or axillary primary hyperhidrosis (PH), however compensatory sweating (CS) remains the most feared complication.Aims of this study are to investigate the factors associated with CS and satisfaction and to evaluate the post-operative quality of life(QoL).

METHODS
From January 2003 to August 2023,180 patients undergone two-stage ETS were prospectively asked to complete a post-operative questionnaire (2 weeks after each side surgery and on a mean follow-up of 30.2±5.4 months) on satisfaction, CS and QoL in several daily activities.

RESULTS
Seventy-nine patients(45.7%) patients were male, 52 (30.1%) active smokers, with a mean body max index(BMI) of 22.6±3.14. The most part of population (112(62.2%)) was operated for combined palmar and axillary PH, whereas 56(31.1%) patients had only palmar and 12(6.7%)only axillar PH. Forty-eight(26.7%) patients developed CS after first side ETS (right side was operated first in 85.6% of cases), mainly on contralateral hand, thorax and feet, with a 100% effectiveness on the operated side.
Only 122 (67.8%)patients completed ETS on both side (median:3 months between the two surgeries) and follow-up in the study period. CS after second side ETS was 40.2%(49 patients), mainly on thorax, thighs and feet, with an effectiveness of 96.7%. At final follow-up, CS was 50.8% (62 patients), severe CS in 7 cases(5.7%); 9(7.4%) patients developed a gustatory CS. The final effectiveness of ETS was 95.9%, with a reported improvement in QoL in 95.3% of cases (mainly in manual work and socialization); 94.1% of patients was satisfied and would do ETS again. At multivariable analysis only older age was a predictor of CS (HR:1.084,95%CI[1.023-1.149],p:0.007) and severe CS (HR:1.076, 95%CI[1.002-1.156],p:0.042). No predictor for satisfaction was found.

CONCLUSIONS
ETS by clipping can improve QoL in case of palmar/axillar hyperhidrosis. Older patients must be informed of a higher risk of CS.

Disclosure: No significant relationships.
Keywords: Hyperhidrosis, Endoscopic Thoracic Sympathetic Chain Clipping, Compensatory Sweating, Quality Of Life.

P-222

PRELIMINARY DATA ON POSTOPERATIVE AIR LEAKS MANAGEMENT USING POLYMERIC HYDROGEL MATRIX AFTER THORACOSCOPIC LUNG SEGMENTECTOMY

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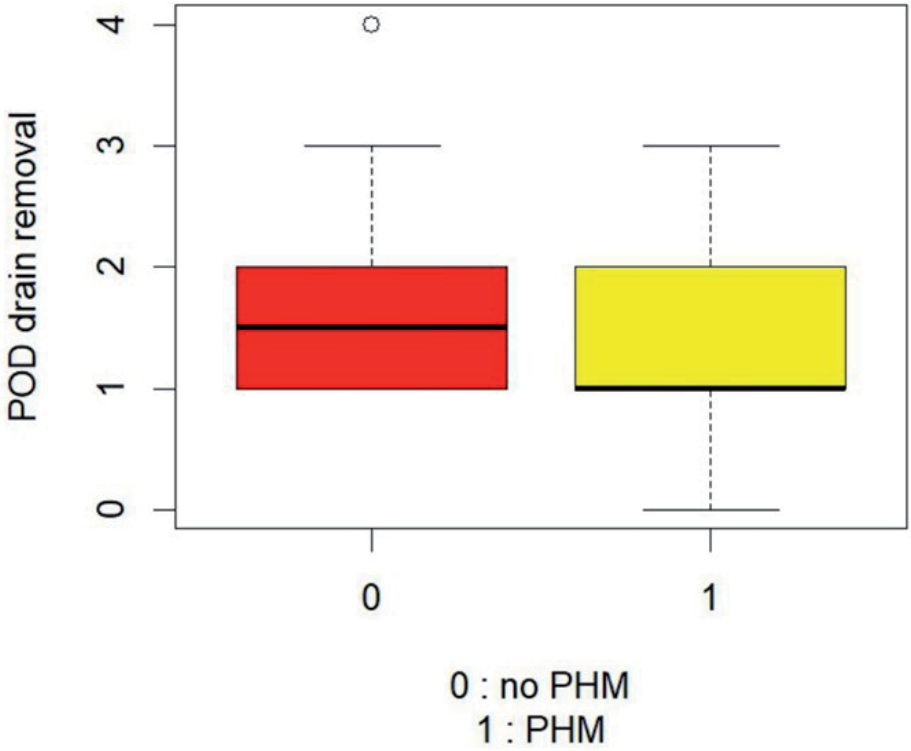
OBJECTIVES
A still unsolved issue in thoracoscopic lung resections is represented by intraoperative alveolar air leaks (IOALs) because when they are prolonged (>5 days) they can lead to higher complications and higher medical costs. The polymeric hydrogel matrix (PHM) is a novel tool to manage intraoperative IOALs.
We aimed to explore whether PHM would be able to reduce the permanence time of the chest drain (CD), resulting in a shorter hospital length (HL), compared with no treatment.

METHODS
We enrolled patients with benign and malignant lung diseases suitable for anatomical sublobar thoracoscopic resection at the Thoracic Surgery Unit - University Hospital of Padua during 2023. Among them, we subsequently selected those cases with IOALs between 30 and 40 ml/respiratory act, verified by the ventilator at the completion of the resection. They were randomly selected to receive the PHM or not (controls), after the standard closure technique.

RESULTS
Investigating differences among samples (PHM vs controls) no significance was available in terms of population's characteristics. 77% of cases were simple or combined upper lobe resections (S1, S2 or S3). Lower lobe was involved in 20%. Sublobar resections lasted in median 98 mins (IQR 76-110) and PHM was carried out in 14 cases (47%). We did not register neither conversion nor postoperative major complications. Overall, patients had a median CD time of 1 day and a median HL of 3 days. Sealant demonstrated a median CD time of 1 day while 1.5 days in controls (p=0.11). HL reached 2 days in PHM and 3 days in controls.

CONCLUSIONS
This study seems to indicate a safe lower but non significant chest-tube duration time with a shorter hospital stay in patients treated with PHM. Consequently, despite its cost and the small sample investigated, it might be advisable to continue to use it in IOALs management.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Air Leak, Polymeric Hydrogel Matrix, VATS.


POD drain removal
0
1
2
3
4
0
1
0 : no PHM
1 : PHM

P-223

PREOPERATIVE ASSESSMENT IN LUNG CANCER PATIENTS: SURVEY AMONG MEMBERS OF THE FRENCH SOCIETY OF THORACIC AND CARDIOVASCULAR SURGERY

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OBJECTIVES

Evaluating the practices of French thoracic surgeons regarding preoperative assessment and prehabilitation.

METHODS

Multidisciplinary experts in preoperative care: surgeons, anesthesiologists, pulmonologists, physiologists, physiotherapists, biostatistician, under the aegis of the French Society of Thoracic and Cardiovascular Surgery (SFCTCV) collaborated to establish a task force. A web-based questionnaire was designed by the members of this task force. All members of the SFCTCV were invited to respond from May 2022 to May 2023 using an online survey designer.
The questionnaire consisted of 24 questions focused on preoperative assessment and prehabilitation.

RESULTS

61 surgeons (47 men/14 women) completed the questionnaire. 95% of surgeons prescribe preoperative spirometry, and 96.7% pay attention to FEV1. 90,2% evaluate patients undergoing minimally invasive surgery as they would a patient undergoing thoracotomy. 9,8% adjust the threshold values of recommendations, believing that RATS and VATS are less morbid. 41% strictly adhere to international recommendations for preoperative evaluation, with a majority following European recommendations (89.1%). For French thoracic surgeons, the prescription of prehabilitation is based on cardiopulmonary exercise test results (65.6%). 45,9% rely solely on FEV1 and DLCO values for this prescription. More than 50% of surgeons estimate that 5 to 10% of their surgery candidates are declined due to functional limitations, often during a multidisciplinary consultation meeting and after a prehabilitation program (44.3%)

CONCLUSIONS

The development of minimally invasive surgery and prehabilitation has impacted the modalities of preoperative management, including the use of field tests, the implementation of rehabilitation before the surgery, as well as prior to the decision to decline surgery. However, the practice remains heterogeneous as international recommendations have not yet incorporated these advancements into their decision-making algorithms.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Prehabilitation, Preoperative Assessment.

P-224

PREOPERATIVE SINGLE-INHALER TRIPLE THERAPY IN LUNG CANCER AND UNTREATED CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH POOR PULMONARY FUNCTION

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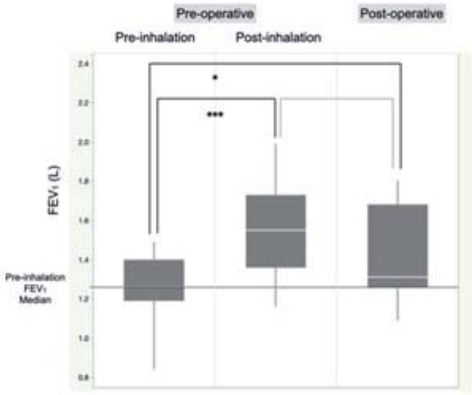
OBJECTIVES
To investigate the impact of single-inhaler triple therapy on the choice of lung cancer treatment and the perioperative period in untreated chronic obstructive pulmonary disease (COPD) with a forced expiratory volume in 1 s (FEV1) <1.5 L with lung cancer.

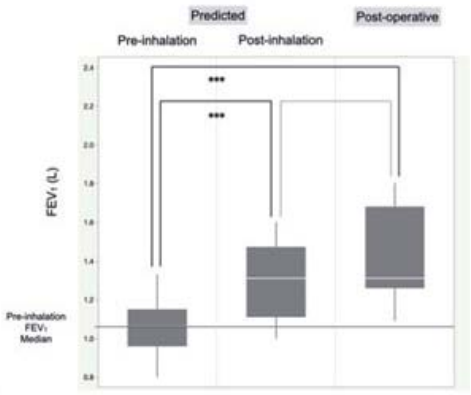
METHODS
The COPD therapeutic drug fluticasone furoate/umeclidinium/vilanterol was initiated 2 weeks preoperatively and continued until 3 months postoperatively. Radical surgery was actively recommended for patients with FEV1 ≥1.5 L post-COPD treatment. If FEV1 was <1.5 L after COPD treatment, patients were informed about the difference in perioperative complication frequency based on the extent of lung resection and the risk of local recurrence with palliative surgery. The final treatment decision was made after a thorough explanation by the physician, and patients made their choice irrespective of their respiratory function.

RESULTS
Among 675 lung cancer cases, 214 (31.7%) had COPD, and 41 untreated patients had FEV1 <1.5 L. Single-inhaler triple therapy improved FEV1 to ≥1.5 L in 26/41 cases (63.4%). Compared to patients with FEV1 <1.5 L post-COPD treatment, significant differences were observed in the Brinkman index and radical resection. There were no significant differences in postoperative factors between the groups. Pneumonia occurred in 2 cases (4.9%) and home oxygen therapy in 1 (2.4%), all in the FEV1 <1.5 L group. No patient received radiation therapy or died postoperatively. Among patients who underwent anatomical lung resection, single-inhaler triple therapy significantly improved post-inhalation FEV1; FEV1 at 3 months postoperatively was significantly better than before inhalation.

CONCLUSIONS
Preoperative single-inhaler triple therapy for lung cancer with untreated COPD and FEV1 <1.5 L improved respiratory function and increased the feasibility of performing radical resection surgery. It was considered safe and effective, indicating the potential to maintain preoperative respiratory function without enhancing perioperative complications.

Disclosure: No significant relationships.
Keywords: Lung Caner, COPD, ACO, Inhaler Therapy, Triple Therapy.


Pre-operative
Post-operative
Pre-inhalation
Post-inhalation
FEV1 (L)
Pre-inhalation FEV1 Median
*
***


Predicted
Post-operative
Pre-inhalation
Post-inhalation
FEV1 (L)
Pre-inhalation FEV1 Median
***
***

P-225

PREOPERATIVE TRANSJUGULAR INTRAHEPATIC PORTO-SYSTEMIC SHUNT (TIPS) FOR ESOPHAGECTOMY: A TRICK TO AVOID INTRAOPERATIVE BLEEDING IN CASE OF ESOPHAGEAL VARICES

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OBJECTIVES

Esophagectomy with radical lymphadenectomy is the gold standard treatment in case of early-stage esophageal tumors. However, esophageal surgery is still characterized by high mortality and morbidity, especially in patients with liver chirrosis and portal hypertension. Recent evidences demonstrate the safety of a preoperative TIPS in cirrhotic subjects as a measure to reduce the risk of mortality and liver decompensation after abdominal extrahepatic surgery. We describe its preoperative use in a patient who was candidate to esophagectomy for esophageal cancer.

CASE DESCRIPTION

A 65-year-old male with a history of potus and MALFD (Metabolic Associated Fatty Liver Disease) related liver cirrhosis for about 10 years referred to emergency department complaining dysphagia. The Esofago-Gastro-Duodenoscopy (EGD) showed the presence of a non-bleeding F2 varices, congestive gastropathy and an ulcerated lesion of about 1.5 cm in the middle third of the esophagus. Histological examination revealed a squamous cell carcinoma. After a multidisciplinary discussion, the patient was scheduled for radical esophagectomy. Considering the high risk of bleeding due to the presence of the esophageal varices, the placement of a porto-systemic shunt was proposed as "bridge" to surgical intervention. The procedure was performed without complications 7 days before the surgical session. Esophagectomy was performed with a totally minimally invasive approach, with reconstruction of the alimentary tract using a narrow gastric tube and cervical anastomosis with ICG fluorescence guide. During the operation, the varices, although visible, were sectioned using ultrasound and radiofrequency coagulators without major bleeding.

CONCLUSIONS

In our experience, a preoperative TIPS in patients candidate to esophagectomy with esophageal varices is useful to reduce the intraoperative risk of bleeding and the postoperative complications related to portal hypertension. However, an increased risk of portosystemic encephalopathy in the postoperative period should be considered as a possible complication.

Disclosure: No significant relationships.
Keywords: TIPS, Esophagectomy, Esophageal Cancer, Thoracic Surgery.

P-226

PREOPERATIVE VERSUS INTRAOPERATIVE DIAGNOSIS OF NON SMALL CELL CARCINOMA (NSCLC): IS IT WORTH THE WAIT?

Beatrice Leonardi, Francesco Leone, Antonio Marella, Giuseppe Vicario, Noemi Maria Giorgiano, Francesca Capasso, Rosa Mirra, Vincenzo Di Filippo, Davide Gerardo Pica, Maria Antonietta Puca, Anna Rainone, Mario Grande, Francesco Panini D'Alba, Riccardo Vinciguerra, Giovanni Natale, Gaetana Messina, Giovanni Vicidomini, Alfonso Fiorelli
University of Campania Luigi Vanvitelli, Naples, Italy

OBJECTIVES
Timely diagnosis of non-small cell lung cancer (NSCLC) is crucial to the patient appropriate treatment. Patients with peripheral solitary pulmonary nodules (SPN) with high clinical suspicion of malignancy could undergo upfront surgery with intraoperative diagnosis rather than having diagnosis of cancer prior to surgery. Herein, we compared the two procedures to define the best strategy.

METHODS
It was a retrospective single-center study including consecutive patients with peripheral SPN (<30 mm) undergoing surgical resection of lung cancer in the last four years. Patients were divided in two groups based on whether they underwent upfront surgery with intraoperative pathological examination (Intraoperative diagnosis group) or had preoperative diagnosis of cancer (preoperative diagnosis group). Intraoperative diagnosis was performed by wedge resection of the SPN while preoperative diagnosis was obtained by FNAC or EBUS biopsy. Total health care costs, time-to-surgery (from radiological diagnosis), diagnostic rates and complications were compared between groups.

RESULTS
Study population included 231 patients: 115 in Intraoperative diagnosis group, 116 in preoperative diagnosis group. The two groups were comparable regarding demographic data, clinical stage, and histology. Preoperative diagnosis group presented higher rate of pre-operative comorbidity. Mean time-to surgery was longer in the preoperative diagnosis group (78 vs 52 days, $p<0.0001$). Intraoperative diagnosis group was associated to higher diagnostic rate ($p=0.0006$). 25% of the patients in preoperative diagnosis group had iatrogenic pneumothorax that needed invasive treatment while no complications related to the procedure were observed in intraoperative diagnosis group. No significant differences were found regarding total health care costs ($p=0.35$).

CONCLUSIONS
In patients with SPN scheduled for surgical treatment, upfront surgery with intraoperative diagnosis seemed to be the first choice as it reduced the interval from clinical diagnosis to treatment and did not increase total health care costs. Preoperative diagnosis could be indicated in high-risk patients to obtain cancer diagnosis prior to surgery.

Disclosure: No significant relationships.
Keywords: Lobectomy, Intraoperative Diagnosis, Time-To-Surgery, FNAC, EBUS.

Variables	Preoperative diagnosis (*n* = 116)	Intraoperative diagnosis (*n* = 115)	p-value
Age (years), M ± SD	66.35 ± 8.05	64.9 ± 9.1	0.24
Gender (male), *n* (%)	69 (59%)	64 (56%)	0.55
Smokers, *n* (%)	59 (51%)	48 (42%)	0.16
Diabetes, *n* (%)	36 (31%)	20 (17%)	0.015
Coronary artery disease, *n* (%)	23 (20%)	12 (10%)	0.046
Tumor size (mm)	21 ± 9	20 ± 10	0.35
Time-to.surgery (days)	78 ± 40	52 ± 30	<0.0001
Operative time (minutes)	145 ± 52	188 ± 60	0.46
Complications related to diagnostic procedure	29 (25%)	0	/
Diagnostic rate, *n* (%)	100 (85%)	113 (98%)	0.0006
Postoperative complications, *n* (%)	23 (20%)	22 (19%)	0.60
Hospital stay (days)	7.0 ± 3.2	6.6 ± 3.0	0.55
Total health care costs (€)	17228 ± 1110	17237 ± 1206	0.35

P-227

PROGNOSTIC FACTORS AFFECTING EARLY STAGE ADENOCARCINOMA CASES WITH LUNG RESECTION

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OBJECTIVES
In this study, factors affecting the prognosis of stage I adenocarcinoma cases that underwent anatomical lung resection were examined.

METHODS
280 patients diagnosed with adenocarcinoma, stage I, who were operated on in our clinic between January 2018 and December 2022 were retrospectively examined. Demographic, clinical, radiological and pathological features were recorded and their prognostic significance was investigated.

RESULTS
Of the 280 patients included in the study, 206 (73.6%) were male, 74 (26.4) were female, and their average age was 62.9±9.4 years. During the median follow-up period of 29.5 months (mean 32.4±18.6 (1-64)), metastases developed in 25 (8.9%) patients and 10 patients (3.6%) died. Demographic characteristics, tumor location and size, when evaluated in terms of operation types, histopathological subtypes, perineural and lymphovascular invasion status and oncological treatment, there was no statistically significant difference in terms of the development of recurrence or metastasis ($p>0.05$). High FDG uptake ($p<0.020$) was found to be statistically significant in terms of the development of recurrence or metastasis.

CONCLUSIONS
In early stage adenocarcinoma cases, visceral pleura invasion and high FDG uptake on PET-CT are the most risky group for the development of recurrence or metastasis, and closer follow-up is required.

Disclosure: No significant relationships.
Keywords: Adenocarcinoma, Early Stage, Lung Cancer.

	HR	CI	P
PET SUVmax	1,095	1,014-1,182	0,02
VP invasion	0,326	0,116-0,915	0,033
Perineural invasion	0,230	0,025-2,089	0,192
Lymphovascular invasion	2,718	0,693-10,661	0,152
Chemotherapy	0,719	0,219-2,364	0,432
Adenocarcinoma subtype	0,932	0,705-1,232	0,621

P-228

PROGNOSTIC FACTORS AFTER SLEEVE LOBECTOMY IN PATIENTS WITH LOCALLY ADVANCED LUNG CANCER

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OBJECTIVES
The aim of this study was to evaluate the prognostic factors after sleeve lobectomy in patients with advanced lung cancer.

METHODS
Between 2006 and 2021, we performed 89 sleeve lobectomies for lung cancer in our institution. The medical records of these patients were retrospectively reviewed.

RESULTS
The pathology was squamous cell carcinoma (Sq) in 58 patients and adenocarcinoma (Ad) in 31 patients. Double sleeve lobectomy was required in 34 patients (38.2%). No operative mortality occurred. Four anastomotic complications (fistula, n=2, stenosis, n=2) were successfully treated. Among 28 patients who received preoperative therapy (median radiation dose, 50 Gy), pathological complete response was achieved in 11 patients (Sq, n=9/19 [47.4%]; Ad, n=2/9 [22.2%], p=0.20). The median pathological tumor size was 35 mm (interquartile range, 19.5-50.0 mm). The pathological nodal statuses were N0 (n=30), N1 (n=20), N2 (n=7), and N3 (n=1) in patients with Sq and N0 (n=12), N1 (n=9), and N2 (n=10) in patients with Ad. Recurrence included 14 loco-regional sites (Sq, n=8; Ad, n=6) and 19 distant sites (Sq, n=5; Ad, n=14). The multivariable analysis identified the pathological nodal status (p=0.042) and histology (p=0.0002) were the prognostic factors for disease-free survival. The 5-year overall and disease-free survivals rates were 51.7% and 40.5%, respectively. After 1:1 propensity score matching (n=21), Sq was associated with better disease-free survival than Ad (42.9% vs. 28.6%, p=0.036) although overall survival was similar (52.4% vs. 52.4%, p=0.57).

CONCLUSIONS
Absence of lymph node metastasis and squamous cell carcinoma are favorable prognostic factors after sleeve lobectomy for advanced lung cancer.

Disclosure: No significant relationships.
Keywords: Non Small Cell Lung Cancer, Sleeve Lobectomy, Locally Advanced Lung Cancer.

1:1 PSM, n=21	Sq	Ad	p-value
Age	68.4±1.9	66.4±1.9	0.48
Sex	18:3	18:3	1.00
Preoperative treatment	7	8	0.74
Pathological size, mm	31.8±4.1	31.2±4.1	0.92
Pathological nodal status (N0-1: N2-3)	19:2	18:3	0.63
Reason for plasty (tumor invasion: lymph node invasion)	16:5	17:4	0.71

P-229

PROGNOSTIC IMPACT OF SPREAD THROUGH AIR SPACES (STAS) IN PATIENTS WITH PATHOLOGICAL N0 NON-SMALL CELL LUNG CANCER (NSCLC)

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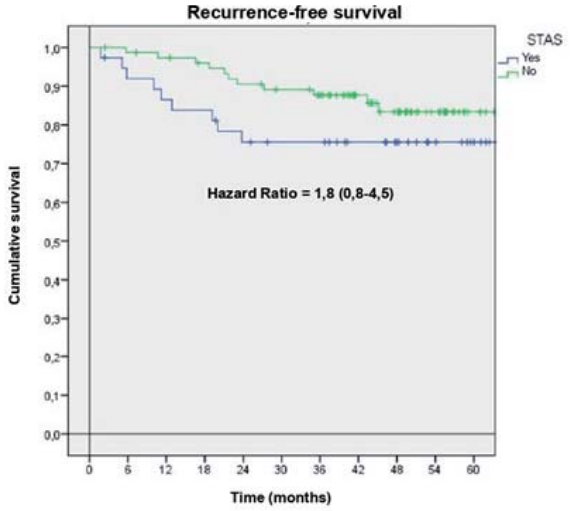
OBJECTIVES
The aim of this study is to assess the prognostic impact of spread through air spaces (STAS) in patients undergoing surgery with pN0 non-small cell lung cancer (NSCLC).

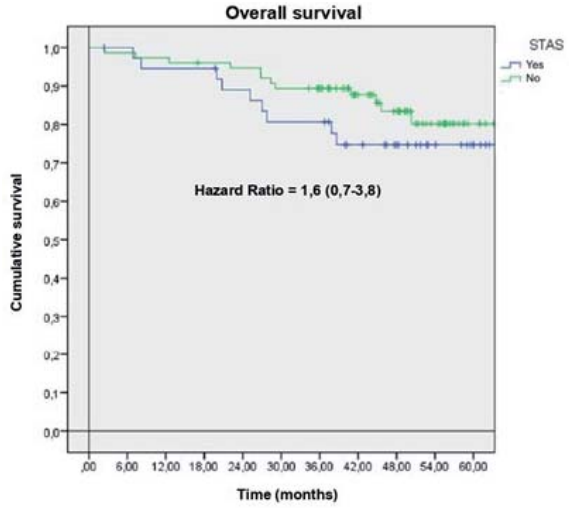
METHODS
115 patients with NSCLC who underwent VATS anatomical resection (pneumonectomy excluded) between July 2018 and July 2020 were retrospectively reviewed. Patients who received induction or adjuvant treatment, with previous malignancy (excluding non-melanoma skin cancer) within the former five years, incomplete resection (R1-2), multiple nodules, in situ carcinoma, inadequate tissue and lack of follow-up were excluded. Lobectomy was the most common resection (69.5%). Most common histology was adenocarcinoma (73.9%), followed by squamous cell carcinoma (20.8%), and the most common pathological stage was pIA (63.4%). Hilar and mediastinal lymph node dissection was performed in all patients and the mean number of lymph nodes removed was 8. Overall survival (OS) and recurrence-free survival (RFS) were analysed using Kaplan-Meier method.

RESULTS
20 patients presented recurrence (17.4%), with up to 13.9% of the total presenting distant recurrence. Twenty-one patients died during follow-up (18.2%). STAS was present in 38 tumours during pathological examination (33%). In the STAS(+) cohort, 1, 2 and 3-year RFS was 84%, 76% and 76% respectively, and in the STAS(-) cohort, 1, 2 and 3-year RFS was 97%, 91% and 88% respectively. Hazard ratio (HR) was 1.8 [0.8-4.5] but did not reach statistical significance (p=0.175). In the STAS(+) cohort, 1, 2 and 3-year OS was 95%, 86% and 75% respectively, while in the STAS(-) cohort, 1, 2 and 3-year OS was 96%, 92% and 89% respectively. Hazard ratio (HR) was 1.6 [0.7-3.8] but did not reach statistical significance (p=0.288).

CONCLUSIONS
Presence of STAS in pathological N0 resected NSCLC associated with both shorter RFS and OS (80% higher risk of recurrence, 60% higher risk of death), but this clinically significant difference did not reach statistical significance.

Disclosure: No significant relationships.
Keywords: STAS, NSCLC, VATS.


Recurrence-free survival
STAS
Yes
No
Hazard Ratio = 1,8 (0,8-4,5)
Cumulative survival
1,0
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0,0
0
6
12
18
24
30
36
42
48
54
60
Time (months)


Overall survival
STAS
Yes
No
Hazard Ratio = 1,6 (0,7-3,8)
Cumulative survival
1,0
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0,0
,00
6,00
12,00
18,00
24,00
30,00
36,00
42,00
48,00
54,00
60,00
Time (months)

P-230

PROGNOSTIC SIGNIFICANCE AND SURVIVAL BENEFITS OF ADJUVANT CHEMOTHERAPY IN PATIENTS WITH STAGE IA LUNG ADENOCARCINOMA WITH NON-PREDOMINANT MICROPAPILLARY COMPONENTS

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OBJECTIVES
The prognostic significance of adjuvant chemotherapy (ACT) for patients with stage IA micropapillary non-predominant (MPNP) lung adenocarcinoma (LUAD) remains unknown. This study aimed to investigate the effects of ACT in patients with stage IA MPNP-LUAD.

METHODS
A total of 149 patients with pathological stage IA MPNP-LUAD who underwent surgery at our center were retrospectively analyzed. Propensity score matching (PSM) analysis was conducted to reduce potential selection bias. Kaplan-Meier analyses were used to assess the impact of ACT on recurrence-free survival (RFS), overall survival (OS), and disease-specific survival (DSS). Subgroup analyses were performed for the survival outcomes based on the percentage of micropapillary components. Cox proportional hazards regression analyses were applied to identify risk factors associated with survival.

RESULTS
The receipt or non-receipt of ACT had no significant effect on RFS, OS, and DSS among all enrolled patients with stage IA MPNP-LUAD ($P > 0.05$). For patients with a micropapillary component > 5%, the 5-year rates of RFS, OS, and DSS were significantly higher in the ACT group compared to the observation group, both before and after PSM ($P < 0.05$). However, the differences between the two groups were not significant for patients with a micropapillary component ≤ 5% ($P > 0.05$). The resection range (HR = 0.071; 95% CI: 0.020-0.251; $P < 0.001$), tumor size (HR = 2.929; 95% CI: 1.171-7.330; P = 0.022), and ACT (HR = 0.122; 95% CI: 0.037-0.403; P = 0.001) were identified as independent prognostic factors for RFS through Cox regression analysis.

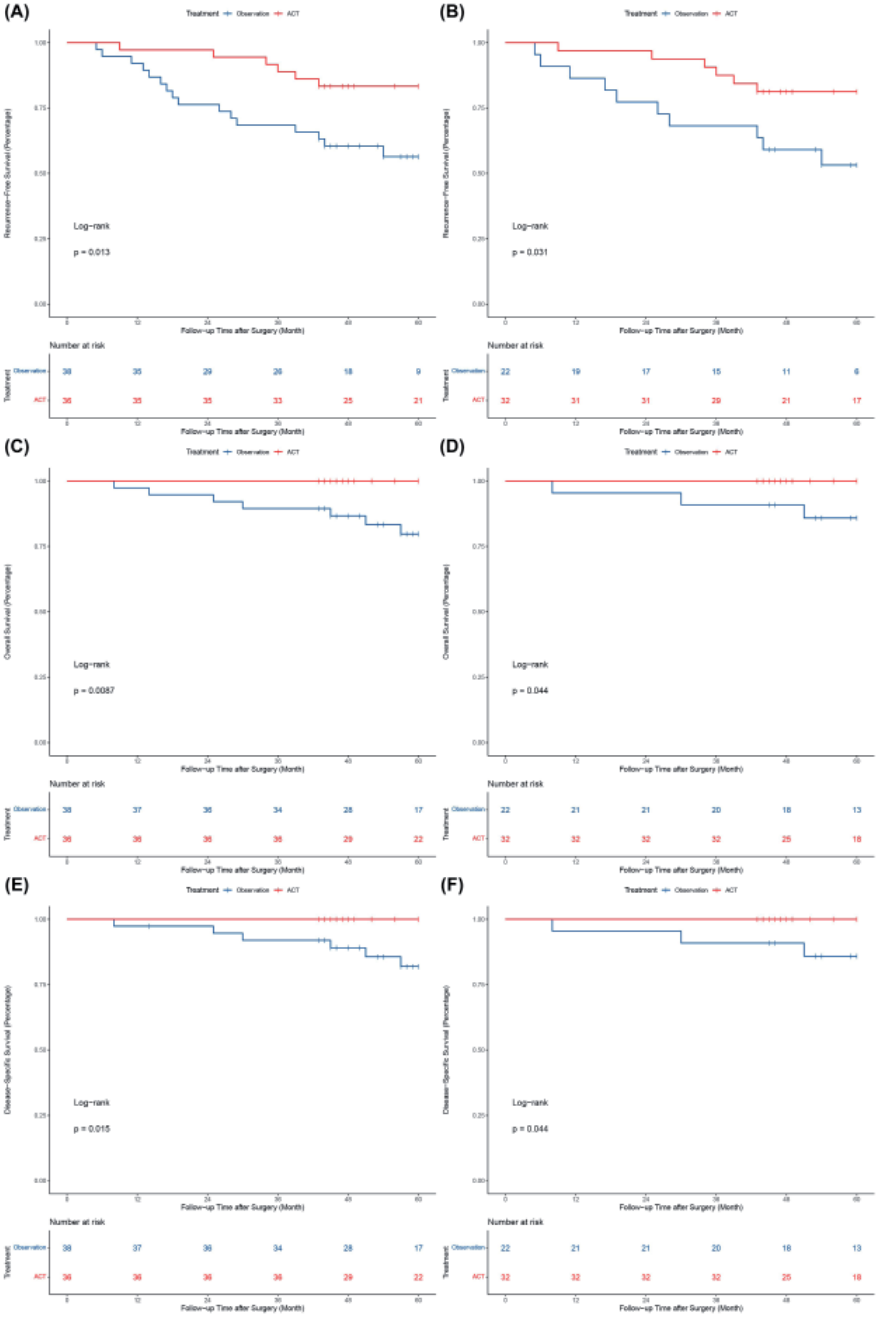
CONCLUSIONS
Patients with stage IA MPNP-LUAD who have a micropapillary component greater than 5% might benefit from ACT, while those with a micropapillary component ≤ 5% did not appear to derive the same benefit from postoperative ACT.

Disclosure: No significant relationships.
Keywords: Lung Adenocarcinoma, Micropapillary Component, Adjuvant Chemotherapy, Prognosis, Survival.

Table. Cox proportional hazard regression analysis of recurrence-free survival in patients diagnosed with stage IA micropapillary non-predominant lung adenocarcinoma with a micropapillary component > 5%

Variables	Univariate Analysis			Multivariate Analysis		
	HR	95% CI	*P* value	HR	95% CI	*P* value
Age	0.992	0.950-1.036	0.727			
Sex						
Female	Ref.			Ref.		
Male	0.340	0.133-0.871	0.025	0.441	0.146-1.332	0.146
Smoking history						
Non-smoker	Ref.					
Smoker	0.876	0.323-2.376	0.795			
Surgical procedure						
Open	Ref.					
VATS	0.616	0.227-1.671	0.341			
Resection range						
Sublobar resection	Ref.			Ref.		
Lobectomy	0.346	0.141-0.850	0.021	0.071	0.020-0.251	<0.001
Surgical side						
Left	Ref.					
Right	1.067	0.456-2.498	0.881			
Number of LN dissected	1.007	0.951-1.067	0.804			
Tumor size	2.214	1.073-4.570	0.032	2.929	1.171-7.330	0.022
Micropapillary component	1.034	0.988-1.083	0.152			
Papillary component	1.002	0.989-1.016	0.760			
Solid component	0.987	0.957-1.019	0.432			
Acinar component	0.995	0.982-1.007	0.397			
Lepidic component	1.005	0.992-1.019	0.442			
Lymphovascular invasion						
No	Ref.					
Yes	0.581	0.078-4.329	0.597			
Spread through air spaces						
No	Ref.					
Yes	0.837	0.247-2.837	0.775			
pTNM stage						
IA1	Ref.					
IA2	6990.189	0-6.386E+80	0.922			
IA3	12719.830	0-1.162E+81	0.917			
Adjuvant chemotherapy						
No	Ref.			Ref.		
Yes	0.325	0.127-0.832	0.019	0.122	0.037-0.403	0.001

VATS, video-assisted thoracoscopic surgery; LN, lymph node; pTNM, pathological tumor-node-metastasis; HR, Hazard Ratio; CI, confidence interval; Ref., Reference.


(A)
Treatment Observation ACT
Recurrence-Free Survival (Percentage)
Log-rank
p = 0.013
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 38 35 29 26 18 9
ACT 36 35 35 33 25 21
(B)
Treatment Observation ACT
Recurrence-Free Survival (Percentage)
Log-rank
p = 0.031
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 22 19 17 15 11 6
ACT 32 31 31 29 21 17
(C)
Treatment Observation ACT
Overall Survival (Percentage)
Log-rank
p = 0.0087
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 38 37 36 34 28 17
ACT 36 36 36 36 29 22
(D)
Treatment Observation ACT
Overall Survival (Percentage)
Log-rank
p = 0.044
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 22 21 21 20 18 13
ACT 32 32 32 32 25 18
(E)
Treatment Observation ACT
Disease-Specific Survival (Percentage)
Log-rank
p = 0.015
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 38 37 36 34 28 17
ACT 36 36 36 36 29 22
(F)
Treatment Observation ACT
Disease-Specific Survival (Percentage)
Log-rank
p = 0.044
Follow-up Time after Surgery (Month)
Number at risk
Treatment
Observation 22 21 21 20 18 13
ACT 32 32 32 32 25 18

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PROGNOSTIC SIGNIFICANCE OF SIX-MINUTE WALK TEST IN RELATION TO FEV1 AND DLCO VALUES IN PATIENTS UNDERGOING VIDEO ASSISTED THORACIC SURGERY (VATS) LOBECTOMY FOR LUNG CANCER

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OBJECTIVES
Six-minute walk test (6MWT) is a low technology test to evaluate functional cardiorespiratory capacity. However, its clinical value as predictor factor of cardiopulmonary complications after lung resection is still not defined. Herein, we evaluated 6MWT in relation to ppoFEV1 and ppoDLCO values to assess risk of cardiopulmonary complications in patients undergoing lung cancer resection.

METHODS
It was a single-center retrospective study including patients undergoing thoracoscopic lobectomy for lung cancer in the last four years. Patients were divided into low-risk and moderate-risk group based on whether ppoFEV1 and ppoDLCO were ≥60% or <60%, respectively. Each group was further divided into short-distance (<400 m) or long-distance (≥ 400 m) groups according to 6MWT results. The study groups were compared to assess differences in terms of postoperative morbidity and mortality. Multivariable logistic regression was then performed to identify prognostic factors for cardiopulmonary complications.

RESULTS
Study population included 187 patients: 120 were included in the low-risk group and 67 in moderate risk group. In the low-risk group, 21 patients covered a short distance during 6MWT. The comparison of short-distance group versus long-distance group did not show significant differences in terms of cardio-pulmonary complications. In the moderate risk group, 31 patients covered short distance during 6MWT. In this subset of patients, short distance group was associated with higher rate of cardiorespiratory complications and prolonged hospital stay ($p<0.03$). No significant differences were found comparing moderate risk/long distance group versus low risk/short distance group. Multivariable logistic regression found that short distance was a predictive factor for cardiopulmonary complication only in moderate risk group.

CONCLUSIONS
Our study showed that 6MWT provided additional information in identifying optimal candidates for lung cancer resection. Patients with moderate risk/low distance were at higher

risk of developing cardiopulmonary complications and other more sophisticated tests as cardiopulmonary exercise test was needed to stratify surgical risk before operation.

Disclosure: No significant relationships.
Keywords: Lobectomy, Six-Minutes Walk Test, Lung Cancer, Spirometry, Lung Cancer.

Variables	Low-Risk Group (*n* = 120)		Moderate-Risk Group (*n* = 67)		p-value
	Low-Risk/ Long-Distance (*n* = 99)	Low-Risk/ Short-Distance (*n* = 21)	Moderate-Risk/ Long- Distance *n* = (36)	Moderate Risk/ Short Distance (*n* = 31)	
Age (years), M ± SD	65.7 ± 7.1	66.5 ± 8.4	66.8 ± 7.9	66.8 ± 8.2	0.41
Gender (male), *n* (%)	51 (51%)	12 (57%)	18 (50%)	16 (51%)	0.26
Smokers, *n* (%)	58 (58%)	14 (66%)	21 (58%)	19 (61%)	0.75
Hypertension, *n* (%)	45 (45%)	12 (57%)	20 (55%)	18 (58%)	0.10
COPD, *n* (%)	99 (36%)	8 (38%)	19 (52%)	16 (51%)	0.04
Operative time (minutes)	185 ± 40	188 ± 31	187 ±32	188 ± 25	0.75
PpoFEV1%, M ± SD	75±18	73±19	59±18	57±19	0.04
PpoDLCO%, M ± SD	70±16	70±15	55±16	55±14	0.035
Postoperative cardiorespiratory complications	19 (19%)	5 (23%)	8 (22%)	14 (45%)	0.032
Hospital stay (days)	6.5 ± 3.0	6.8 ± 2.0	6.8 ± 2.1	8.0 ± 2.5	0.037
90-day mortality, *n* (%)	0	1	0	1	/

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PROGNOSTIC VALUE AND CLINICAL OUTCOMES OF SPREAD THROUGH AIR SPACES (STAS) IN LUNG ADENOCARCINOMA

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OBJECTIVES
Spread Through Air Spaces (STAS) was identified in lung adenocarcinomas in 2013 and appears as a factor affecting prognosis in many studies. In this study, we aimed to investigate the prognostic effect of STAS positivity in adenocarcinoma patients, its place in staging and possible treatment options.

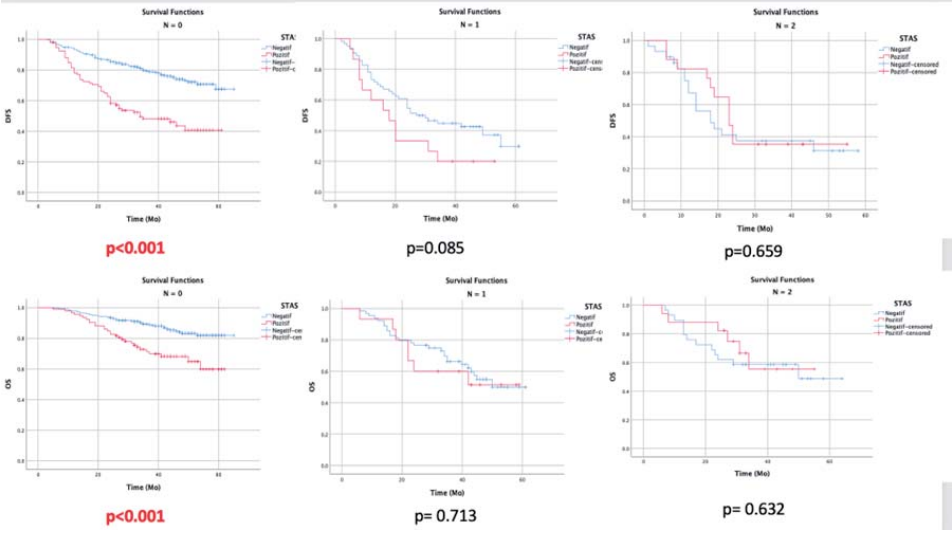
METHODS
Prospectively kept data of patients who were operated in our hospital and diagnosed with adenocarcinoma between March 2018 and May 2021 were examined retrospectively. 518 patients who met the criteria were divided into 2 groups: STAS (-) and STAS (+). Overall survival (OS) and disease-free survival (DFS) data of the patients were analyzed between groups.

RESULTS
There were 394 (76.0%) patients in the STAS (-) group and 124 (24.0%) patients in the STAS (+) group. STAS positivity was seen to be significantly higher in the N2 patient group ($p = 0.027$). Median OS and DFS were found to be 43 and 40 months in the STAS (-) group and 36.5 and 26 months in the STAS (+) group respectively. Cox regression analysis shows the hazard ratio (HR) of STAS positivity as 1.850 (1.263-2.709 95% CI) for OS and 2.206 (1.642-2.963 95% CI) for DFS. While OS ($p=0.011$), DFS ($p<0.001$) and 2-year DFS rate ($p<0.001$) were significantly lower in the STAS (+) patient group, no significant difference was observed in the 2-year OS rate. In addition, it was observed that STAS positivity had no effect on OS and DFS in stage 3 patients, and adjuvant oncological treatment did not provide any benefit in early stage STAS (+) patients.

CONCLUSIONS
STAS has taken its place in the literature as a unique poor prognostic factor. However, it has not yet found a place in an algorithm. More comprehensive studies should be conducted on issues such staging, the necessity of multimodal treatment, intraoperative approach and postoperative follow-up.

Disclosure: No significant relationships.
Keywords: Lung Cancer, STAS, Survival.

	All Patients n(%)	STAS (-) n(%)	STAS (+) n(%)	p value
OS (months) (median)(IQR)	42 (29-50)	43 (33-50)	36.5 (26-46)	0.011
DFS (months) (median)(IQR)	35 (20-47)	0 (24-49)	4 26 (13.25- 42.75)	<0.001
2-year OS (%)	87.6	89.1	83.1	0.076
2-year DFS (%)	71.8 <	76.6	56,5	0.001



P-233

PROGNOSTIC VALUE OF TUMOR VOLUME IN INVASIVE LUNG ADENOCARCINOMA WITH DIFFICULT MEASUREMENTS OF THE SOLID PORTION

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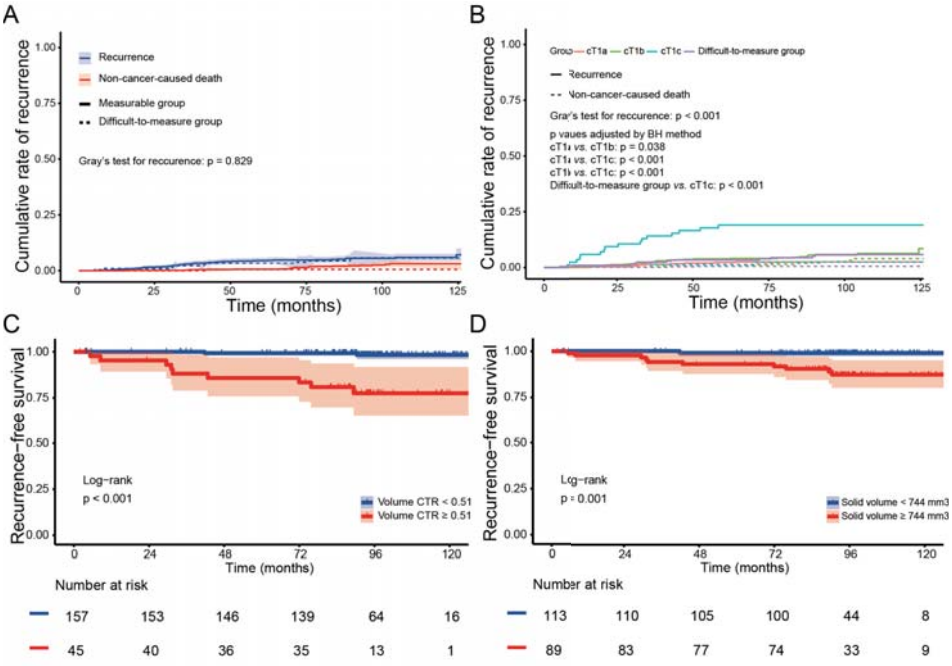
OBJECTIVES
To evaluate the long-term prognosis and related factors in patients that manifest part-solid lung adenocarcinoma with difficult-to-measure solid portions.

METHODS
Patients with resected clinical stage IA part-solid invasive non-mucinous lung adenocarcinoma in a single institution were retrospectively enrolled. They were divided into measurable and difficult-to-measure groups according to whether the radiologically solid portion was difficult to measure. The Kaplan-Meier method was performed to evaluate the outcomes based on the group and cT stage. Tumor volumes were segmented in the difficult-to-measure group using 3D Slicer software. Cox analysis was used to explore the prognostic factors.

RESULTS
Of 1240 patients (median age, 60 years [53-65]; 751 women), 225 (18.2%) were classified into the difficult-to-measure group. Nodules whose solid portion was difficult to measure showed a larger tumor size and smaller CTR (consolidation-to-tumor ratio) than the measurable nodules. The intraclass correlation coefficient showed that two readers had an excellent agreement on solid size in the measurable group (0.88), but not in the difficult-to-measure group (0.65). The difficult-to-measure group showed a comparable cumulative recurrence rate (10-y 5.8% vs. 5.9%; p=0.829) and overall survival (10-y 94.5% vs. 93.8%; p=0.338) to the measurable group. Larger solid size or CTR was an independent risk factor for patients with easy-to-measure solid components but not for patients whose solid part was difficult to measure. Multivariate COX analyses revealed that volume CTR (≥0.51, Hazard Ratio [HR]=2.53, p<0.001) or solid volume (≥744mm3, HR=9.55, p=0.043) was an independent factor for worse recurrence-free survival in patients with difficult measurement of solid portions.

CONCLUSIONS
Patients with pulmonary invasive adenocarcinoma manifest as part-solid nodules whose solid components were difficult to measure showed favorable outcomes. Volume parameter reflected the size of solid components more accurately than maximum diameters and was a better prognostic indicator for this population.

Disclosure: No significant relationships.
Keywords: Lung Adenocarcinoma, Part-Solid Nodule, Computed Tomography, Prognosis, Tumor Volume.



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PROSPECTIVE STUDY ON THE "MODIFIED TAULINOPLASTY": A NEW TECHNIQUE FOR MINIMALLY INVASIVE REPAIR OF PECTUS EXCAVATUM

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OBJECTIVES
Taulinoplasty is a minimally invasive technique for pectus excavatum (PE). It assumes that the lifting of the sternum can be possible through external traction, in order to avoid invading the mediastinum or pleural cavity. We modified standard technique to improve aesthetic results and outcomes. Aim of this work is to show primary results of modified taulinoplasty compared to standard technique.

METHODS
All patients with diagnosis of Pectus Excavatum treated between October 2021- December 2023 with taulinoplasty were enrolled. Patients were categorized in two groups based on surgical techinique: "standard taulinoplasty" (group A) and "modified taulinoplasy" (group B). Outcomes considered were major and minor surgical complications, surgical time and Length of Hospital Stay (LOS). Chi-square, Mann–Whitney, or Student "t" tests were used for comparison as appropriate.

RESULTS
37 patients with PE were treated with taulinoplasty during the study period. Eleven patients were classified in Group A, 26 patients in group B. Median age was similar for two groups (14.8,1 vs 15,2 years). There were no major surgical complications. Modified taulinoplasty showed a significant reduction in terms of post-operative seroma (45% vs 10%; P= 0.05) and wound dehiscence (36% vs 0%; P=0.03). Mean hospital stay was lower but not significant for group B: 3,19 [2-6] vs 4.18 [2-6]; P= 0.6. Mean surgical time for standard technique group was higher than the other group: 75.2 [55-107]min vs 56 [40-80] min P=0.02.

CONCLUSIONS
Modified taulinoplasty is a safe technique, with better outcomes in terms of surgical complications. It seems to be easier and more feasible than standard technique although we need further experience to confirm our preliminary data.

Disclosure: No significant relationships.
Keywords: Taulinoplasty.

P-235

PROXIMAL LIGATION OF PULMONARY VEIN STUMP TO PREVENT POSTOPERATIVE CEREBRAL INFARCTION AFTER LOBECTOMY

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OBJECTIVES

Postoperative cerebral infarction (PCI) following lung resection is a rare (0.27%–1.5%), occasionally fatal occurrence. PCI is more commonly observed following left upper lobectomy (LUL), than after other lobectomies, possibly due to the presence of a longer pulmonary vein stump (PVS) following LUL. This study aimed to evaluate the effect of proximal ligation of the PVS outside the pericardium on the incidence of PCI following lobectomy.

METHODS

This single-centre retrospective review included 683 patients who underwent lobectomy for lung cancer, metastatic lung tumour and benign diseases, between January 2010 and November 2023. Associations between postoperative PCI occurring within 90 days, PVS ligation and clinicopathological features were analysed. Proximal ligation was not performed from January 2010 to March 2018 (non-ligation group, n=365), but was performed from April 2018 to November 2023 (ligation group, n=327). Multivariable logistic regression analyses were conducted to assess the impact of PVS ligation on PCI, using significant factors identified in univariable analyses, while adjusting for known risk factors. Contrast-enhanced computed tomography was used to compare PVS lengths within six months post-surgery in some cases of ligation and non-ligation groups.

RESULTS

PCI occurred in seven patients (1.96%) (LUL, n=3; left lower lobectomy, n=3; right lower lobectomy, n=1) in the non-ligation group, and no patients experienced PCI in the ligation group (p = 0.016). The median time to PCI onset was 1 day (range: 0–15 days). Univariable analysis revealed that chronic kidney disease (CKD), heart failure, and PVS ligation were significantly correlated with PCI. Multivariable analysis demonstrated that PVS ligation reduced PCI (OR = 0.070, 95%CI = 0.006–0.81, p = 0.033), whereas CKD increased PCI (p = 0.001) (Figure A). Ligation reduced the PVS length in each lobe (Figure B).

CONCLUSIONS

Proximal ligation of the PVS outside the pericardium decreased the PVS length and could reduce PCI after lobectomy.

Disclosure: No significant relationships.

Keywords: Postoperative Cerebral Infarction, Lobectomy, Ligation, Pulmonary Vein.

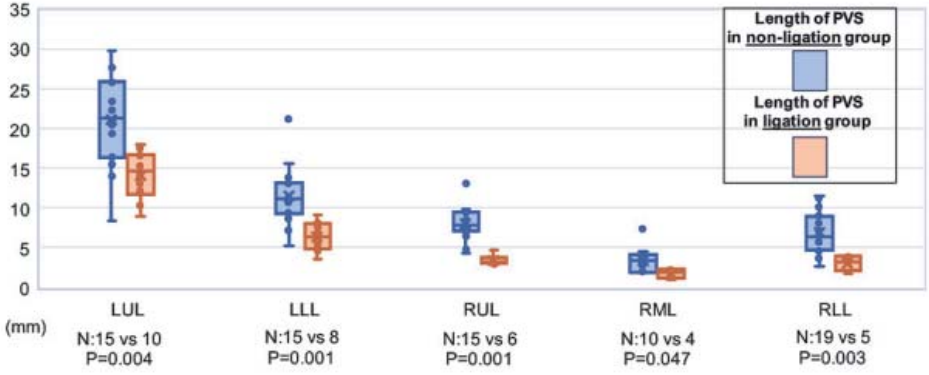
Figure A

Multivariable analysis for predicting postoperative cerebral infarction

Variable	Odds ratio	95% CI	P-value
Central ligation of PVS	0.07	0.01–0.81	0.033
Age (year), per unit increase	0.99	0.91–1.07	0.707
Gender (Male)	0.31	0.07–1.28	0.105
BMI (kg/m^2), per unit increase	0.87	0.71–1.08	0.217
Chronic kidney disease	13.0	2.79–60.8	0.001
Heart failure	2.96	0.47–18.8	0.250
Cardiovascular disease	1.93	0.37–10.2	0.439

Multivariable logistic regression (Firth's method)
Abbreviation: PVS, pulmonary vein stump; BMI, body mass index.

Figure B



P-236

PULMONARY ARTERY ENLARGEMENT PREDICTS THE PROGNOSIS OF COMPLETELY RESECTED NON-SMALL-CELL LUNG CANCER

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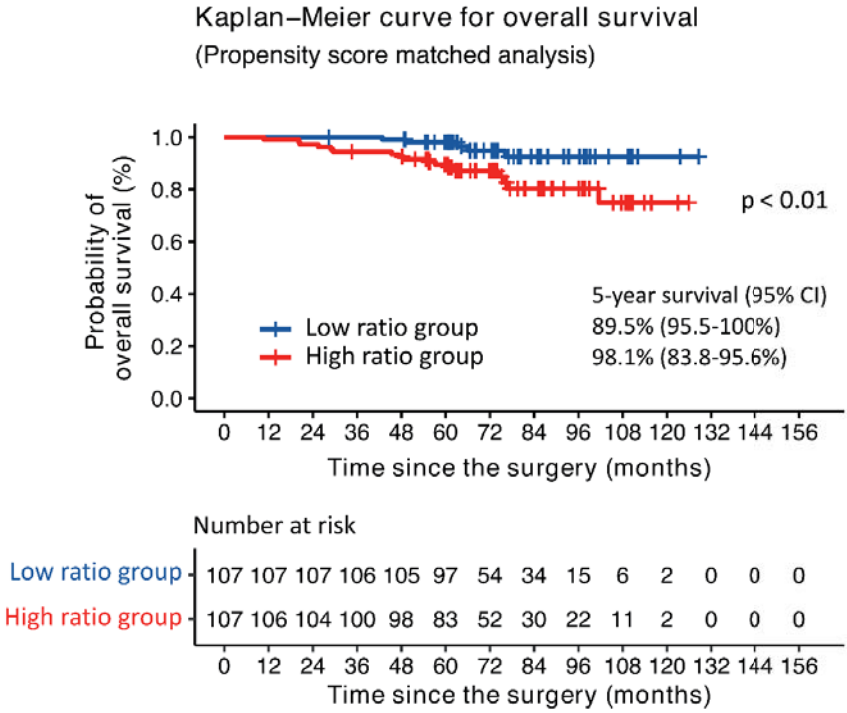
OBJECTIVES
Several studies have highlighted the potential prognostic value of computed tomography (CT)-measured pulmonary artery enlargement in various respiratory diseases. Despite this, the relationship between pulmonary artery enlargement and long-term outcomes following lung cancer surgery remains unexplored. This retrospective study aims to assess the predictive capacity of pulmonary artery enlargement on the overall survival (OS) of completely resected non-small-cell lung cancer (NSCLC) patients.

METHODS
The study retrospectively identified patients with pathological Tis-1cN0M0 NSCLC who underwent complete resection between 2013 and 2018. We measured the pulmonary artery diameter at the bifurcation and the ascending aorta diameter at the same CT image slice and calculated the ratio of the former diameter to the latter. Patients were categorized into high and low ratio groups, and their OS was compared. We performed propensity score matching by patient demographic, comorbidities, and perioperative variables for each group and ran Cox proportional hazard models.

RESULTS
Of the 323 patients included in the analysis, all patients with interstitial pneumonia (IP) were categorized as the high ratio group, while other clinical and pathological features were comparable between groups. After propensity score matching, OS was significantly worse in the high ratio group than in the low ratio group (5-year and 10-year OS: 89.5% and 74.9% vs. 98.1% and 92.5%; p=0.009). Multivariate analysis identified age, sex, pulmonary artery-to-ascending-aorta ratio, and the presence of IP as significant prognostic factors for OS.

CONCLUSIONS
Patients with a higher pulmonary artery-to-ascending-aorta ratio demonstrate significantly poorer OS than those with a lower ratio in the context of completely resected pathological Tis-1cN0M0 NSCLC. This investigation suggests the potential of the pulmonary artery-to-ascending-aorta ratio as a robust prognostic indicator in this patient cohort.

Disclosure: No significant relationships.
Keywords: Lung Resection, Non-Smal-Cell Lung Cancer, Prognosis, Pulmonary Artery.


Kaplan–Meier curve for overall survival
(Propensity score matched analysis)
Probability of overall survival (%)
1.0
0.8
0.6
0.4
0.2
0.0
p < 0.01
5-year survival (95% CI)
Low ratio group
89.5% (95.5-100%)
High ratio group
98.1% (83.8-95.6%)
0 12 24 36 48 60 72 84 96 108 120 132 144 156
Time since the surgery (months)
Number at risk
Low ratio group 107 107 107 106 105 97 54 34 15 6 2 0 0 0
High ratio group 107 106 104 100 98 83 52 30 22 11 2 0 0 0
0 12 24 36 48 60 72 84 96 108 120 132 144 156
Time since the surgery (months)

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PULMONARY MICROBIOTA-DERIVED Γ-LINOLENIC ACID PARTICIPATES IN OLMESARTAN ATTENUATES SINGLE-LUNG VENTILATION INDUCED LUNG INJURY

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OBJECTIVES

Single-lung ventilation (SLV) is a conventional ventilation procedure used for thoracic surgery. And SLV can result in acute lung injury, which may further develop into lethal ARDS. Our previous research and recent studies have found that Olmesartan(Olm) attenuates SLV induced lung injury via regulating pulmonary microbiota. This study aims to determine the mechanism of how lung microbiome regulates host metabolic homeostasis via microbial metabolites or co-metabolites attenuates SLV induced lung injury.

METHODS

Sprague Dawley (SD) rat and cell hypoxia reoxygenation model was used to construct in the models of SLV. 16S rDNA and Liquid chromatography tandem mass spectrometry (LC-MS) were used for microbiota and metabolomics analysis. γ-linolenic acid(GLA) level alterations were measured in Germ-free (GF) mice or conventional mice treated with antibiotics. Correlational analysis and bioinformatics analysis were used to illustrate the relationship and mechanism of respiratory microbiota and its metabolites in Olm mitigating SLV-induced lung injury.

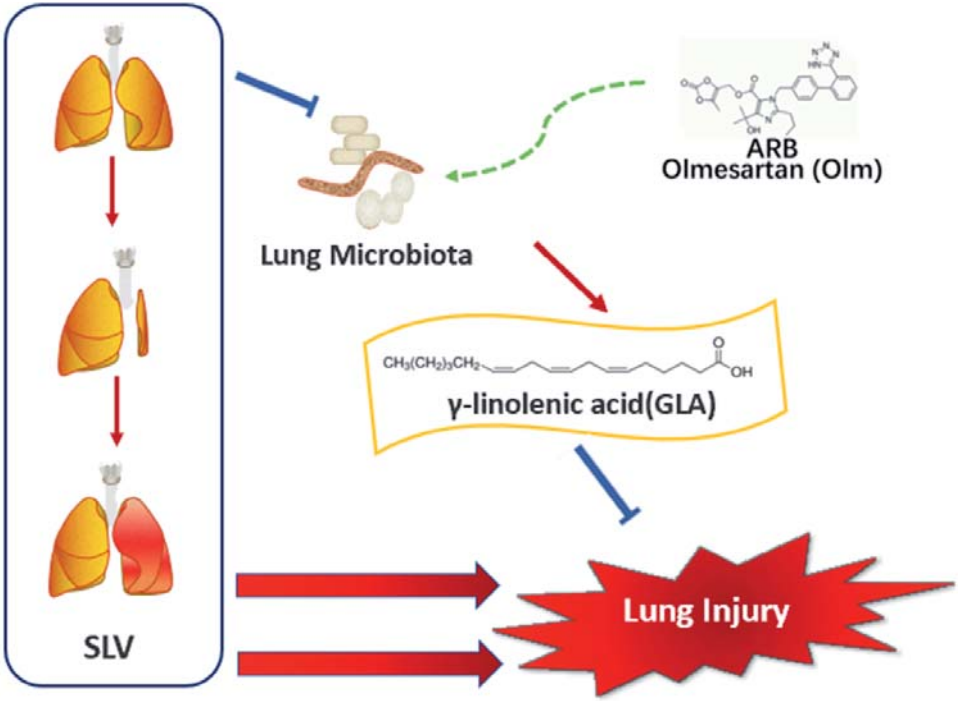
RESULTS

SLV induced lung injury could disturb the balance of pulmonary microbiota, and after Olm's treatment rebalance the procedure. At the levels of Genus and Species, 24 different bacteria at the genus level and 29 different bacteria at the species level were identified. Pulmonary microbiota-derived GLA was found from differential metabolites among all groups. And it was proven that pulmonary microbiota-derived GLA plays an important role in keeping lung from SLV induced lung injury. To explore the relationship between related metabolites and cellular immunity, we analyze the correlation between differential metabolites and lung microbiota. A total of 24 pathways were both identified by analyzing either metabolites or microbiota, which may be the potential mechanism of how Olm attenuates SLV induced lung injury.

CONCLUSIONS

Besides classical blockage of the renin-angiotensin II system, Olm could alleviate SLV-induced lung injury by rewiring the interaction between pulmonary microbiota and metabolites, such as up-regulating the level of pulmonary microbiota-derived GLA.

Disclosure: No significant relationships.
Keywords: Lung Injury, Pulmonary Microbiota, Metabolite, Single Lung Ventilation, ?-Linolenic Acid.



P-238

PULMONARY RESECTION IN A PRONE POSITION FOR LUNG CANCER INVADING THE SPINE AFTER CHEMORADIOTHERAPY

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OBJECTIVES

The standard intraoperative body position for a vertebrectomy is the prone position, while that for a pulmonary resection is the lateral decubitus position. Here, we report a case of pulmonary resection combined with a partial vertebrectomy for adenocarcinoma invading the spine via a posterior approach in a prone position.

CASE DESCRIPTION

A 67-year-old man was found to have adenocarcinoma of the right upper lobe with maximum tumor diameter of 55 mm and invasion of the adjacent chest wall and vertebral bodies from Th3/4. His clinical stage was diagnosed as c-stage IIIA (cT4N0M0). He was treated with chemoradiotherapy (RT: 60 Gy/30 Fr + wCb/wPAC x 6 kur) was decided to precede. Preoperative examination revealed severe AS, and after TAVI was performed at the Department of Cardiovascular Surgery, the patient underwent joint surgery at the Department of Thoracic Surgery and the Department of Orthopedics. The procedure consisted of right upper lobectomy, combined resection/reconstruction of the chest wall (ribs 3-5), hemilateral discectomy, and partial discectomy/fixation of the vertebral body (Th3/4), and was completed in the prone position to prevent complications due to repositioning and reduce operating time. The final diagnosis was adenocarcinoma (ypT4N0M0, stage IIIIA). The patient underwent postoperative adjuvant chemotherapy and is currently alive one year after surgery without recurrence.

CONCLUSIONS

Due to tumor progression and complications, the patient was treated in collaboration with multiple departments during the perioperative period. A lobectomy in a prone position, especially after a wide resection of the bony thorax, can be performed via a posterior approach without any significant difficulties. We report on the treatment strategy and intraoperative positioning of the patient.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Chemoradiotherapy, Prone Position, Spine.

P-239

RADICALITY OF LYMPH NODE DISSECTION IN UNIPORTAL ANATOMICAL LUNG RESECTIONS

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OBJECTIVES
Surgical treatment of lung cancer has evolved significantly in recent years. The introduction of the uniportal surgical technique represents a milestone in minimally invasive thoracic surgery. In the present study, the radicality of lymph node dissection was evaluated in uniportal anatomical lung resections.

METHODS
In the present bicentric analysis, all patients who underwent oncological anatomic lung resections at two accredited thoracic surgical centers in Germany between January 2019 and June 2020 were included. Data were collected prospectively and analyzed retrospectively.

RESULTS
A total of n = 367 patients (169 female) with a mean age of 66 years were included in the analysis. Open surgical resection was performed in n = 213 patients. In n = 154 patients, resection was performed by uVATS. Resections included lobectomies (n = 220), bilobectomies (n = 16), sleeve resections (n = 17), pneumonectomies (n = 14), segmentectomies (n = 56), bisegmentectomies (n = 26), and trisegmentectomies (n = 18). The mean number of resected lymph nodes (LNs) was 19.7. In relation to the total collective, significantly more LNs were removed in open surgery than in uVATS (22.21 vs. 17.93, p = 0.0002). However, there were no significant differences in the number of LNs between open and uVATS and open surgery when specifically comparing the respective resection procedures. Mean operating time was 137.89 minutes for the entire group. A significantly shorter operative time (minutes) was found for uVATS than for open operations (131 uVATS vs. 147 open, p = 0.0026), with a significantly shorter chest tube duration and hospital stay.

CONCLUSIONS
Radicality of lymph node dissection is comparable in minimally invasive and open anatomical resections. However, the minimally invasive approach is associated with a significant reduction in drainage time and hospital stay, resulting in faster patient recovery.

Disclosure: No significant relationships.
Keywords: Uniportal VATS, Anatomical Resections, Lymph Node Dissection.

P-240

RARE INTRALUMINAL TUMOURS OF SUPERIOR VENA CAVA SYSTEM: RESECTION WITHOUT RECONSTRUCTION STRATEGY

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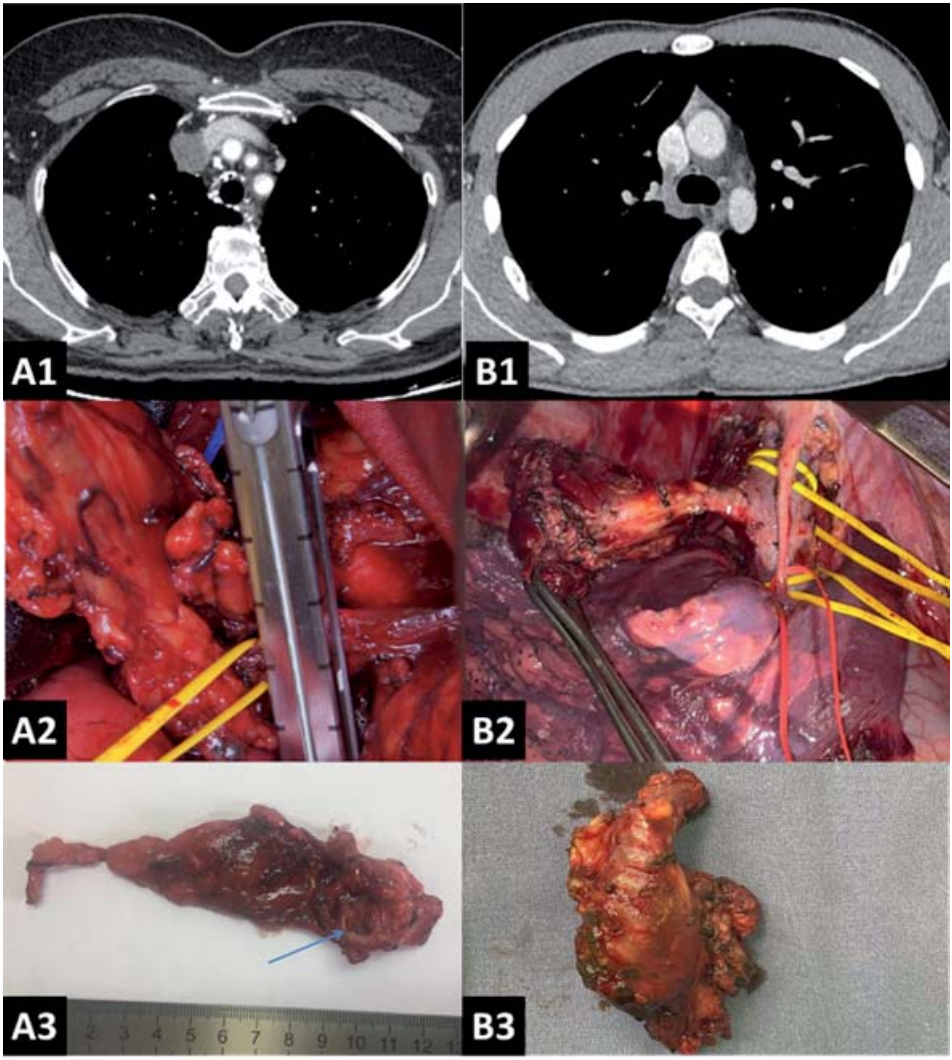
OBJECTIVES
Epithelioid hemangioendothelioma (EH) is a rare malignant vascular neoplasm that can exhibit aggressive locally invasive growth. This study reports two cases of successful surgical treatment of intraluminal EH involving the superior vena cava system (SVC). A completely intravascular location, as observed in our cases, is not documented in the existing literature.

CASE DESCRIPTION
Two patients underwent surgery in our clinic, a 59-year-old female and a 23-year-old male, both of whom were diagnosed with intraluminal EH. In the first case the tumour was located in the right brachiocephalic vein, in the second case in the azygous vein. In both cases, the tumour obstructed the superior vena cava system, resulting in the development of extensive venous collaterals. Preoperative assessments revealed no metastases and normal cardiopulmonary function. Complete tumour removal was achieved in both patients. The first case involved complete resection of brachiocephalic veins confluence, while the second case required removal of the azygous vein along with resection of the superior vena cava. Due to the competent collateral venous drainage, tested intraoperatively, no reconstruction was required The postoperative period was uneventful and there was no worsening of the SVC compression syndrome.

CONCLUSIONS
Intravascular EH represents an extremely rare tumour and this study presents the first documented experience in the literature. Given the slow growth rate of the tumour and the development of venous collaterals, SVC prostheses are neither indicated nor advisable due to the inevitable thrombosis of a graft and a possible subsequent embolic event. If the patency of collaterals is confirmed, brachiocephalic veins or SVC can be ligated safely.

Disclosure: No significant relationships.
Keywords: Endothelial Hemangioendothelioma, Superior Vena Cava, Mediastinum.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P-241

RECURRENCE AFTER RESECTION FOR NON-SMALL CELL LUNG CANCER: RISK FACTORS BY STAGE AND MOLECULAR PROFILE

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[2]*Istituto Oncologico della Svizzera Italiana, IOSI, Bellinzona, Switzerland*

OBJECTIVES
To evaluate rates and prognostic factors of disease recurrence after upfront anatomical lung resection for non-small cell lung cancer (NSCLC).

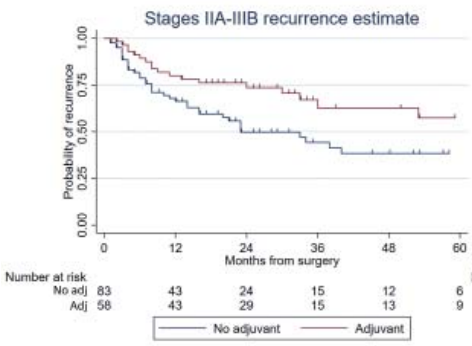
METHODS
We retrospectively analyzed prospectively collected data on anatomical lung resections performed at our institution (2017-2023) for NSCLC. Patients who received upfront surgery were included. Surgical, clinical, histological, and molecular characteristics entered in univariable and multivariable analysis with the primary endpoint being disease-free survival (DFS). Cox proportional hazards model was used for identification of prognostic factors. Analysis were performed separately in stage I and stages IIA-IIIB groups based on indication for multimodality therapy.

RESULTS
We included 383 patients treated with lobectomy (340; 89%), bilobectomy (6; 2%), pneumonectomy (5; 1%), and segmentectomy (32; 8%). Pathological stage was I in 240(63%) and IIA-IIIB in 143(37%). 85 patients (59%) in the latter group did not receive adjuvant therapy due to personal wish or clinical condition.
During a median follow-up time of 33 months, we observed 84 (22%) recurrences.
One-, 2-, 3-, and 5-years DFS was 95%, 89%, 87%, 86% in stage I and 86%, 79%, 75%, 72% in stages IIA-IIIB.
Multivariable analysis showed that for advanced stages, adenocarcinoma histology (HR 1.7, 95%CI: 1-2.9, p 0.04) and not receiving adjuvant therapy (HR 1.9, 95%CI: 1.1-3.4, p 0.02) correlate with worst prognosis. While most patients did not receive adjuvant, 28% of them were treated with systemic therapy at recurrence.
For stage I, the strongest predictor of recurrence was the combined mutation of KRAS and TP53 (HR 7.5, 95%CI: 2.8-19.6, p<0.001).

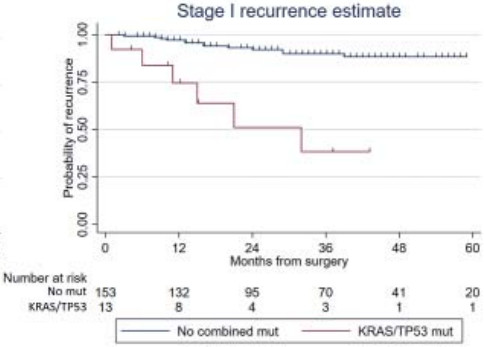
CONCLUSIONS
For those patients with indication to adjuvant treatment, the lack of systemic therapy after surgery exposes to higher risk of recurrence. Thus, it is mandatory developing appropriate strategies to comply with this indication. In early stages, patients with combined mutation of KRAS and TP53 show high recurrence rate, thus for this group, adjuvant therapies might be indicated after surgery.
Disclosure: No significant relationships.

Keywords: Non-Small Cell Lung Cancer, Lung Resection, Recurrence.

Recurrent population	84 (22%)
Follow-up time	33 months (95% CI 30-37)
DFS estimated probability	
12 months	87 (95% CI 83-90)
24 months	79 (95% CI 74-83)
36 months	75 (95% CI 69-79)
60 months	72 (95% CI 66-77)
Site	
Locoregional	39 (46%)
Distant	45 (54%)
Surgical treatment	
Lobar (lobectomy, bilobectomy, pneumonectomy)	74 (88%)
Sublobar (segmentectomy)	10 (12%)
Stage	
Early (IA-IB)	28 (33%)
Advanced (IIA to IIIB)	56 (67%)
Histology	
Adenocarcinoma	53 (63%)
Non-adenocarcinoma (SCC, neuroendocrine, other)	31 (37%)
PD-1 expression ≥50%	18 (21%)
EGFR mutation (exon 19, 20, 21)	7 (8%)
KRAS mutation	30 (36%)
TP53 mutation	29 (34%)
ALK translocation	1 (1%)
KRAS, TP53 combined	13 (15%)
Adjuvant systemic therapy	
No	66 (79%)
Yes	18 (21%)
Recurrence treatment	
Best supportive care	8 (9%)
Local (RT and/or surgery)	25 (30%)
Systemic therapy (CHT/immuno/target) +/- RT	51 (61%)



Log-rank p=0.01



Log-rank p<0.001

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RE-DO SURGERY OUTCOMES FOR LARYNGOTRACHEAL RESTENOSIS

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[2]*Hospital Clínico Universitario, Valencia, Spain*

OBJECTIVES
To analyze the experience of a reference hospital in laryngotracheal reconstruction in patients with previous laryngotracheal resections.

METHODS
A retrospective cohort of patients undergoing subglottic laryngotracheal stenosis interventions between 1984 and 2023 was studied. Patients with previous resection surgery were included. Demographic variables (gender, age), characteristics of stenosis (distance to vocal cords, length, diameter, length of distal trachea), previous procedure, type of treatment, resected length, reconstruction technique, complications, reintervention, results in airway, phonation, swallowing, and mortality were analyzed. Qualitative variables are described as percentages and were compared using chi-square or Fisher's exact test. Quantitative variables are described as mean ± standard deviation and were compared with Student's t-test. A significance level of $p \leq 0.05$ was established.

RESULTS
Out of a total of 321 patients, 30 had undergone previous surgery in other centers (16 men) with a mean age of 39.91±20.44 years. The characteristics of stenosis and the treatments performed are described in Table 1. Sixteen patients had a tracheotomy. Twelve patients required infrahyoid laryngeal descent. In 60% of cases, airway tutoring was performed, most frequently with a Montgomery T-tube (15 cases). Complications occurred in 16 (53.3%) patients, with granulomas (26.7%) and partial dehiscences (6.7%) being the most frequent. Airway results were excellent in 83.3% of patients. Two of them required a new reintervention due to restenosis. Three patients had moderate dysphonia, and three experienced transient swallowing disorders. There was no perioperative mortality.

CONCLUSIONS
Reoperation for laryngotracheal stenosis is infrequent but feasible, yielding good results in experienced teams. Previous resection surgery complicates but does not preclude obtaining favorable outcomes, with low rates of restenosis.

Disclosure: No significant relationships.

ETIOLOGY	N	%
POSTINTUBATION	22	73,3
TRAUMATIC	3	10
IDIOPATHIC	4	13,3
SYSTEMIC DISEASE	1	3,3
LOCATION OF RESTENOSIS	N	%
SUBGLOTTIC	16	53,3
GLOTO-SUBGLOTTIC-TRACHEAL	6	20
TRACHEAL	4	13,3
GLOTO-SUBGLOTTIC	3	10
GLOTTIC	1	3,3

LOCATION	RANGE	MEAN	STANDARD DEVIATION
DISTANCE TO VOCAL CORDS (mm)	5-15	12,5	10,6
LENGTH OF STENOSIS (mm)	15-20	17,5	2,53
LENGTH OF DISTAL TRACHEA (mm)	75-80	77,5	3,53
PERCENTAGE OF TOTAL TRACHEAL	1,7%-42,3%	14,9%	13,5%

PRIOR TREATMENTS	N	%
RESECTION-ANASTOMOSIS	19	5,9
PEARSON OPERATION	7	2,2
LARINGOPLASTY	3	0,9
COURAUD OPERATION	1	0,3

SURGICAL PROCEDURES	N	%
PEARSON OPERATION	11	36,7
COURAUD OPERATION	11	36,7
MADDAUS OPERATION	4	13,3
LARINGOPLASTY	2	6,7
GRILLO OPERATION	1	3,3
TRACHEAL RESECTION	1	3,3

	MEAN	STANDARD DEVIATION
RESECTED RINGS	3	0,94
LENGTH OF RESECTION (mm)	17,6	15,9
PERCENTAGE RESECTED	1,69%	42,37%

P-243

REPAIR OF CHALLENGING AIRWAY DEFECTS WITH RESORBABLE PROSTHESES: SINGLE-CENTER EXPERIENCE

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OBJECTIVES
Conventional methods for closure of tracheal or bronchial defects include direct suture or sleeve resection-anastomosis. In certain cases, these techniques are not feasible, or could result in an excessive risk of dehiscence, making it necessary to resort to alternative methods. The aim of this study is to review our experience in the repair of airway defects with resorbable prostheses.

METHODS
Single center retrospective review of patients who underwent closure of airway defects by interposition of a resorbable prosthesis from 2011 to 2024.

RESULTS
During the study period, 31 patients underwent repair of a tracheal (n=24) or bronchial (n=7) defect with a resorbable prosthesis. The causes of the defect included tracheo/bronchoesophageal fistula (n=20), dehiscence of an airway anastomosis (n=4), traumatic airway rupture (n=3), bronchopleural fistula (n=1), or other elective airway reconstruction procedures(n=3). Patients underwent surgery while on mechanical ventilation in 10 cases and extracorporeal membrane oxygenation in 4 cases. The prosthetic material consisted of a commercially available polyglycoic acid - trimethylene carbonate co-polymer in 29 cases, and polyglactin 910 in 2 cases. In 26/31 cases the prosthesis was covered with a pedicled muscle flap. The airway repair was successful in 28/31 cases. The overall morbidity, major morbidity and mortality rates were 68%, 45%, and 9.7%, respectively. Patients affected by tracheo/bronchoesophageal fistulae had a significantly longer median postoperative stay compared to other (36 vs. 15 days). Patients who were on mechanical ventilation at the time of surgery experienced significantly higher major morbidity (80% vs. 29%) and mortality (30% vs. 0%) rates, compared to those who weren't ($p<0.05$).

CONCLUSIONS
In our experience, resorbable prostheses constituted valid tools for repair of airway defects in challenging cases, where conventional techniques were deemed not feasible. The success, morbidity and mortality rates that we experienced were satisfactory. Mechanical ventilation was probably the most important determinant of complications and death.

Disclosure: No significant relationships.
Keywords: Airway, Esofago-Airway Fistula, Trachea, Bronchi.

	Patients on mechanical ventilation at the time of surgery		
Characteristic	**no, (N = 21)[1]**	**yes, (N = 10)[1]**	**p-value[2]**
Pathology			0.11
Esofago-airway fistula	16 (76%)	4 (40%)	
Other	5 (24%)	6 (60%)	
Size of airway defect (mm)	20 (15 - 30)	20 (10 - 30)	0.4
Intensive care unit stay (days)	2 (1 - 6)	13 (5 - 25)	0.002
Duration of mechanical ventilation (days)	0 (0 - 0)	2 (1 - 7)	<0.001
Postoperative morbidity	13 (62%)	8 (80%)	0.4
Major morbidity	6 (29%)	8 (80%)	0.018
Minor morbidity	7 (33%)	0 (0%)	0.066
Airway complications	4 (19%)	3 (30%)	0.7
Postoperative stay (days)	30 (23 - 40)	33 (18 - 60)	0.7
Postoperative mortality	0 (0%)	3 (30%)	0.027
Alive at last follow-up	17 (81%)	4 (40%)	0.040
Relapse of fistula/defect	1 (4.8%)	2 (20%)	0.2

[1]n (%); Median (IQR)

[2]Fisher's exact test; Wilcoxon rank sum test

P-244

RESECTION INDEX : A COMPLEMENTARY TOOL FOR CLINICAL EVALUATION

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OBJECTIVES
This study aimed to design resection index (RI) and establish a corresponding grading system, which could be used to predict the difficulty of surgical resection in thymoma, thus guiding the choice of induction therapy modality.

METHODS
Pericardium, lung, phrenic nerve, left innominate vein and other structures in the current TNM staging were included in the grading criteria and were designed to be given different points from 1 to 10 in order of relevance based on multidisciplinary treatment experience of thymoma in Table 1. CT features including tumor shape, contour and enhancement pattern were well used to access TET clinical staging. We retrospectively analyzed and rated 420 Chinese patients with thymoma who attended the thoracic surgery department in our hospital and divided them into three groups: group 1, 0-3 points, group 2, 4-10 points; group 3, more than 10 points. The acceptance of RI grading system will be assessed by a Delphi Consensus Project.

RESULTS
The proportion of patients who underwent induction therapy in group 1, 2 and 3 was 10%, 72% and 83.3% respectively. The likelihood of open surgery increases with higher RI. A higher RI resulted in a lower R0 rate and lower proportion of patients who could be surgically resected after induction therapy compared with traditional T staging.

CONCLUSIONS
Previously, whether to perform open median sternotomy thymectomy or minimally invasive thymectomy often depended on the clinical experience of a thoracic surgeon. RI could serve as a potentially complementary tool of the staging system to demonstrate the extent of tumor extravasation of TETs objectively, thus guiding surgeons in treatment modalities and assessment of the necessity and efficacy of induction therapy, which is beyond previous clinical experience. Nevertheless, the limitation lies that it is a retrospective single-center study, so an external validation is required. Prognostic significance needs to be analyzed.

Disclosure: No significant relationships.
Keywords: Thymectomy, Thymic Tumor, Induction Therapy.

P-245

RESULTS OF THE USE OF EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO) AS A BRIDGE TO LUNG TRANSPLANTATION AT A REFERRAL CENTER

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OBJECTIVES
Analyze the experience in the use of extracorporeal membrane oxygenation (ECMO) as a bridge to lung transplantation (LTx) in a referral center.

METHODS
Prospective cohort of LTx patients between 2015 and 2023. Variables as age, diagnosis, transplant type, use of ECMO pre-, intra-, and post-operatively, Primary lung Graft Disfunction (PGD) at 48-72 hours, intrahospital mortality, and survival were evaluated. Qualitative variables are described as percentages and were compared using Chi-square or Fisher's exact test. Multivariate analysis was performed with logistic regression. Quantitative variables are described as mean ±deviation. Significance was established at $p \leq 0.05$.

RESULTS
A total of 524 patients underwent LTx (66.2% males), mean age 54.43±13.48 years. ECMO bridge therapy was instituted in 12 patients (2.29%) before LTx (66.7% males, age range 1-71.5 years). Recipient and procedure variables are in Table 1. Eleven double LTx (91.7%) and one single LTx (8.3%) were performed, mean ischemia time of 322.5±75.58 minutes. All patients required intraoperative assistance (central venoarterial ECMO in 6, peripheral venoarterial ECMO in 4, and Cardiopulmonary bypass in 2). In 7 patients (58.3%), ECMO needed to be extended postoperatively for 3.5±2.08 days. Four patients (33.3%) experienced PGD grade 3, more in the central venoarterial ECMO group (p=0.049). Intrahospital mortality was 16.7% (12.4% in non-ECMO patients, p=0.66), higher in those with PGD grade 3 (25% vs. 12.5%, p=0.58). One-year (83.3% vs. 83.9%) and five-year survival (72.9% vs. 60.1%) were not influenced by ECMO bridge use (p=0.54). There was non-significant trend towards worse outcomes with venoarterial ECMO bridge use (5-year survival 87.5% vs.37.5%, p=0.14).

CONCLUSIONS
Use of bridging ECMO is a therapy with good results that does not influence short- and medium-term survival. Use of central venoarterial ECMO is related to grade 3 PGD, as well as to a higher in-hospital mortality; however, the latter is not statistically significant when compared to non-ECMO patients.

Disclosure: No significant relationships.

DIAGNOSIS	**N**	**%**	
PULMONARY FIBROSIS	7	58.3	
PULMONARY HYPERTENSION	3	25	
BRONCHIOLITIS	1	8.3	
RENDU-OSLER DISEASE	1	8.3	
BLOOD TYPE	**N**	**%**	
0	6	50%	
A	4	33.3%	
B	2	16.7%	
ECMO TYPE (BRIDGE)	**N**	**%**	
VENOVENOUS	8	66.7%	
VENOARTERIAL	4	33.3%	
	MEAN	**STANDARD DEVIATION**	**RANGE**
DURATION OF ECMO BRIDGE (DAYS)	18.87	25.03	1-72

P-246

RISK FACTORS FOR PROLONGED AIR LEAKAGE AFTER UNIPORTAL ANATOMICAL SEGMENTECTOMY

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OBJECTIVES
Our aim was to investigate the incidence and risk factors for prolonged air leak in patients undergoing minimally invasive single-port pulmonary segmentectomy at our institution.

METHODS
Retrospective analysis of all patients undergoing uniportal segmentectomy for primary lung cancer, metastasis, or benign lesions in our department from March 2015 to August 2023. Prolonged air leak (PAL) was defined as an air leak that lasted longer than 5 days.

RESULTS
575 segmentectomies were performed using uniportal video-assisted thoracoscopic surgery (uVATS). 333 patients (57.9%) were men, and the mean age was 64.8. 374 complex segmentectomies (65.0%) and 405 (70.4%) single segmentectomies were performed. Prolonged air leak occurred in 88 patients (15.3%). Length of stay and duration of drainage were 8.6 (SD 4.86) and 10.6 (SD 8.12) days in the PAL subgroup, whereas they wer 3.6 (SD 2.25) and 2.0 (SD 1.3) days in the non-PAL group, both statistically significant. Patients with COPD GOLD II and III were significantly more common in the PAL group.
Using machine learning, two models were developed that predicted the occurrence of PAL with an accuracy of 70 %. The first model detected the following parameters as significant: removal of segment 2 or 8, diabetes, inhalers, and squamous cell carcinoma. The second model recognized DLCO (%), pack-years, FEV1 (%) and operation time as parameters.
Furthermore, we used recursive partitioning to develop a decision tree that stratified PAL risk by answering 1-3 yes/no questions. Patients with >28 pack-years and DLCO < 71% had a 77% probability of developing prolonged air leak.

CONCLUSIONS
Severe COPD, low DLCO and FEV1, increased pack-years, inhalers, diabetes, and segment 2 or 8 surgery were identified as risk factors for prolonged air leak. These findings may help in the planning of surgery and the use of sealants at the end of surgery in high-risk patients.

Disclosure: No significant relationships.
Keywords: Prolonged Air Leak, Uniportal Segmentectomy, Sublobar Anatomical.

Demographics and preoperative characteristics

Variables	Total population (n=575)	Without PAL (=487)	With PAL (n=88)	P value
Male gender (n, %)	333 (57,9%)	276 (56.7%)	57 (64.8%)	0.3613
Age (mean, SD)	64.8 (10.5)	64.4 (10.7)	67.2 (8.9)	**0.0210**
FEV1 % (mean, SD)	83.9 (20.8)	86.4 (19.6)	70.3 (21.8)	**<0.0001**
DLCO % (mean, SD)	78.5 (22.7)	80.9 (22.2)	64.8 (21.0)	**<0.0001**
Smoking status (n, %) current ex-smoker never smoker unknown	 240 (41.7%) 220 (38.3%) 112 (19.5%) 3 (0.5%)	 193 (39.6%) 182 (37.4%) 109 (22.4%) 3 (0.6%)	 47 (53.4%) 38 (43.2%) 3 (3.4%) 0 (0%)	 0.0738 0.4556 0.0002
Pack years (mean, SD)	37.59 (30.7)	34.7 (30.7)	53.3 (25.8)	**<0.0001**
BMI, kg/m^2 (mean, SD)	25.2 (4.64)	25.4 (4.7)	24.2 (4.0)	0.0247
Diabetes (n, %)	67 (11.6%)	53 (10.9%)	14 (15.9%)	0.1703
COPD (n, %) GOLD I GOLD II GOLD III GOLD IV	 50 (8.7%) 92 (16.0%) 26 (4.5%) 4 (0.7%)	 40 (8.2%) 64 (13.1%) 15 (3.1%) 2 (0.4%)	 10 (11.4%) 28 (31.8%) 11 (12.5%) 2 (2.3%)	 0.4404 **<0.0001** **0.0001** 0.2482
Asthma (n, %)	27 (4.7%)	19 (4.0%)	8 (9.1%)	0.0302
Inhalatives (n, %)	116 (20.2%)	79 (16.3%)	37 (42.0%)	<0.0001
OSAS (n, %)	40 (6.9%)	30 (6.2%)	10 (11.4%)	0.0765
Arterial hypertension (n, %)	215 (37.4%)	172 (35.3%)	43 (48.9%)	0.0585

P-247

RISK FACTORS FOR RECURRENCE OF NON-SMALL CELL LUNG CANCER AFTER SEGMENTECTOMY

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OBJECTIVES
During the last decade, pulmonary segmentectomy for early stage lung cancer (LC) had expanded; however there are still no details in recommendations regarding the optimal resection margins. The aim of this study was to determine resection margin prognostics factors of recurrence.

METHODS
From January 2018 to October 2023, all patients who benefited for pulmonary segmentectomy for LC In our institution were included. Recurrence was defined by an histology identical to the primary LC. A predictive model of recurrence was built using following variables: parenchymal and bronchial margins, histological type, TNM status and types of segmentectomy.

RESULTS
One hundred and eighty-two patients were included, among which 17.6% (n=32) developed recurrences: 12 were local recurrence and 20 were distant recurrence. Recurrence-free survival was : 87.2% at 1 year (95%CI [79.7-92.1]), 75.4% at 2 year (95%CI [65.5-82.9]), 73% at 3 year (95%CI [62-81.3]) and 57% at 4 year (95%CI [40.3-71.2]). The predictive model explain recurrence in 44% of the case (95%CI [24-59]). Risk factors for recurrence were : bronchial resection margin lower than 1.8cm (HR 2.58 (95%CI [1.11-5.97]), p = 0.026), lymph node involvement (HR 13.32 (95%CI [4.42-40.07]), p<10-3), and epidermoid histological type (HR 2.72 (95%CI [1.03-7.19]), p=0.043). Complex segmentectomy was a protective factor of recurrence (HR 0.33 (95%CI [0.15-0.71]), p=0.005). Tumor pT2A tends to be pejorative prognostic factors HR 2.25 (95%CI [0.98-5.20]), p=0.055. Tumor pT stage, invasion of the visceral pleura, presence of vascular emboli, and surgical approach were not risk factors for recurrence (p > 0.05). No patient with recurrence had perineural invasion (p = 0.48).

CONCLUSIONS
Lymph node involvement, bronchial resection margin less than 1.8 cm and epidermoid histological type are risk factors for recurrence after segmentectomy.
A large study analysis would be of interest to determine strong predictive factors.

Disclosure: No significant relationships.
Keywords: Pulmonary Segmentectomy, Non-Small Cell Lung Cancer, Histological Type, Resection Margin, Bronchial Margin.

P-248

RISK OF NON LUNG CANCER DEATH AFTER LOBECTOMY COMPARED WITH SUBLOBAR RESECTION

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OBJECTIVES
The JCOG 0802 trial showed superior overall survival (OS) after segmentectomy compared with lobectomy for small-sized peripheral lung cancer. One of the reasons was that the rate of non kung cancer death was lower in the segmentectomy group than in the lobectomy group. The aim of this study is to examine the risk of death from other causes according to surgical procedures.

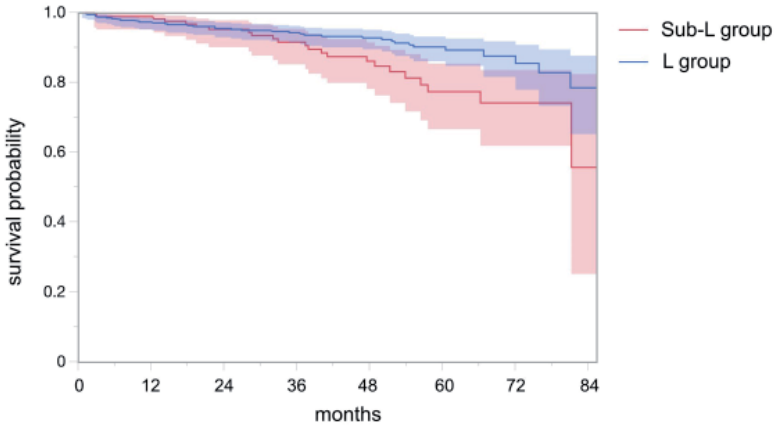
METHODS
This study included 690 patients of lung cancer who underwent curative surgical resection at our institute between 2014 and 2020. We compared patient characteristics and OS (event is non lung cancer death) between patients who underwent lobectomy (L group) and sublobar resection involved segmentectomy and wedge resection (Sub-L group).

RESULTS
There were 429 patients in the L group and 161 patients in the Sub-L group. In the Sub-L group, 101 patients underwent wedge resection and 60 segmentectomy, respectively. Median follow-up period was 59 months. OS was significantly longer in the L group than in the Sub-L group (p=0.0237, Figure A). The Sub-L group involved 74 cases of palliative resection and many of them had poor prognosis. To adjust for background differences between the two groups, palliative resection cases were excluded, and the analysis was further restricted to only clinical stage I. As a result, there were 336 patients in the L group and 87 in the Sub-L group. Although there was no significance, OS in the Sub-L group tended to be longer than in the Lob group (p=0.07, Figure B).

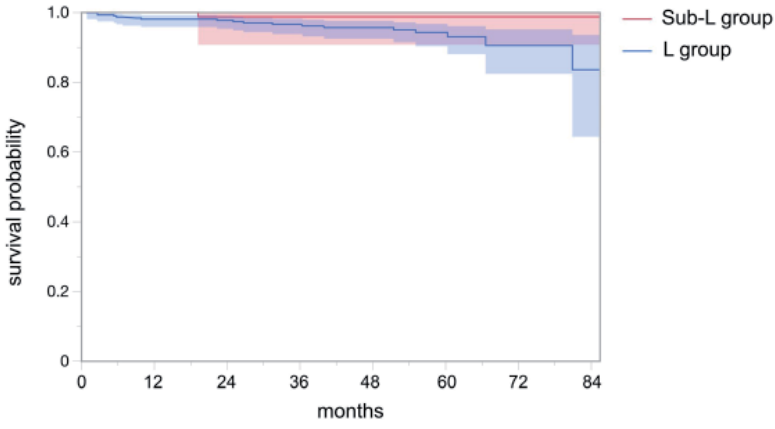
CONCLUSIONS
The risk of non lung cancer death after lobectomy may be higher than that of the sublobar resection excluding palliative surgery. However, due to the small number of cases in this single-center study, it is considered necessary to conduct future analyses based on data from multiple institutes.

Disclosure: No significant relationships.
Keywords: Non Lung Cancer Death, Lobectomy, Sublobar Resection.

<Figure. A>



<Figure. B>



P-249

ROBOT-ASSISTED IVOR-LEWIS ESOPHAGECTOMY: A SINGLE-CENTER, SINGLE-ARM, PHASE II CLINICAL STUDY (RAILE TRIAL)

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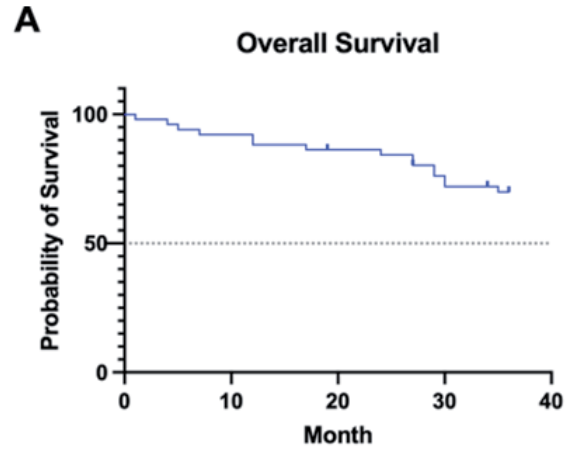
OBJECTIVES
Minimally invasive esophagectomy (MIE) has emerged as an alternative to open esophagectomy (OE) for the recent decade. Nowadays, robot-assisted procedures are utilized more and more frequently for the treatment of esophageal cancer. However, the safety and oncological outcomes of robot-assisted Ivor-Lewis esophagectomy (RAILE) has not been prospectively assessed.

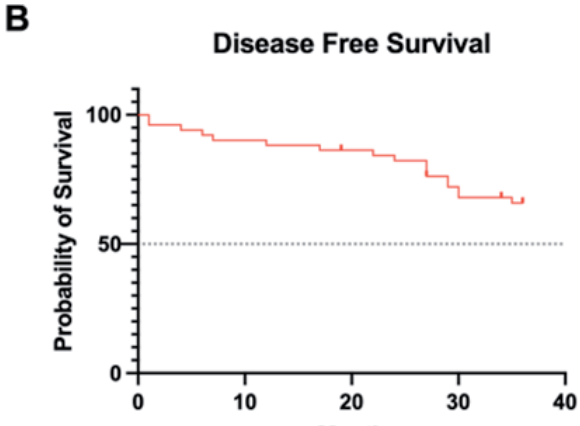
METHODS
RAILE trial was designed as a prospective, single-center, single-arm, open label clinical trial to evaluate the safety and survival outcomes of RAILE for esophageal cancer (ClinicalTrials.gov identifier: NCT03140189). The primary outcome is the morbidity of major complications after surgery (Clavien–Dindo Class ≥ III). The secondary endpoints included perioperative outcomes (morbidity of overall, minor, and specific complications, rate of reoperations, 30- and 90-day mortality, and rate of readmission within 30 day), and long-term survival data (3-year overall and disease-free survival).

RESULTS
Between May 2017 and July 2019, a total of 51 patients were enrolled, all with squamous carcinoma. Operative time was 282±45.2 min, with estimated blood loss of 199.2±110.8 ml. Only 1 (2.0%) patient underwent conversion. Rate of major and overall complications were 11.8% and 37.3%, respectively. No mortality occurred within 30 days and 1 (2.0%) death within 90 days. 4 (7.8%) patients underwent readmission within 30 days. A total of 50 (98.0%) patients achieved R0 resection. The 3-year overall and disease-free survival rate were 69.9% and 65.9%, respectively.

CONCLUSIONS
RAILE is safe and feasible for the treatment of esophageal cancer, along with an acceptable morbidity of major complications and long-term survival.

Disclosure: No significant relationships.
Keywords: Esophagectomy, Robot-Assisted, Ivor-Lewis, Trial.


A
Overall Survival
Probability of Survival
100
50
0
0
10
20
30
40
Month


B
Disease Free Survival
Probability of Survival
100
50
0
0
10
20
30
40
Month

P-250

ROBOT-ASSISTED LUNG CANCER SURGERY IN A NORWEGIAN COHORT

Nina Maksimovic[1,2], Kirill Neumann[2], Rune Eggum[2], Frode Reier-Nilsen[2], Henrik Aamodt[2], Jarlis Wesche[1,2], Knut Stavem[1,2]
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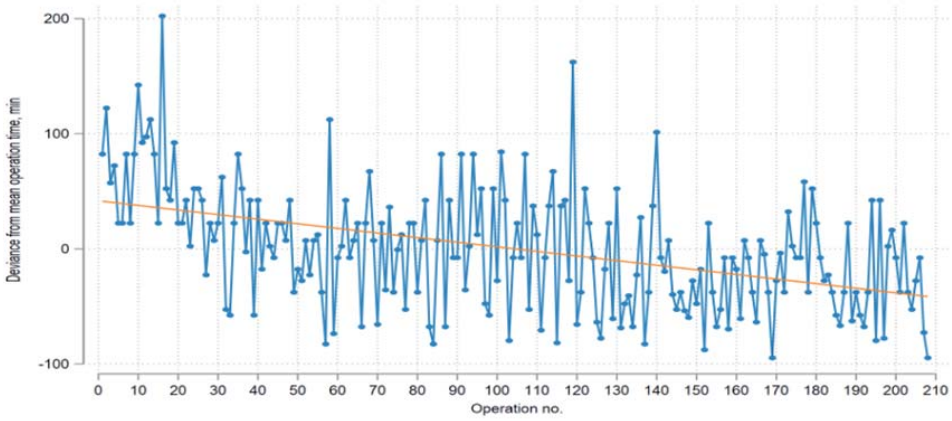
OBJECTIVES
In this single-center study, we assessed the first four years of our program for transitioning from video-assisted thoracoscopic surgery (VATS) to robot-assisted thoracoscopic surgery (RATS) as a standard of care in lung cancer treatment.

METHODS
Three surgeons, all with >5 years of experience in VATS, performed their first 210 RATS lobectomies in patients with lung cancer between January 2019 and December 2022. The surgeons operated in pairs, as lead operator or patient side assistant, using the DaVinci Xi robot. Prior to starting with RATS, they participated in a robot training program followed by intraoperative supervision by expert practitioners, in addition to assistance from other well-trained site staff. We performed a retrospective chart review and present preliminary results, including the development of operating times over time.

RESULTS
Median age was 69 (range 31-85) years, and 112 (53.3%) were female and 98 (46.7%) male. Median (25th to 75th percentile) body mass index was 25.7 (22.7-29.0) kg/m2. In total, 155 (79.5%) patients had stage 0-IB disease, 33 (16.9%) stage IIA-IIB, and 7 (3.6%) stage IIIA-IIIB. There was no difference in the distribution of the preoperative staging across the four years (Fisher´s exact test, p =0.147). We observed no perioperative deaths. Conversion to thoracotomy occurred in 3/210 (1.4%) patients. The re-operation rate was 2.9% due to either bleeding or continuous air leak. Median (25th to 75th percentile) length of stay was 4 (3-7) days, median chest tube duration was 2 (1-4) days and median operation time 153.5 (120-194.5) min. The operation time gradually decreased with experience/volume (Fig. 1).

CONCLUSIONS
The study illustrates an effective transition from VATS to RATS, given prior surgeon training and structured supervision. Operating times decreased steadily throughout the study period.

Disclosure: Some co-authors are proctors at Intuitive.
Keywords: RATS, Robot Assisted Lung Resection, Robot Assisted Lobectomy, Robot Assisted Lung Cancer Surgery, Da Vinci Robot.


Deviance from mean operation time, min
200
100
0
-100
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
Operation no.

P-251

ROBOTIC APPROACH IN COMPLEX LUNG SEGMENTECTOMIES

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[2]*IRCCS Humanitas Research Hospital - Division of Thoracic Surgery, Milan, Italy*

OBJECTIVES
The optimal treatment strategy for early-stage Non-Small Cell Lung Cancer involves radical surgical resection followed by observation. Lobectomy with systematic mediastinal lymph node dissection has been the preferred procedure for many years. Recent randomized studies have demonstrated that anatomical lung segmentectomy for NSCLC (<2 cm) could achieve comparable oncological radicality to lobectomy, establishing sublobar resection as the emerging standard of care for small lesions. Considered the challenges associated with complex segmentectomies by Video-Assisted Thoracoscopic Surgery (VATS) even when performed by experienced surgeons, the robotic technique might represent a valid alternative. This study aims to present our experience and technical details of robotic complex segmentectomy.

METHODS
We defined as complex segmentectomies all those anatomical resections involving individual segments of the upper and middle lobes, or basilar segments. Our surgical approach is a 4-arm CO2-less technique, with intravenous indocyanine green injection for a precise identification of intersegmental planes and 3D CT lung reconstruction for surgical planning

RESULTS
A total of 119 segmentectomies were included, consisting of 67 typical and 52 complex cases. No mortality was registered at 30-days and no conversion to thoracotomy was needed. The mean operative time did not significantly differ between typical and complex segmentectomies (163 minutes [311-65] and 162 minutes [240 - 57], respectively). The average length of stay was 4 days for typical segmentectomies (T.S.) compared to 3.5 days for complex segmentectomies (C.S.). Postoperative complication rates were 22.4% for T.S. (0 grade III) and 27% for C.S. (5.7% grade III). The mean number of dissected lymph nodes after T.S. and C.S. was 10.1 and 11.3, respectively.

CONCLUSIONS
In our experience, the robotic approach proves to be a viable surgical option for performing complex segmentectomies, demonstrating comparable perioperative outcomes to typical segmentectomies.

Disclosure: No significant relationships.
Keywords: Robotic Surgery, Sublobar Resection, Segmentectomy, NSCLC.

P-252

ROBOTIC CIRCUMFERENTIAL RESECTION FOR MIDTRACHEAL MUCOEPIDERMOID CARCINOMA: CASE DESCRIPTION

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OBJECTIVES

Mucoepidermoid carcinoma (MEC) is a salivary-gland type of lung cancer that originates from the submucosal glands of the tracheobronchial tree. MECs are rare, constituting 0.1% to 1.0% of lung carcinomas. Recent advancements in minimally invasive techniques allow for complete robotic resection of tracheal MECs.

CASE DESCRIPTION

Both patients, aged 14 and 25 years, with no significant medical history, presented with symptoms of hemoptysis and dyspnea on exertion. Spirometry revealed a flow volume loop indicative of central airway obstruction. CT-scan showed a midtracheal tumor. Rigid bronchoscopy was performed for debulking the tumor, confirming the pathological diagnosis of low-grade MEC. Discussion at the multidisciplinary team meeting led to the decision to proceed with primary surgical resection. In both cases a circumferential tracheal resection with intrathoracic end-to-end anastomosis under veno-venous extracorporeal membrane oxygenation (VV-ECMO) was performed via a five-port robotic approach (daVinci surgical system). Peroperative flexible bronchoscopy was used to mark the lesions. In the first case a PDS 3-0 (Ethicon) was used for the anastomosis, whereas in the second case a V-loc 3-0 180 (Covidien) was chosen. In the first patient, peroperative frozen section showed inflammation without malignancy. Further examination during paraffin sectioning raised the suspicion of malignant invasion at the distal surgical margin. After multidisciplinary discussion, additional resection via anterolateral thoracotomy was performed the following day, with no evidence of malignancy on final pathology. Both patients had uncomplicated recoveries, with discharge on postoperative days 7 and 4. Thirty-day follow-up showed normal flexible bronchoscopy. The first patient had no evidence of recurrence at 5-year follow-up.

CONCLUSIONS

A fully robotic thoracoscopic approach for midtracheal MEC resection under VV-ECMO is feasible and offers advantages over an open approach. Peroperative flexible bronchoscopy is essential to locate the lesion after endotracheal debulking. Postoperative radiotherapy can be considered in cases of incomplete resection, potentially avoiding the need for reoperation.

Disclosure: No significant relationships.
Keywords: Tracheal Surgery, Complete Robotic Resection, Mucoepidermoid Carcinoma.

P-253

ROBOTIC SURGERY AFTER NEOADJUVANT TREATMENT COMPARED TO THORACOTOMY: A SINGLE CENTER EXPERIENCE

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[1]*IRCCS Regina Elena National Cancer Institute, Rome, Italy*
[2]*Sapienza University of Rome, Rome, Italy*
[3]*University of Perugia, Perugia, Italy*

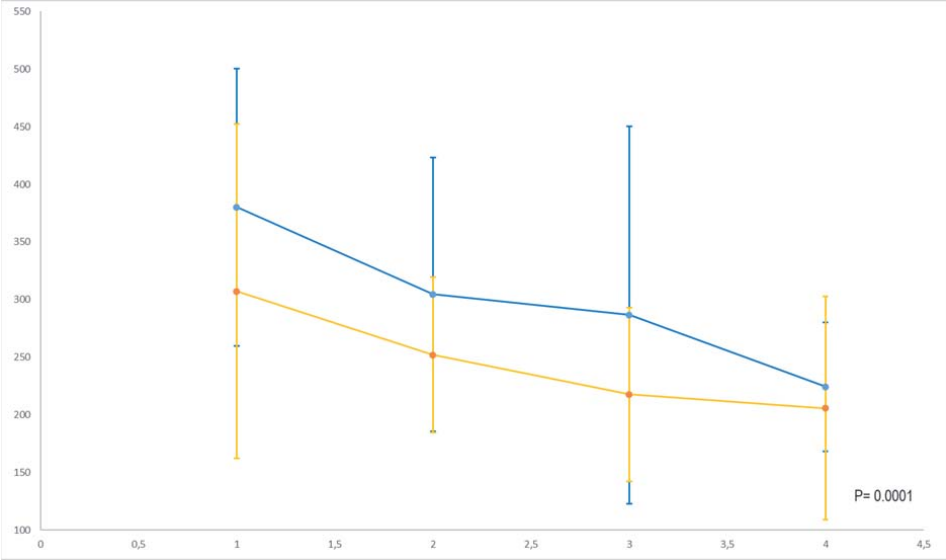
OBJECTIVES
Despite thoracotomy remaining the gold standard in the treatment of locally advanced NSCLC after induction treatment, robotic surgery may improve perioperative outcomes. The object of this study is to compare robotic surgery with thoracotomy for the treatment of NSCLC after neoadjuvant treatment, analyzing primary the postoperative complications and secondary the length of hospital stay, the daily drainage volume and the neutrophils to lymphocyte ratio.

METHODS
The study was designed as a single center and retrospective analysis. In this study, patients with locally advanced NSCLC underwent neoadjuvant treatment followed by surgery between 01/2017 and 12/2023 were evaluated.

RESULTS
A total of 60 patients were collected of which 33 (55%) were male. 52 patients reported a history of smoke and 37 had less than 65 years. The most frequent clinical stage was IIIa (38,3%). Platinum based chemotherapy was delivered in 56 patients; it was associated with immunotherapy in 28 cases and to radiotherapy in 14 cases without any III or IV grade of toxicities related to the treatment.
All the patients underwent lobectomy and systematic lymphadenectomy, 25 via robotic surgery. The hospital stay was statistically significantly shorter in the robotic group (6 days (4-17) vs 8 (5 - 29); p= 0.02). Postoperative complication rates were lower (42,8% vs 20%, p=0.04) and the daily drainage output was significantly lower (p=0.0001, fig.1). The NLR evaluated in V postoperative days was significantly lower in the robotic group (3.36±1.99 vs 7.27±2.59, p=0.0001).

CONCLUSIONS
From the results obtained in this study, in patients with locally advanced resectable NSCLC, robotic surgery seems to be safe and feasible yielding a fewer complication rate, shorter hospital stay, less daily drainage volume and a lower NLR.

Disclosure: No significant relationships.
Keywords: NSCLC, Robotic, RATS, Chemo-Immunotherapy, Lung Cancer.


550
500
450
400
350
300
250
200
150
100
0
0,5
1
1,5
2
2,5
3
3,5
4
4,5
P= 0.0001

P-254

ROBOTIC SURGERY HAS ERGONOMIC BENEFITS OVER THORACOSCOPIC SURGERY IN LOBECTOMY

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[2]*Department of Thoracic Surgery, Barts Thorax Centre, St Bartholomew's Hospital, London, United Kingdom*

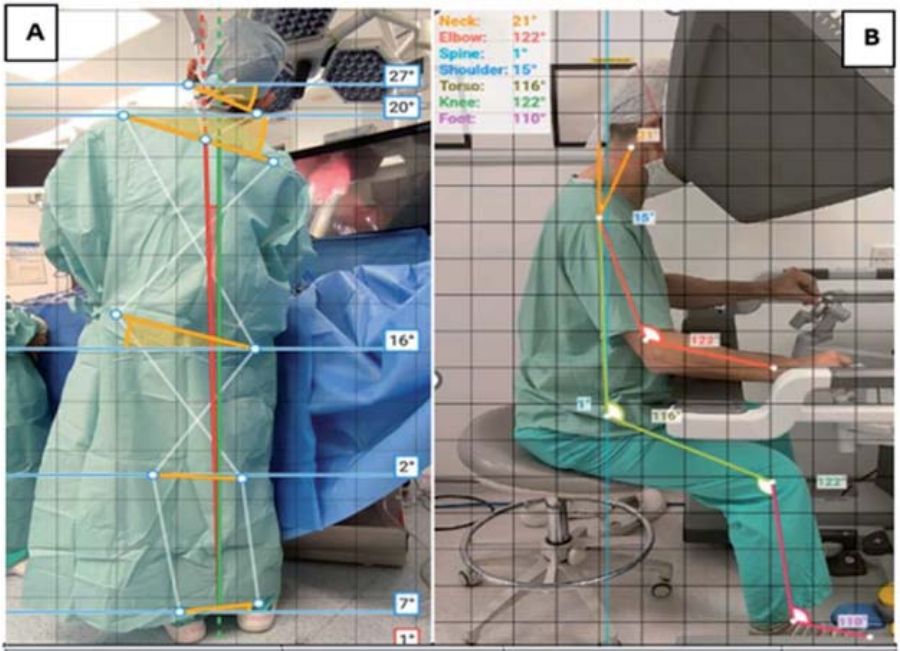
OBJECTIVES
Adoption of suboptimal ergonomic postures during surgical procedures increases the susceptibility to work-related musculoskeletal disorders. We investigated whether robotic-assisted-thoracic-surgery (RATS) had superior ergonomics to video-assisted-thoracoscopic-surgery (VATS) in lobectomy using the rapid upper limb assessment (RULA) score. This validated system evaluates posture and detects ergonomic hazards. We prospectively compared surgeons' ergonomics during dissection and division of pulmonary vessels for both techniques.

METHODS
Joint angles of seven surgeons were tracked in real-life procedures using two software applications (Kinovea-0.9.5 and APECS platform). Sagittal and dorsal videos were recorded during da Vinci Xi robot (Group-1=25) and multiportal thoracoscopic (Group-2=23) lobectomies. We calculated neck, shoulder, elbow, trunk, hip and knee angles to estimate the RULA score for ergonomic risk during dissection and division of vascular structures. Dorsal videos of operating surgeons were recorded to estimate neck, shoulder and pelvic tilt angles. In addition, Cronbach Alpha for the RULA scores was assessed to ensure the robustness of the results.

RESULTS
Cronbach Alpha for RULA scores was 0.88, indicating a satisfactory coherence of the scores for both software applications. Mean angles of neck, trunk, neck tilt, shoulder tilt and pelvic tilt were significantly higher in the VATS group, while the mean elbow angles were significantly greater in the RATS group ($p<0.05$). There was no statistical significance between the groups regarding the mean angles of the shoulder joint ($p=0.7$) (Image1).
Median RULA scores were significantly lower in RATS (5) compared to thoracoscopic (7) group ($p<0.05$). The RULA score for VATS indicates a high ergonomic risk, whilst for RATS indicates a low to medium risk.

CONCLUSIONS
Our results suggest that RATS is more ergonomic than VATS lobectomy. This suggests that there are health benefits with RATS for surgeons which may improve their long-term (occupational) survival and warrants more ergonomic training within VATS programmes.

Disclosure: No significant relationships.
Keywords: RATS, Robotic Surgery, Ergonomics, VATS, Lobectomy.



(Mean±SD)	Group-1 Robotic lobectomy (n=25)	Group-2 Thoracoscopic lobectomy (n=23)	p-value
Shoulder joint	21.7±4.3	22.4±8.6	0.748
Elbow joint	106.3±10	69.5±6.9	<0.05
Neck joint	41.7±5	47.7±6.2	0.001
Trunk	20.9±4.6	24.7±4.4	0.006
Knee joint	112.1±9.1	180 (standing)	<0.05
Hip joint	99.7±5.4	180 (standing)	<0.05
RULA score	4.7±0.5	6.9±0.6	<0.05
Time to complete isolation of vessels	19.3±6.9 minutes	20.1±4.9 minutes	0.664
Neck tilt	4.8±2.8	17.7±6.8	<0.05
Shoulder tilt	5±1.3	14.4±5.6	<0.05
Pelvic tilt	0 (sitting)	13.5±5	<0.05

P-255

ROBOTIC VERSUS VIDEO-ASSISTED THORACOSCOPIC MCKEOWN ESOPHAGECTOMY FOR SQUAMOUS CELL CARCINOMA ESOPHAGUS: A RETROSPECTIVE COMPARISON OF SHORT-TERM ONCOLOGICAL AND PERIOPERATIVE OUTCOME

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OBJECTIVES
Minimally invasive esophagectomy is the recommended procedure for carcinoma esophagus. It is associated with less morbidity without compromising oncological outcomes. Robotic approach offers improved dexterity with a high definition 3-dimensional view.

METHODS
This retrospective single center study, included 60 patients of esophageal SCC, over the study duration from January 2019 to December 2023, divided into two groups: RA-Robotic Assisted (24) and TA-Thoracoscopic Assisted (36). The short term oncological and peri-operative outcomes were compared from a prospectively maintained esophageal disease database.

RESULTS
The RA and TA groups were comparable in pre-operative clinical characteristics. The duration of thoracic phase of surgery was significantly longer in the RA group compared to TA group (168 min vs 133 min; p-value: 0.04). The intraoperative blood loss was similar in both the groups. The lengths of hospital-stay and ICU stay were not different between the two groups. Though the lymph node yield was higher in the RA group, it did not reach statistical significance (21 (IQR: 17,25) vs 20 (17,27); p value: 0.08). Recurrent Laryngeal Nerve injury leading to vocal cord palsy was similar in both the groups. The overall complication rates, as well as complications requiring intervention (Clavien-Dindo grade IIIa and above), were similar in both arms of our study.

CONCLUSIONS
Better quality lymphadenectomy could be achieved in RA with similar peri-operative outcomes, although the survival benefit was not clear. Prospective randomized studies comparing the RA and TA are required.

Disclosure: No significant relationships.
Keywords: Esophagectomy, Robotic, Thorocoscopic.

P-256

ROBOTIC-ASSISTED THORACOSCOPIC SURGERY (RATS) EXTENDED PNEUMONECTOMY FOR T4 (AORTIC ADVENTITIA) NON SMALL CELL LUNG CANCER (NSCLC) AFTER INDUCTION TREATMENT FOLLOWING PROPHYLACTIC AORTIC STENT IMPLANTATION

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OBJECTIVES

A 66-year old patient with a diagnosis of cT4N0M0 left central squamous cell carcinoma invading the descending aortic wall without any signs of lymph node involvement. His personal history includes a COPD Class I Group A, yet with a sufficient pulmonary function for an extensive resection or even pneumonectomy. The multidisciplinary tumor board recommended induction immunochemotherapy treatment due to the unique nature of the case.

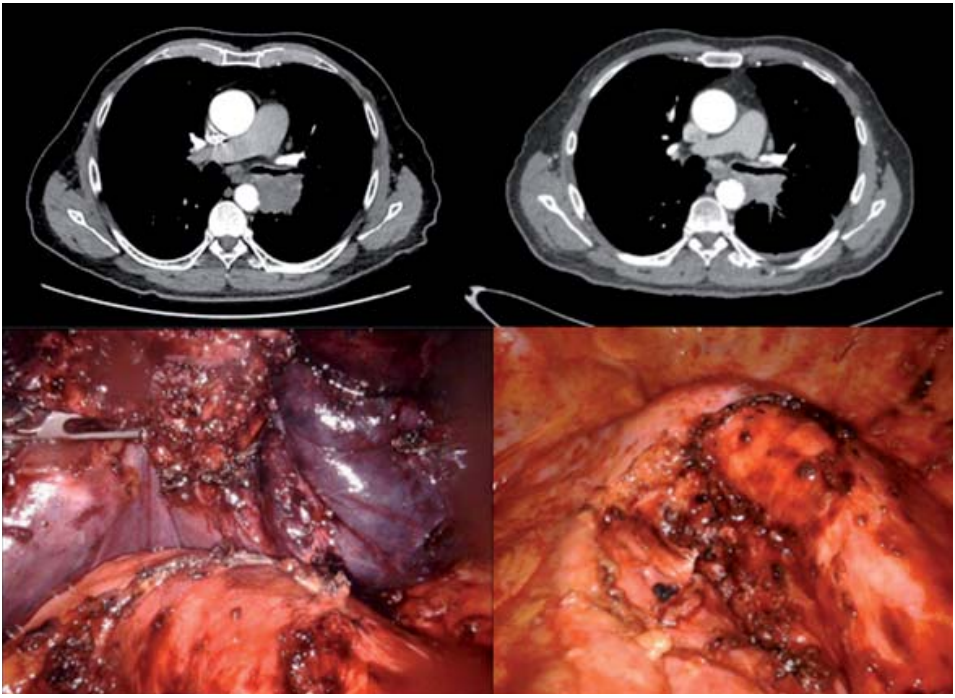
CASE DESCRIPTION

The patient demonstrated a partial response after the induction immunochemotherapy treatment so we proceeded to surgical intervention. For protection of the aortic wall we followed our protocol in these situations to insert upfront an aortic stent graft - GORE cTAG 28x28x150mm (landing zone 4-5) with a day before surgery – an extended left pneumonectomy including lymphadenectomy using the Robotic-Assisted Thoracic Surgery (RATS) approach. Notably, during the procedure, a meticulous separation of the tumor from the aorta was achieved (Figure 1). The patient's postoperative course was uneventful, with a hospital stay of six days. The final pathology revealed a Stage IIIA disease, characterized by ypT2a ypN2 cM0. The first CT scan 3 months after surgery revealed regular postoperative changes with no evidence of local recurrence, lymph node or distant thoraco-abdominal metastases.

CONCLUSIONS

This successful management highlights the effectiveness of a multimodal approach, combining innovative induction treatments, precise surgical techniques, and meticulous postoperative care. The presented case demonstrates the importance of collaborative decision-making within a tumor board setting and the successful application of advanced surgical interventions to achieve optimal outcomes in complex oncological cases.

Disclosure: No significant relationships.



P-257

ROLE OF IMMUNOTHERAPY IN PATHOLOGICAL OUTCOMES IN ADVANCED LUNG CANCER SURGERY

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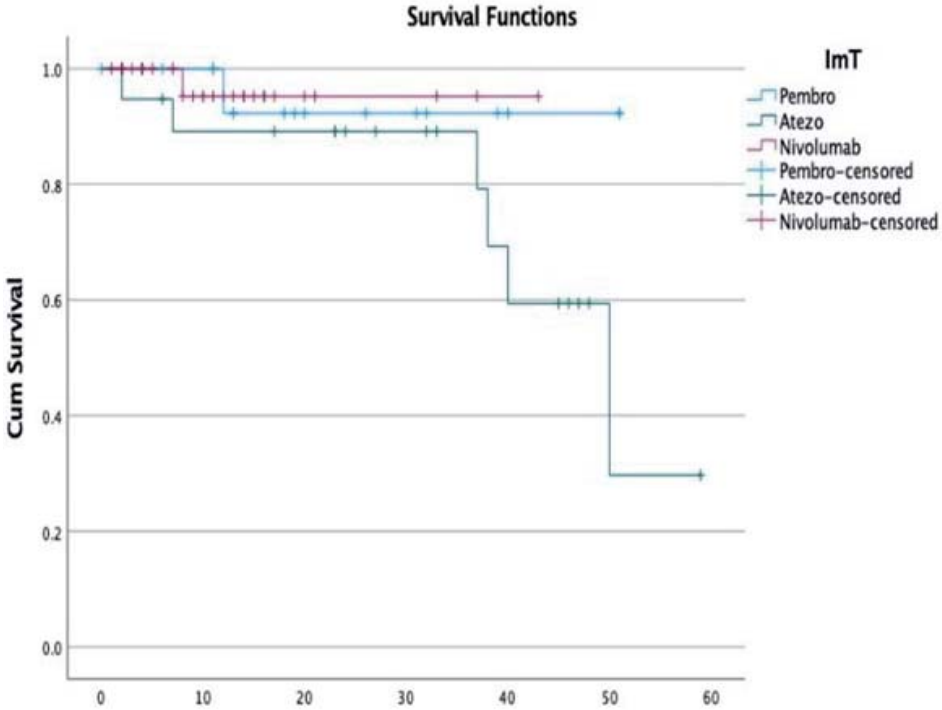
OBJECTIVES
The standard of care for early-stage non-small cell lung cancer is surgery. In advanced stage and oligometastatic disease, in the last few years, the introduction of immune checkpoint inhibitors (ICI's) has greatly changed the paradigm of treating lung cancer.

METHODS
The prospectively recorded data of 1789 patients who had lung resection due to non-small cell lung carcinoma performed between 2006 and 2023 were retrospectively analyzed. All patients underwent surgery based on the consensus of the multidisciplinary oncology board. Demographic, operative, and pathological data were collected and the response rates analysed.

RESULTS
Of the 391 patients operated after neoadjuvant therapy, 74 patients received chemo-immunotherapy were retrospectively analyzed. Pembrolizumab (n=21), atezolizumab (n=19), and Nivolumab (n=34) combined with standard chemotherapy administered. Number of patients with T4 was 24 (32,4%), at least one lymph node metastasis at the N2 level in 49 (66,2 %) patients, oligometastatic disease in 17 (23%) patients. Mean PD L1 value was 38.18 (n: 0-100, SD 35.131) No operative mortality was observed. Complete response and major pathological response rate was 48,6% (n:36). No major complications were observed and no statistical difference was found between the 3 groups of patients in terms of minor complications. There was no statistically significant difference in survival between the drugs There was no statistically significant difference between the drugs in terms of lymphatic (p:0,096), vascular (p:0,906) and pleural invasion (p:0,330). Meanwhile, although the number of patients is low., atezolizumab was statistically significantly higher in major pathological response rates (p:0.03).

CONCLUSIONS
The use of IMT as neoadjuvant in non-small cell lung cancer is a safe and effective method in terms of pathological response. When early post-operative results are evaluated, it is suggested that it will provide a survival advantage associated with complete response rates.

Disclosure: No significant relationships.
Keywords: Advanced Lung Cancer, Neoadjuvant Immunotherapy, Surgery.



P-258

ROUTINE CONVENTIONAL AIR LEAK TESTING IS NOT REQUIRED FOR ROBOTIC MAJOR PULMONARY RESECTIONS

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OBJECTIVES
Although conventional air leak testing is routinely performed at the end of major pulmonary resections, we anticipated that it may not be necessary with a robotic approach because the high-definition 3D surgical view and precise, tremor-free motion of the robotic approach would result in a lower incidence of postoperative air leak, which was retrospectively evaluated.

METHODS
A total of 582 cases of major lung resection using minimally invasive approaches between February 2019 and November 2023 at our institution were included in this study. All patients were divided into two groups including thoracoscopic (n=474) and robotic (n=108) approaches. Conventional air leak testing was performed in all patients in the thoracoscopic approach but not in the robotic approach. If no air leak was observed immediately after surgery, the drain was removed on the day of surgery or on postoperative day (POD) 1. After propensity score matching of patient backgrounds between the two groups, perioperative outcomes were compared between the two groups (n=99 each). The primary endpoint was the rate of drain removal on POD 2 or later. In addition, factors associated with drain removal on POD 2 or later in the robotic group were identified.

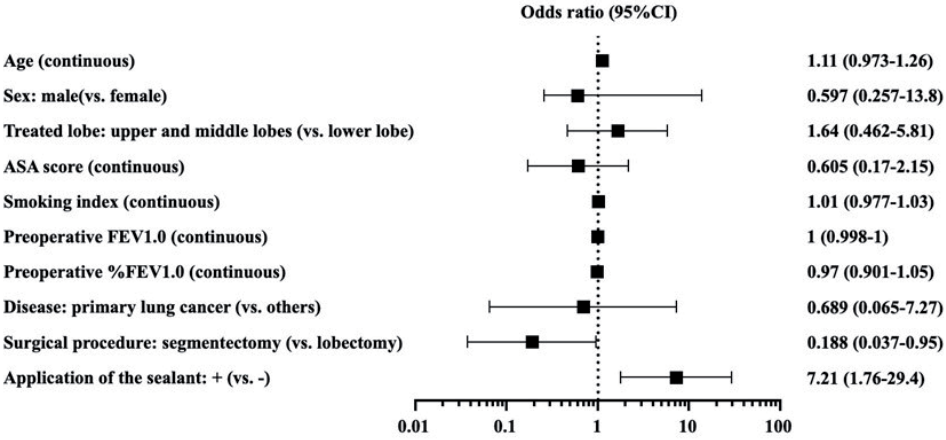
RESULTS
Table 1 shows the perioperative outcomes between the two groups. The rate of drain removal on POD2 or later was not significantly different (p=0.08). Figure 1 shows the multivariate analyses of factors associated with drain removal on POD2 or later in the robotic approach. Among the variables, sealant application (p=0.006) and segmentectomy (vs. lobectomy, p=0.04) were significantly associated with this.

CONCLUSIONS
A robotic approach may result in an equivalent POD 1 drain removal rate for major lung resections, even in the absence of air leak testing. However, it may be useful in selected patients requiring sealant placement or undergoing lobectomy.

Disclosure: No significant relationships.
Keywords: Robot, Air Leak, Major Pulmonary Resection.

Variables	VATS (n=99)	RATS (n=99)	p-value
Operative time, minutes, median (IQR)	140 (115-165)	140 (115-165)	0.856
Blood loss, gram, median (IQR)	unmeasurable (unmeasurable-50)	unmeasurable (unmeasurable-30)	0.128
Postoperative drainage time, days, median (IQR)	1 (1-2)	1 (1-1)	0.016
Drain removal on POD2 or later, n (%)	27 (27.3)	16 (16.2)	0.084
Postoperative hospital stay, days, median (IQR)	2 (2-3)	2 (2-3)	0.024
Morbidity (Clavien-Dindo classification grade?3), n (%)	10 (10.1)	6 (6.1)	0.435
Readmission within 30 days after the operation, n (%)	7 (7.1)	1 (1)	0.065
Conversion to thoracotomy, n (%)	4 (4)	0 (0)	0.121
30-day postoperative mortality, n (%)	0 (0)	0 (0)	
Application of sealant, n (%)	27 (27.3)	22 (22.2)	0.510

Figure 1: Multivariate analyses of factors associated with drain removal on POD2 or later in the robotic approach.



P-259

SAFE TRANSITION FROM VIDEO ASSISTED THORACIC SURGERY (VATS) TO ROBOTIC ASSISTED THORACIC SURGERY (RATS) FOR LUNG CANCER TREATMENT: A SINGLE INSTITUTION EXPERIENCE

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OBJECTIVES
Video-Assisted Thoracic Surgery (VATS) and Robot-Assisted Thoracic Surgery (RATS) have become the standard treatment of Non-Small Cell Lung Cancer (NSCLC).
The aim of the present analysis is to assess the short-term outcomes during the transition from VATS to RATS anatomical resections for NSCLC in a single institution.

METHODS
We retrospectively collected perioperative data of all consecutive patients who underwent RATS lung resections for NSCLC from the beginning of our robotic program experience (January 2020) to December 2022; concurrently, we compared outcomes with those of a cohort of VATS lung resection for NSCLC operated in the same period of time.

RESULTS
We collected a total of 298 patients. VATS surgery was performed in 205 patients (68.8%) and RATS in 93 (31.2%). Table 1 reported all perioperative outcomes. Lobectomy was performed in 242 (81.2% of total) patients. Conversion to thoracotomy was required in 6 patients, only 1 in the RATS group. 90 patients developed postoperative complications (PC), of which 21 were severe (ClavienDindo grade III and IV); we observed a significant higher incidence of severe PC in the VATS group (p=0.011), but no significative correlations in term of readmission (p=0.432), reoperation (p=0.127) or the need of transfusion (p=0.579). Surgicaltime was significantly longer in the RATS group (p=0.003), whereas in-hospital length of stay (LOS) was shorter (even though non-significant, p=0.117). When we analyzed outcomes of the latest 50 RATS cases (after completing the learning curve) postoperative length of stay remained similare (p=0.114), but we observed a reduction in RATS surgical time that become similar to VATS surgery (p=0.256).

CONCLUSIONS
RATS and VATS are associated with similar perioperative outcomes, but we observed a higher incidence of severe complications in the VATS group. After completion of the learning curve, surgical time becomes comparable to standard VATS and we notice a trend towards a shorter LOS.

Disclosure: No significant relationships.
Keywords: RATS, VATS, NSCLC.

Variable	VATS (n=205)	RATS (n=93)	p
Gender			
Male	108	46	0.606
Conversion			
Yes	5	1	0.437
Side			
Right	79	39	0.578
Procedure			
Segmentectomy	26	19	
Lobectomy/bilobectomy	169	73	0.116
Mean OR time (min ± SD)	150.52 (±50.7)	183.3 (±75.7)	0.003
Length of stay (min±SD)	9.3 (±27.7)	6.5 (±6.2)	0.117
Postoperative complications			
Yes	61	29	0.804
ClavienDindo III and IV			
Yes	19	2	0.011
Reoperation			
Yes	5	0	0.127
Redrainage			
Yes	2	1	0.434
Discharge with drain			
Yes	8	4	0.884
Readmission			
Yes	5	1	0.432
30-day mortality			
Yes	3	0	0.130

Variable	VATS (n=205)	RATS (latest 50 cases)	p
Gender			
Male	108	24	0.472
Conversion			
Yes	5	0	0.260
Side			
Right	79	26	0.106
Procedure			
Segmentectomy	26	16	
Lobectomy	169	35	0.084
Mean OR time (min ± SD)	150.5 (±50.7)	163.3 (±54.7)	0.256
Length of stay (min±SD)	9.3 (±27.7)	4.9 (±2.3)	0.114
Postoperative complications			
Yes	61	13	0.548
ClavienDindo III and IV			
Yes	19	0	0.020
Reoperation			
Yes	5	0	0.258
Redrainage			
Yes	5	0	0.259
Discharge with drain			
Yes	8	1	0.494
Readmission			
Yes	5	0	0.258
30-day mortality			
Yes	3	0	0.263

P-260

SAFETY AND EFFICACY OF RIGHT SUPERIOR BRONCHIAL PATHWAY NODAL DISSECTION FOR RIGHT LOWER LOBE LUNG CANCER: A PROPENSITY SCORE MATCHED ANALYSIS

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OBJECTIVES
The conventional surgical procedure for lung cancer is lobectomy plus mediastinal lymph node dissection, but the extent of nodal dissection is controversial. The nodal metastatic pathway of right lower lobe lung cancer includes the inferior bronchial pathway from #11i to #4R via #7 and the right superior bronchial pathway from #11s to #4R via #12u. We have actively performed nodal dissection of the right superior bronchial pathway (NDRSBP+) in patients with the cN1-2 status, or metastasis in the #11s lymph node by intraoperative rapid diagnosis even in cases of N0 preoperatively. We report the safety and efficacy of NDRSBP+.

METHODS
Eighty-three patients who underwent lobectomy plus systemic nodal dissection for right lower lobe lung cancer from 2009 to 2022 were included. NDRSBP+ was mainly performed in the patients described above. However, NDRSBP+ was not conducted in elderly patients, heavy smokers, patients with diabetes mellitus, or others at risk of bronchial ischemia (NDRSBP-). We evaluated perioperative complication risks, disease-free survival (DFS), and overall survival (OS) between the two groups. A retrospective cohort analysis was performed applying a propensity score.

RESULTS
Thirty-nine patients underwent NDRSBP+. In the pre-match cohort, the operative time was significantly longer in the NDRSBP+ group (310 minutes versus 280 minutes). Blood loss was significantly greater in the NDRSBP+ group (149 ml versus 92 ml). Postoperative complications did not differ. In the post-match cohort, pathological lymph node metastasis was significantly more frequent in NDRSBP+ group (7/15 versus 2/15, $p = 0.04$), but there were no significant differences in DFS and OS (5-year DFS 52.5% for NDRSBP+ versus 56.4% for NDRSBP-, 5-year OS 79.7% versus 92.9%). Locoregional recurrence and distant recurrence rates were not significantly different.

CONCLUSIONS
NDRSBP+ was deemed safe. Further study is required to evaluate the efficacy of NDRSBP+.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Nodal Dissection, Lymph Node Dissection.

P-261

SALVAGE PNEUMONECTOMY: IS STILL AN EFFECTIVE METHOD OF TREATMENT?

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OBJECTIVES
The term "salvage (or 'rescue') surgery" has has been defined as surgical resection of persistent or recurrent tumors after previous local treatments with curative intent or exclusive chemo-radiotherapy in the case of bulky tumors originally considered ineligible for surgery. It should therefore be considered a last attempt to offer the patient a curative treatment for their disease. We present our series of salvage pneumonectomies.

METHODS
Among almost 1000 thoracic procedures , 41 patients (4.1%) underwent salvage pneumonectomies due to locally persistent advanced disease after induction therapy, or in cases of lung cancer mimicking huge abscesses, where induction therapy would be unsuitable. In this series there are also cases included with stage III lung cancer invading the whole lung with O2 dependent patients due to the existence of shunt. There were 36 men and 5 women ranging in age from 56 to 78 years.

RESULTS
After a thorough examination and MDT consultation including an informed consent, the patients were led to surgery. Under general anesthesia 32 of them were submitted to extrapericardial pneumonectomy and the rest to intrapericardial one. Perioperative mortality reached 2.4% due to myocardial infarction in one case. Invasive physiotherapy diminished perioperative morbidity but hospitalization was longer ranging from 7 to 14 days. No bronchopleural fistula occurred. The overall free survival ranged from 6 months to 3 years.

CONCLUSIONS
1. Salvage Pneumonectomy is generally indicated for malignant tumours after failure of initial treatment in very selected patients. 2. In our series we included also cases producing shunt due to the invasion of the whole lung. 3. Despite the larger perioperative trauma a careful preoperative assessment along with an experienced team of thoracic surgeons, pulmonologists and oncologists can offer patients favourable outcomes and a better quality of life.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Induction Treatment, Salvage Pneumonectomy.

P-262

SALVAGE SURGERY AFTER IMMUNOTHERAPY FOR ADVANCED NON-SMALL CELL LUNG CANCER: A RETROSPECTIVE STUDY

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OBJECTIVES
In advanced NSCLC patients, previously excluded from surgery, immune-checkpoint inhibitors(ICIs) can lead to significant tumor response making surgical resection with radical intent possible.
Intraoperative surgical troubles and perioperative complications are one of the main concerns related to these treatments.
This study analyzes the safety and feasibility of surgery in advanced NSCLC treated with ICIs and evaluate the pathological and oncological effectiveness of the treatment.

METHODS
This is a single Centre retrospective study of 23 consecutive III-IVA NSCLC, surgically resected with radical intent after ICIs therapy between October 2016 and November 2023. Before the treatment, all patients were deemed unresectable at a Multidisciplinary Tumor Board and received the best systemic therapy on the basis of PD-L1 expression. Considering the great response, they were re-evaluated and finally addressed to radical surgery. Stage IVA patients underwent locoregional metastatic treatment with radiotherapy or surgery.
Pathological response was assessed in accordance with the International Association for the Study of Lung Cancer(IASLC) guidelines.

RESULTS
Patients' characteristics are resumed in Table 1.
Median treatment duration was of 4 cycles, with no interruption required. Lobectomy was the most common resection (15 cases, 65%). A minimally invasive approach was performed in 15 patients (65%), with conversion to thoracotomy in 2 (13%) because of dense broncho-vascular fibrosis. One patient (2%) had intraoperative atrial fibrillation. No intra or post-operative deaths were reported.
Post-operative complications were observed in 4 patients (17%), one surgically related (hemothorax, 2%). Complete and major pathological response (CPR-MPR) were respectively reported in 10 (43%) and 5 patients (22%). CPR had important clinical relevance because all the patients are still alive (p=0.097, Figure 1).
Median follow-up was of 13 months; two-years survival rate was 80%.

CONCLUSIONS

According to our experience, in advanced NSCLC responding to immunotherapy, rescue surgery is feasible and associated with low morbidity, high CPR-rate and satisfying medium-term survival.

Disclosure: No significant relationships.

Keywords: NSCLC, Immunotherapy, VATS.

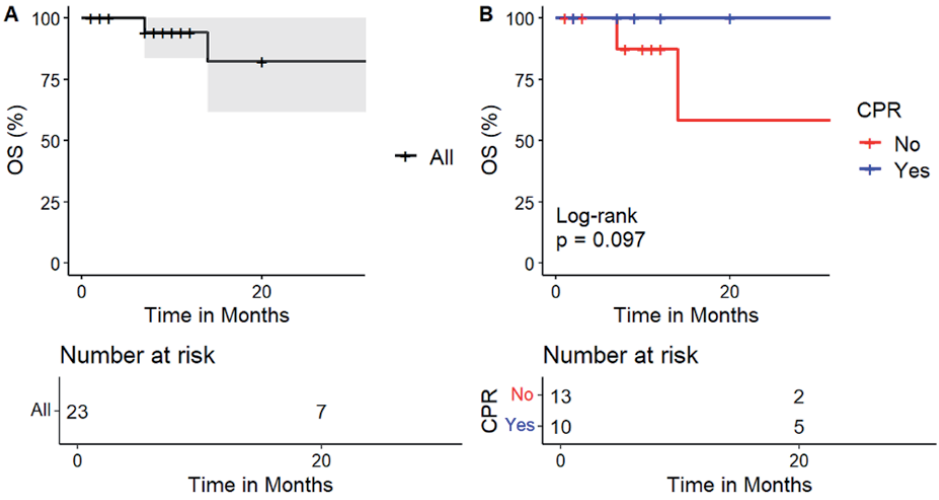

Table 1. General, surgical and oncological characteristics of the patients

Variable	23 patients
Age	64 (59-72)
Gender:	
• Male	• 10 (43%)
• Female	• 13 (57%)
PS-ECOG at diagnosis:	
• 0	• 21 (91%)
• 1	• 2 (9%)
Spirometry:	
• FVC (%)	• 100 (80 - 109)
• FEV1 (%)	• 94 (86 - 104)
• DLCO (%)	• 62 (56 - 75)
Histology:	
• Adenocarcinoma	• 18 (78%)
• Squamous Cell Carcinoma	• 5 (22%)
Pre-treatment Clinical Stage (cTNM):	
• IIIA	• 5 (22%)
• IIIB	• 9 (39%)
• IIIC	• 1 (4.3%)
• IVA	• 8 (35%)
Site of metastasis:	
• CNS	• 3 (37%)
• Bone	• 2 (25%)
• Pleura	• 1 (13%)
• Adrenal gland	• 2 (25%)
Type of treatment:	
• Chemo-immunotherapy	• 20 (87%)
• Immunotherapy	• 3 (13%)
Type of ICIs treatment:	
• Atezolizumab	• 1 (4.3%)
• Durvalumab	• 4 (17%)
• Pembrolizumab	• 16 (69.5%)
• Nivolumab	• 2 (8.6%)
Type of metastasis treatment:	
• Surgery	• 5 (62%)
• RT	• 2 (25%)
• RT + surgery	• 1 (12%)
Toxicity to immunotherapy:	
• Yes	• 4 (17%)
• No	• 19 (83%)

Table 1. General, surgical and oncological characteristics of the patients (continuation)

Variable	23 patients
Clinical Response to treatment (RECIST 1.1 criteria):	
• CR	• 2 (8.7%)
• PD	• 2 (8.7%)
• PR	• 17 (74%)
• SD	• 2 (8.7%)
Surgical approach:	
• Thoracotomy	• 8 (35%)
• VATS	• 15 (65%)
Conversion:	
• Yes	• 2 (13%)
• No	• 13 (87%)
Type of pulmonary resection:	
• Lobectomy	• 15 (65%)
• Lobectomy + Segmentectomy	• 3 (13%)
• Bilobectomy	• 1 (4.3%)
• Pneumonectomy	• 3 (13%)
• Wedge	• 1 (4.3%)
Mean operative time (mins)	165 (128 - 215)
Post-operative Complications:	• 4 (17%)
• Hemothorax	• 1 (25%)
• Pneumonia	• 2 (50%)
• Arrhythmias (Atrial Fibrillation)	• 1 (25%)
Pathological Stage (pTNM):	
• 0 (CPR)	• 10 (43%)
• IA1	• 1 (4.3%)
• IB	• 2 (8.7%)
• IIA	• 1 (4.3%)
• IIB	• 3 (13%)
• IIIA	• 5 (21.7%)
• IVA	• 1 (4.3%)
Type of Pathological response:	
– Major Pathological Response (MPR)	5 (21%)
– Complete Pathological Response (CPR)	10 (43%)
Relapse	
– Yes	5 (21%)
– No	18 (79%)
Type of Relapse	
– Loco-regional	1 (16%)
– Systemic	4 (68%)

Notes: Data are presented as median (IQR) or frequency. **Abbreviations:** FEV1, Forced Expiratory Volume in the first second; DLCO, Diffusion Lung Carbon Monoxide; CNS, Central Nervous System; CR: Complete Response; PD: disease progression; PR: Partial Response; SD: Stable Disease.

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SARCOPENIA MEASURED BY THREE DIMENSIONAL (3D) PREOPERATIVE CHEST TOMOGRAPHY AS A RISK FACTOR FOR SURGICAL COMPLICATIONS IN BRONCHIECTASIS PATIENTS

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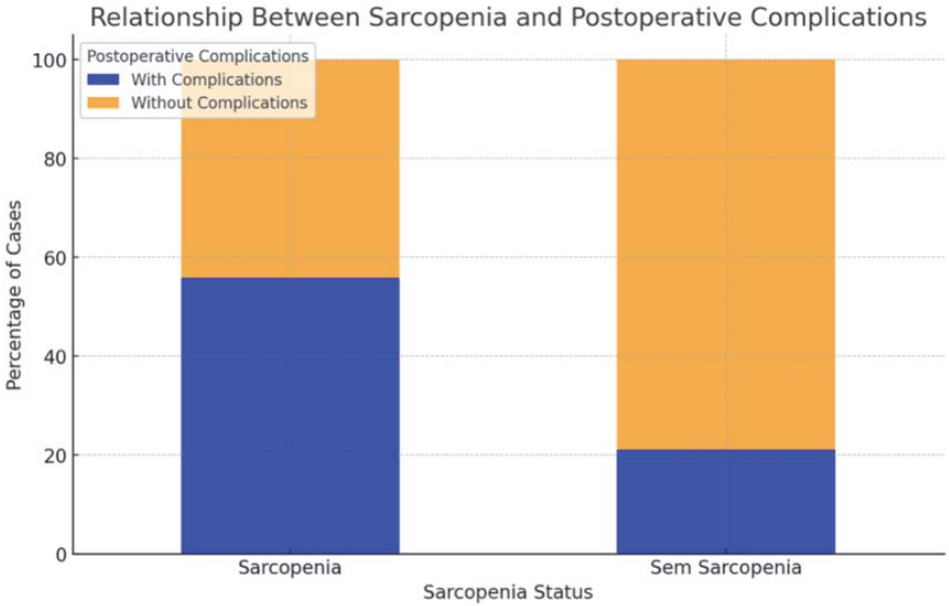
OBJECTIVES
The primary goal was to examine the association between sarcopenia, identified through 3D preoperative chest CT scans, and the occurrence of postoperative complications in patients with non-cystic fibrosis bronchiectasis undergoing pulmonary resection.

METHODS
This retrospective study analyzed chest CT scans from Jan/2010 to Jun/2023, focusing on muscle mass assessment at the T12 and L1 vertebral levels. Utilizing 3D Slicer software, Skeletal Muscle Indices (SMIs) were calculated, including the Appendicular Muscle Mass Index (SMA) and the Appendicular Muscle Radiation Attenuation (AMR). Specific myopenia criteria were applied, with SMA and SMI thresholds set for males and females at T12 and L1 levels. Statistical analysis was conducted using Chi-square and Fisher's exact tests for categorical variables, the Kolmogorov-Smirnov test for quantitative variables, Student's t-test for normally distributed data, and the Mann-Whitney test for non-normal distributions, enabling a detailed comparison across groups.

RESULTS
The study included 62 patients, evenly distributed by sex, aged 13-73 years (average 45.4 years). Surgical procedures varied, with 62.5% undergoing lobectomies, 23.4% segmentectomies, and 17.2% pneumonectomies, reflecting varying lung disease severities. Notably, 45.2% experienced postoperative complications such as empyema, prolonged air leaks, and hemothorax. A significant correlation (p=0.02) was found between sarcopenia and increased postoperative complications, indicating a higher risk of adverse outcomes in sarcopenic patients.

CONCLUSIONS
Despite its small sample, this study offers valuable insights into the relationship between sarcopenia and postoperative complications in this population. It highlights the importance of considering sarcopenia in preoperative assessment and planning.

Disclosure: No significant relationships.
Keywords: Sarcopenia, Preoperative Chest CT, Bronchiectasis, Postoperative Complications, Skeletal Muscle Indices.


Relationship Between Sarcopenia and Postoperative Complications
Postoperative Complications
With Complications
Without Complications
Percentage of Cases
100
80
60
40
20
0
Sarcopenia
Sem Sarcopenia
Sarcopenia Status

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SCHWANNOMA IN INTERMEDIATE BRONCHUS: ROBOTIC BRONCHOPLASTY

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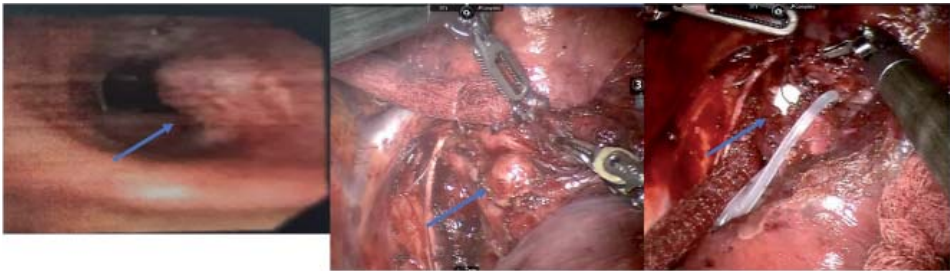
OBJECTIVES
Schwannomas in the thorax are usually located in the posterior mediastinum or costovertebral angle. Endobronchial schwannomas are very rare, and few reported in the literature. We describe a case located in the intermediate bronchus.

CASE DESCRIPTION
A 24 year old female patient had cough and was evaluated for COVID19 with a CT scan. The exam revealed a smooth surface heterogeneous density next to the posterior wall of the right intermediate bronchus, measuring 1.2 cm in the long axis, generating focal bulging and partial reduction of lumen due to endobronchial component. Bronchoscopy was performed with evidence of an endobronchial lesion with partial obstruction. The lesion was biopsied; however, pathology was not elucidative. The surgery planned was wedge resection of the tumor with bronchoplasty. Robotic platform was Da Vinci Si. We used 3 robotic arms and one incision for the assistant. The type of lymphadenectomy was selected. We exposed the right intermediate bronchus and resected the lesion with margin, and we used barbed suture for the bronchoplasty. Pathology report showed a 0.9cm schwannoma, R0 resection and negative lymph nodes. Immunohistochemical study revealed positive staining for S100 protein and SOX10 (A-2). The patient is asymptomatic 15 months from surgery and CT scan has no signs of tumor relapse or stenosis.

CONCLUSIONS
Endobronchial schwannoma is a benign and rare tumor. Endobronchial schwannoma is an exceedingly rare diagnosis. The recommend treatment remains surgical resection. Preoperative bronchoscopy helps planning the surgery. Often, the diagnosis only occurs after the complete resection of the lesion.

Disclosure: No significant relationships.
Keywords: Schwannoma, Benign Tumor, Endobronchial Schwannoma, Neurogenic Tumor, Bronchoplasty.



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SEGMENTECTOMY FOR HYPERMETABOLIC CLINICAL STAGE IA LUNG ADENOCARCINOMA

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OBJECTIVES
Although recent large randomized trials suggest similar postoperative outcomes for lobectomy and sublobar resection in small-sized NSCLC, the indication for segmentectomy in hypermetabolic lung adenocarcinomas, which show high SUVmax on FDG-PET/CT is still controversial.

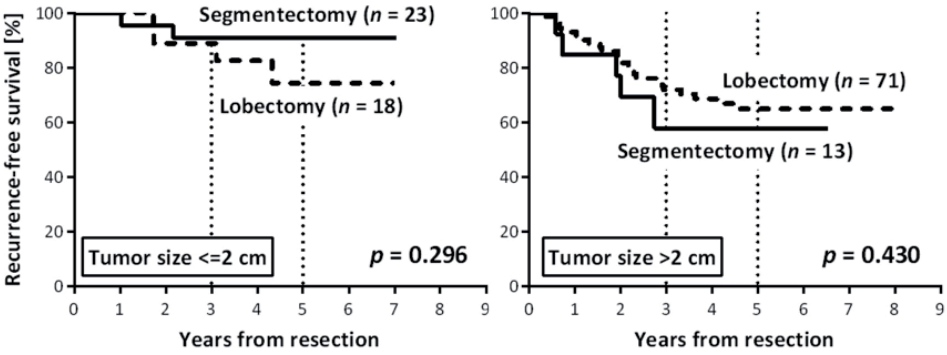
METHODS
We retrospectively reviewed 305 patients with clinical stage IA lung adenocarcinoma who underwent anatomical resection. According to our institutional policy, segmentectomy was intentionally performed in patients with a tumor ≤2 cm and also in patients with a tumor >2 cm who were considered ineligible for lobectomy. As we have previously reported that SUVmax ≥3.20 is a risk factor for pathological involvement/metastasis in lung adenocarcinoma, patients were stratified by SUVmax 3.20. Recurrence-free survival (RFS) was calculated by the Kaplan-Meier method, and surgical procedure (segmentectomy or lobectomy) was analyzed by univariate analysis with the log-rank test and multivariate logistic regression analysis.

RESULTS
Patients with tumor SUVmax ≥3.20 (n=125) had significantly worse RFS than those with SUVmax <3.20 (n=180; 5-year RFS: 70% vs. 90%; p<0.001). In the 125 patients with SUVmax ≥3.20, univariate analysis identified radiological solid size >2 cm as a significant risk factor for poor RFS. However, surgical procedure was not identified. When patients with SUVmax ≥3.20 were divided by radiological tumor size of 2 cm, there were no significant differences in RFS between patients with a tumor ≤2 cm who underwent segmentectomy and lobectomy (n=23 and 18, respectively; p=0.296), nor between patients with a tumor >2 cm (n=13 and 71, respectively; p=0.430; Figure). While multivariate analysis identified only radiological solid size >2 cm as a significant risk factor for poor RFS, the effect modification between radiological tumor size and surgical procedure was not identified.

CONCLUSIONS
Even in hypermetabolic clinical stage IA lung adenocarcinoma, non-inferior oncologic postoperative outcomes were suggested after segmentectomy compared to those after lobectomy. Therefore, segmentectomy should be considered in patients with small-sized hypermetabolic adenocarcinomas.

Disclosure: No significant relationships.

Keywords: Lung Adenocacrinoma, Segmentectomy, Hypermetabolic, Non-Small Lung Cancer, Sublobar Resection.



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SEGMENTECTOMY IS ASSOCIATED WITH LOWER SELF-REPORTED DYSPNEA AND SHORTNESS OF BREATHING DETERIORATION COMPARED TO LOBECTOMY IN LONG TERM POSTOPERATIVE SURVIVORS

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OBJECTIVES
To assess the self-reported current dyspnea and perioperative changes of dyspnea in long term survivors after segmentectomy or lobectomy for early-stage lung cancer.

METHODS
Cross-sectional telephonic survey of 226 patients alive and disease-free as of March 2023, with pathologic stage IA1-2, non-small cell lung cancer, assessed 1 to 5 years after minimally invasive segmentectomy or lobectomy (performed from January 2018 to January 2022). Current dyspnea level: Baseline Dyspnea Index(BDI) score<10. Perioperative changes of dyspnea were assessed using the Transition Dyspnea Index(TDI). A negative TDI focal score indicates perioperative deterioration in dyspnea.
Multiple regression analyses were used to examine demographic, medical, and health-related correlates of current dyspnea and changes of dyspnea level.

RESULTS
152 patients consented or were available to respond to the telephonic interview(67% response rate):90 lobectomies(58% response rate) and 62 segmentectomies(86% response rate). Median interval from surgery to survey was 43 months (IQR 31-58).
The BDI score was lower (greater dyspnea) in lobectomy patients(median 7,IQR 6-10) compared to segmentectomy(median 9,IQR 6-11),p=0.034. 70% of lobectomy patients declared to have a current dyspnea compared to 53% after segmentectomy,p=0.035.
Multivariable regression analysis adjusting for baseline patient related factors showed that segmentectomy was significantly associated with higher BDI score (less dyspnea) (p=0.034).
A greater dyspnea deterioration was reported by patients after lobectomy (TDI score -4 (IQR-2/-5) compared to segmentectomy (TDI score-1.5 (IQR0/-5),p=0.040.
82% of patients after lobectomy reported a perioperative deterioration in their dyspnea compared to 57% after segmentectomy,p=0.002.
Logistic regression analysis adjusting for patient related factors showed that segmentectomy was associated with a reduced risk of perioperative dyspnea deterioration (as opposed to lobectomy) (OR 0.25,95% CI 0.10-0.61,p=0.002).

CONCLUSIONS

Compared to lobectomy, minimally invasive segmentectomy for early-stage lung cancer is associated with a 4-fold lower risk of dyspnea deterioration and 17% reduction of number of patients reporting current dyspnea one year or longer after surgery.

Disclosure: No significant relationships.

Keywords: Segmentectomy, Dyspnea, Patient Reported Outcomes, Lung Cancer.

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SEGMENTECTOMY IS ASSOCIATED WITH WORSE DISEASE-FREE SURVIVAL COMPARED TO LOBECTOMY IN PATIENTS WITH T1CN0M0 NON-SMALL-CELL LUNG CANCER

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OBJECTIVES
Segmentectomy has replaced lobectomy as the standard of care in T1a-bN0 non-small cell lung cancer (NSCLC), based on the JCOG0802 randomized controlled trial. In patients with T1cN0M0 NSCLC (from 21 to 30mm in size), it is controversial whether segmentectomy or lobectomy should be the standard. In this study, we aim at comparing survival outcome after both type of resections.

METHODS
We retrospectively reviewed all patients undergoing surgery for NSCLC in our center between 2015 and 2023. We identified all patients who underwent segmentectomy or lobectomy for pathological stage T1cN0M0. Disease-free (DFS) and overall (OS) survivals were calculated from the date of surgery until recurrence or death. Univariate analysis was performed to study the impact of different clinical variables on DFS and OS.

RESULTS
One hundred and thirty-five patients with pathologic T1cN0M0 NSCLC underwent surgery. Fifty-six (41%) patients underwent segmentectomy and 79 (59%) patients underwent lobectomy. Histology were adenocarcinoma (n=74, 54.8%), squamous cell carcinoma (n=38, 28.2%) and other (n=23, 17%). Median age was 68.5 years (23 to 84.5). Median FEV1 was 74% (39-140), median DLCO was 65.5% (28-127.8). Surgery was performed by VATS in most cases (n=124 (89.9%)). There was no difference in age, lung function and number of removed lymph nodes between the lobectomy and segmentectomy groups. One patient in the segmentectomy group died postoperatively (90-day or in-hospital mortality of 0.7%). At a median follow-up of 30 months (from 0.1 to 87), recurrence occurred in n=17 patients (30.3%) in the segmentectomy and n=17 patients (21.5%) in the lobectomy group. Five-year DFS was significantly worse in patients who underwent segmentectomy compared to lobectomy (42.2% vs. 69.2%, p=0.048). There was no difference in 5-year OS (63.9% vs. 68.5%, p=0.35)

CONCLUSIONS
Segmentectomy is associated with worse disease-free survival compared to lobectomy in patients with pathologic T1cN0M0, while OS was not different.

Disclosure: No significant relationships.
Keywords: Segmentectomy, NSCLC, Early Stage.

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SEGMENTECTOMY VERSUS (VS) WEDGE RESECTION IN THE MANAGEMENT OF NON-SMALL CELL LUNG CANCER- DOES THE "REAL WORLD DATA" REFLECT RECENT EVIDENCE?

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OBJECTIVES
Recent landmark trials comparing lobectomy to sublobar resection in patients with stage Ia NSCLC created a monumental shift in the practice of thoracic surgeons internationally. However, caution is warranted due to the exclusion of patients with nodal disease in these trials, relying on intraoperative frozen sections—a resource often limited or not undertaken in compromised patients. We aim to compare our sublobar institutional data to find if the "real world data" reflects the results of these trials, specifically whether wedge resection has comparable oncological outcomes to segmentectomy.

METHODS
Retrospective analysis of a prospectively collected database of all patients with NSCLC and a single tumour who underwent sublobar resections between January 2012 and October 2019. Synchronous, metachronous, and neuroendocrine tumours were excluded. Data on demographics, clinicopathological variables, recurrence and survival was analysed

RESULTS
313 patients were included, 159 segmentectomies and 154 wedge resections. Twenty-one patients had a completion lobectomy (19 were in the wedge resection group). At follow-up the mean survival time was better in the segmentectomy group (2146 vs. 1687 days, p=0.005). The survival advantage was maintained for tumours ≤2cm and N0/X (2430 vs 1773 days, p=0.008). Overall recurrence rates were lower in the segmentectomy group (30% vs 41%, p = 0.03), this was maintained in the subgroup of patients with tumours <2cm and N0/X although did not reach statistical significance (20.5% vs 33.3% p 0.06). Patients in the segmentectomy group had on average bigger resection margins (12.9mm vs 7.1mm) and the size of resection margin indirectly corelated with recurrence rates (Table 1).

CONCLUSIONS
Our data found superior outcomes in patients undergoing segmentectomy, however it must be noted that during the study period sublobar resections were undertaken in "compromised" patients as per guidelines. The data highlights the importance of adequate resection with significant impact on recurrence rates.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Wedge Resection, NSCLC, Outcomes.

Distance from margin (entire cohort)	Recurrence Rate
0-4.9mm	46.6%
5-9.9mm	30.6%
10-19.9mm	32.9%
>20mm	26.8%

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SEQUENTIAL INDUCTION CHEMORADIOTHERAPY FOR LOCALLY ADVANCED THYMIC TUMORS: A PHASE II CLINICAL TRIAL

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OBJECTIVES
The optimal management of locally advanced thymic tumors remains controversial. We conducted a clinical trial (ChiCTR-OIC-16009130) to investigate the safety and efficacy of neoadjuvant sequential chemoradiotherapy in patients with locally advanced thymic tumors.

METHODS
The trial was conducted in Shanghai Chest Hospital for patients with potentially unresectable (T3-4N0M0) thymic tumors. Induction consisted of chemotherapy (paclitaxel and carboplatin) and sequential radiation (40Gy). Re-evaluation would be managed after chemotherapy. If the tumor became resectable, surgical resection would be performed, otherwise subsequent radiation would be performed. The primary endpoint was objective response rate (ORR).

RESULTS
A total of 33 patients were accrued, which included 14 with thymomas and 19 with thymic carcinomas. ORR was 57.6%, with 19 patients having partial response (PR), 13 had stable disease (SD) and 1 had progression disease (PD). Thymomas had higher ORR (71.4%) than thymic carcinomas (47.4%). Both histologies presented poor ORR to chemotherapy, which was 14.3% in thymoma and 21.1% in thymic carcinoma. Meanwhile, higher ORR to radiation was also seen in thymoma (50%) compared to thymic carcinoma (25%). Nine (27.3%) patients experienced grade 3-4 toxicity. Surgical resection was feasible after induction in 27 patients (81.8%), among which 20 (74.1%) had complete resection. Pathological complete response was found in 1 (3.7%) patients. After a median follow up of 46 months, 5-year overall survival and progression free survival for the whole group were 75.6% and 48.8% , respectively.

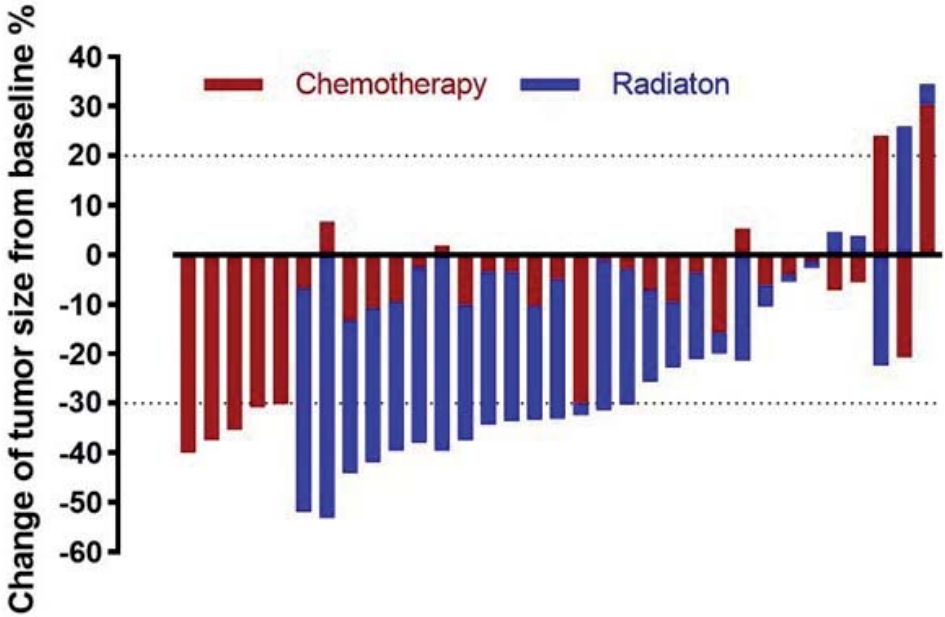
CONCLUSIONS
Sequential induction chemoradiotherapy is tolerable and effective for patients with locally advanced thymic tumors, especially for patients with thymomas.

Disclosure: No significant relationships.
Keywords: Sequential, Induction, Chemoradiotherapy, Locally Advanced, Thymic Tumor.

Table 1. Clinical and treatment characteristics of patients accrued in the present trial

Characteristics	Total (N=34)
Age/y	52±10
Gender	
Male	20 (58.8%)
Female	14 (41.2%)
Myasthenia gravis	
Yes	1 (2.9%)
No	33 (97.1%)
Complication	
Hypertension	4 (11.8%)
Diabetes mellitus	1 (2.9%)
Obese/overweight	3(8.8%)
Histology on biopsy	
Thymoma	15 (44.1%)
Thymic carcinoma	19 (55.9%)
Clinical TNM stage	
T3N0M0 (IIIA)	22 (64.7%)
T4N0M0 (IIIB)	12 (35.3%)
Chemotherapy response	
PR	7 (20.6%)
SD	25 (73.5%)
PD	2 (5.9%)
Chemotherapy toxity (grade 3-4)	
White blood cell decreased	7 (20.6%)
Neutrophil count decreased	1 (2.9%)
Pure red cell aplasia	1 (2.9%)
Radiotherapy	28 (82.4%)
Radiotherapy response a	
PR	10 (35.7%)
SD	17 (60.7%)
PD	1 (3.6%)
Radiotherapy toxity (grade 3-4)	0

PR: partial response; SD: stable disease; PD: progression disease
a analyzed in 28 patients who received radiotherapy


Change of tumor size from baseline %
40
30
20
10
0
-10
-20
-30
-40
-50
-60
Chemotherapy
Radiaton

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SHORT-TERM AND LONG-TERM OUTCOMES OF INTRAOPERATIVE RADIOTHERAPY FOR RESECTABLE LOCALLY ADVANCED ADENOCARCINOMA OF OESOPHAGOGASTRIC JUNCTION: A SINGLE-INSTITUTION, PROSPECTIVE, SINGLE-ARM, PHASE I TRIAL

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OBJECTIVES
The effect of intraoperative radiotherapy (IORT) on adenocarcinoma of oesophagogastric junction (AEG) remains still unclear. We therefore conducted a prospective phase I trial to assess the safety and feasibility of IORT for resectable locally advanced AEG.

METHODS
The patients diagnosed with AEG at stage II-IVA were enrolled. Eligible patients received esophagectomy and a single fraction of electron beam radiotherapy following neoadjuvant therapy. The primary endpoint is locoregional recurrence rate (LRR) for IORT. Additionally, survival outcomes were compared between non-IORT cohort derived from a prospective database and IORT cohort through propensity-scored matching.

RESULTS
A total of 16 patients were enrolled in the study. The R0 resection was successfully achieved in 15 (93.8%) patients, with only one patient undergoing R2 resection (presence of gross residual disease). A total postoperative complication morbidity of 43.8% (7/16) was observed, with major complications (Clavien-Dindo classification ≥3) in 12.5% of cases (2/16). The total treatment-related adverse events were reported in seven patients (43.8%, 7/16; shown in the Table 1). As for the long-term outcomes, after matching, a lower LRR was observed in the IORT group compared to non-IORT group (IORT: 0% [0/12] vs. 33.3% [4/12], p=0.028) (Figure1A-B). However, no significant differences were found in 3-year progression-free survival (PFS; IORT: 50.9% vs. non-IORT: 53.4%, p=0.93) and 3-year overall survival (OS; IORT: 58.3% vs. IORT: 72.9%, p=0.23) between the two groups (Figure 1C-D).

CONCLUSIONS
The present study demonstrated that the favorable feasibility and safety of IORT for locally-advanced AEG. While IORT is beneficial to improve local control, it may not prolong PFS and OS in patients with locally advanced AEG. A phase II trial is urgently warranted to further elucidate and validate these outcomes.

Disclosure: No significant relationships.

Keywords: Adenocarcinoma Of Oesophagogastric Junction; Intraoperative Radiotherapy; Survival; Clinical Trial

Figure 1. Recurrence pattern and survival outcomes between IORT group and non-IORT group
A: relapse pattern in IORT group; B: relapse pattern in non-IORT group
C and D: comparisons of overall survival and progression-free survival between the two groups

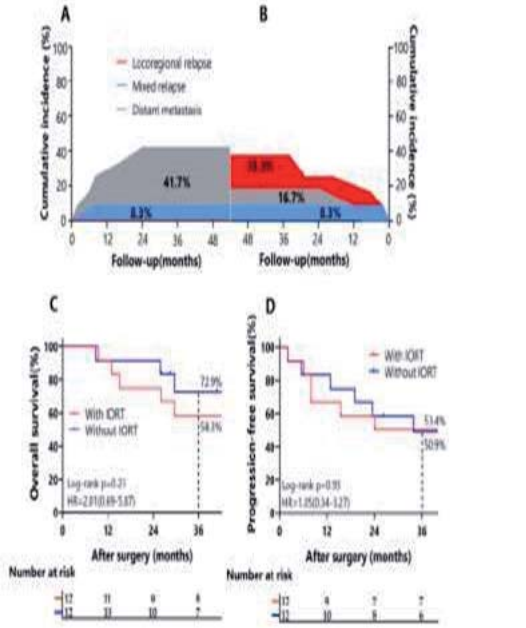

Table 1. Details on postoperative condition

Patients (no.)	**16**
Total complications [n(%)]	7(43.8%)
Clavien-Dindo classification ≥III	2(12.5%)
Cardiac complications [n(%)]	0(0)
Pulmonary complications [n(%)]	6(37.5%)
Pleural effusion	3(18.8%)
Atelectasis	4(25.0%)
Pneumothorax	1(6.3%)
Pneumonia	2(12.5%)
Respiratory failure	0(0)
Anastomotic bleeding [n(%)]	2(12.5%)
Anastomotic leakage* [n(%)]	1(6.3%)
Type I	1(6.3%)
Type II	0(0)
Type III	0(0)
Wound infection [n(%)]	0(0)
Wound dehiscence [n(%)]	0(0)
Chyle leak [n(%)]	1(6.3%)
In-hospital stay(days), median(range)	10(9-14)
In-hospital mortality [n(%)]	0(0)
30-day mortality [n(%)]	0(0)
60-day mortality [n(%)]	0(0)
Any treatment-related AEs# [n(%)]	7(43.8%)
Grade 3≥III	0(0)
Radiation pancreatitis [n(%)]	0(0)
Radiation enteritis [n(%)]	0(0)
Anemia [n(%)]	2(12.5%)
Leukocytopenia [n(%)]	0(0)
Thrombocytopenia [n(%)]	0(0)
Elevated ALT/AST [n(%)]	2(12.5%)
Elevated bilirubin [n(%)]	6(37.5%)
Elevated creatinine [n(%)]	0(0)

*The severity of anastomotic leakage was graded using Esophagectomy Complications Consensus Group (ECCG) classification; #The Treatment-related AEs was graded using classification criteria of Radiation Therapy Oncology Group and NCI-CTCAE version 5.0.

Abbreviations: AEs, adverse events; ALT, alanine transaminase; AST, aspartate transaminase.

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SHORT-TERM OUTCOMES OF ROBOTIC VERSUS UNI-PORTAL VIDEO-ASSISTED APPROACH IN ANATOMICAL LUNG RESECTION FOR LUNG CANCER: A SINGLE CENTRE EXPERIENCE

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OBJECTIVES
Robotic assisted thoracic surgery (RATS) is becoming increasingly popular in the UK since 2017. Uni-portal video assisted thoracic surgery
(uVATS) is currently the least invasive approach for lung cancer resection. Comparing the outcome of both approaches will help to answer
the ongoing questions about their safety and efficacy.

METHODS
Primary lung cancer patients treated with curative intent anatomical lung resection via RATS or uVATS in our institution from October 2019
to September 2022 were included. Early post operative outcome was analysed retrospectively and compared between both approaches.

RESULTS
A total of 158 patients met the inclusion criteria, 96 of them had RATS and 62 had uVATS anatomical lung resection. There were no
significant differences in the pre-operative criteria. The mean operative time was significantly longer in RATS (P=0.000), there was a trend
towards more segmentectomies performed with RATS (P=0.069). Both groups were similar in number of lymph node stations dissected, 30
days mortality, hospital stay, drain duration and complication rates. There was a trend towards higher rate of surgical re-exploration in the uVATS group (P=0.058).

CONCLUSIONS
Looking at the short-term outcome, both RATS and uVATS are safe and feasible for curative anatomical lung cancer resection, the approach
choice did not affect the overall patients' outcome. RATS technology helped performing more complex anatomical segmentectomy
procedures, RATS was also associated with lower surgical re-exploration rate.

Disclosure: No significant relationships.
Keywords: Robotic, Uni-Portal, Lung Cancer.

	RATS (n=96)	uVATS (n=62)	p-Value
Age (Years)	**70.46 (+/- 8.61)**	**72.68 (+/-7.95)**	**0.100**
Gender -Male -Female	 48 48	 29 33	 0.746
Smoking -Current/Ex-smoker -Never smoked	 80 13	 51 6	 0.620
ECOG Performance Status -0 -1 -2	 30 60 6	 21 37 4	 0.929
FEV1 (%)	82.43 (+/- 15.55)	79.65 (+/- 17.49)	0.311
DLCO (%)	78.56 (+/- 17.69)	73.89 (+/- 16.66)	
Prop Histology -Adenocarcinoma -Squamous cell carcinoma -Small cell carcinoma -Other	 61 22 0 13	 38 17 1 6	 0.534
Tumour site -RUL -RML -RLL -LUL -LLL	 29 4 19 29 15	 28 3 13 10 8	 0.234
pT stage -Tis -T1a -T1b -T1c -T2a -T2b -T3 -T4	 1 5 23 15 29 4 15 4	 0 0 10 18 19 3 11 1	 0.231
pN stage -N0 -N1 -N2	 82 8 6	 48 11 3	 0.229

	RATS (n=96)	uVATS (n=62)	p-Value
Age (Years)	**70.46 (+/- 8.61)**	**72.68 (+/-7.95)**	**0.100**
Resection margins -R0 -R1	 92 4	 59 3	1.000
Stage -IA -IB -IIA -IIB -IIIA -IIIB	 38 25 4 16 12 1	 23 15 2 13 8 1	0.984
Procedure -Lobectomy -Segmentectomy	 78 18	 57 5	0.069
Operative time (hours)	4.52 (+/- 1.24)	3.54 (+/- 0.88)	0.000
Number of lymph node stations	4 (1-8)	4 (1-7)	0.798
30 days mortality	1	2	0.326
Hospital stay (Days)	3 (1-42)	4 (1-31)	0.233
Drain duration (Days)	2	2	0.895
Need for assisted ventilation	2	3	0.334
Air Leak > 7 days	21	18	0.308
Pneumonia treated with antibiotics	14	7	0.552
Surgical re-exploration	1	4	0.058

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SHOULD MEDIASTINAL LYMPHADENECTOMY BE RECOMMENDED FOR STAGE IA TYPICAL LUNG CARCINOID TUMOR?

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OBJECTIVES

Carcinoid tumors originate from enterochromaffin cells. The lungs are the second most common site of these tumors.Treatment of choice comprises anatomical lung resection with mediastinal lymphadenectomy. The prognosis for patients with lung carcinoid tumors is generally favorable.The purpose of the study was to assess the prevalence of lymph node metastasis of a lung carcinoid.

METHODS

In this retrospective study 98 patients (all cases) operated between 2011 and 2022 at a single institution were included. Patients were classified into 2 groups: with typical and atypical carcinoid.The mediastinal lymphadenectomy was performed only in lobectomy and segmentectomy. Solely, the patients with pT1 tumors were subjected to further analysis. The clinical records of patients were matched. Data have been analyzed statistically using Statistica v. 13.0 software. A value of $p < 0.05$ was considered statistically significant.

RESULTS

There were 53 anatomical resection with lymphadenectomy (typical carcinoid 34; atypical carcinoid 19), for the total number of 73 patients, who underwent pulmonary resection (table 1). There were no statistically significant difference between both groups in age (p= 0,6985), sex (p=0,1159), distance of tumor to vascular margin (p= 0,5637) and bronchial margin (p=0,6985), Ki67 index (p= 0,8530), number of dissected lymph nodes (p= 0,7728), tumor localization [bronchus/parenchyma] (p=0,8087), diameter of the tumor (p= 0,3545). The proportion of surgeries performed by VATS (61,5% vs 47,6%; p=0,5051) and the number of anatomical resection (65,4% vs 90,5%; p= 0,8303) also occurred to be comparable among patients with typical and atypical carcinoid, respectively. Lymph nodes involvement was present in 5,8% (N1 5,8%; N2 0%) and 14,3 % (N1 4,8%; N2 9,5%) of patients with typical and atypical carcinoid, respectively. The result was statistically significant (p=0,0001). 53

CONCLUSIONS

Mediastinal lymphadenectomy is not the mandatory treatment of typical carcinoid tumors < 3cm in diameter (cT1) in case of unsuspected lymph nodes in preoperative work-up.

Disclosure: No significant relationships.
Keywords: Mediastinal Lymphadenectomy, Typical Carcinoid Tumor, Video-Assisted Thoracoscopic Surgery.

	Typical carcinoid [N,%]	Atypical carcinoid [N,%]
wedge resection	15 (28,8%)	2 (9,5%)
lobectomy	26 (50%)	13 (61,9%)
bilobectomy	3 (5,8%)	4 (19%)
segmentectomy	5 (9,6)	2 (9,5)
Segmental resection of bronchus	3(5,8%)	-
Total	52 (100%)	21 (100%)

P-273

SHOULD WE RECONSIDER THE TIMING FOR THORACOSCOPIC BIOPSY IN NON-MESOTHELIOMA PLEURAL MALIGNANCIES WITH ATYPICAL PRESENTATION?

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OBJECTIVES
Thoracoscopy is established for managing mesothelioma and similar pleural malignancies for diagnosis and palliation. Rare undiagnosed non-mesothelioma cases with atypical presentation may escape the chance of early diagnostic surgical biopsy. To clarify the current practice on early diagnostic VATS biopsy, we examined a rare type of non-mesothelioma, non-metastatic pleural malignancy termed primary pleural hemangioendothelioma (ppEHE) of vascular origin which behaves similar to mesothelioma.

METHODS
Comprehensive review focusing on the rare ppEHE published in Pubmed search engine between 2013-2023. According to reported presentation were analyzed two separate groups. Those with typical symptomatology for pleural malignancy (TG) and an atypical symptom group (AG). The method of diagnosis either by VATS/surgical intervention versus non-surgical non-VATS group were taken into account.

RESULTS
A total of 48 authors managed 95 cases of ppEHE over the last 10 years. AG group included ten (10.5%) patients with atypical symptomatology for mesothelioma and suspicious chest x-ray. AG included asymptomatic patients, paraneoplastic hyponatremia, shoulder or back pain, fatigue, anorexia, spontaneous hemothorax or pneumothorax and an HIV case with unspecific pareenchymal opacities. TG group included 85 patients (89.5%) with ppEHE and universally dyspnoea, chest pain and pleural effusions. In the total patient cohort, non-surgical diagnosis was obtained in 12 cases (12.6%). In the AG group 10 out of 10 cases received surgical diagnosis despite non mesothelioma suspicion. VATS was performed in this group in 7 cases (70%) and thoracotomy in the rest.

CONCLUSIONS
Our results conclude that diagnostic VATS biopsy has 100% accuracy for the case-study cohort of ppEHE with atypical symptoms. Early in the diagnostic pathway of unclear pleural pathologies without striking mesothelioma features, VATS biopsy should be offered early even if it is outside the suggested initial diagnostic steps to provide early diagnosis, prognosis and select treatment decisions other than any other diagnostic imaging or cytology methods with minimal risks.

Disclosure: No significant relationships.
Keywords: Primary Pleural Hemangioendothelioma, Mesothelioma, Thoracoscopy, VATS, Paraneoplastic.

P-274

SINGLE INSTITUTIONAL EXPERIENCE OF NEOADJUVANT IMMUNOCHEMOTHERAPY FOR LUNG CANCER FROM A CHINESE HIGH-VOLUME CENTER

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OBJECTIVES
Neoadjuvant immunochemotherapy (NAICT) for lung cancer has advanced rapidly in the last decade. The effectiveness and safety of NAICT in the treatment of patients with potentially resectable lung cancer remains undetermined. The present study proposed a review of lung cancer patients who had NAICT to assess the efficacy and safety of NAICT further.

METHODS
We retrospectively analyzed 83 lung cancer patients who had NAICT and surgery in the Department of Thoracic Surgery, Zhongshan Hospital. NAICT was defined as neoadjuvant therapy that included at one application of PD-1 inhibitor.

RESULTS
The average age of the 83 patients was 64 years old. The majority (72, 89%) were male. Over half of the patients (47, 57%) had a smoking history. The majority (61, 74%) were diagnosed at clinical stage III. After NAICT, 26 patients (31%) experienced side effects primarily associated with the digestive and blood systems. Following the NAICT, 45 (54%) patients underwent open surgery, while 38 (46%) underwent video-assisted thoracoscopic surgery. R0 resection was achieved by 82 patients. Pathology revealed that 34 patients had a major pathological response (MPR), with 26 having a complete pathological response (pCR). There were 27 patients had lung adenocarcinoma, 47 with lung squamous carcinoma, and nine with other malignant tumors. The overall survival (OS) was 80.7% (69.9%-87.9%) and the progression-free survival (PFS) was 78.2% (65.9%-86.5%).

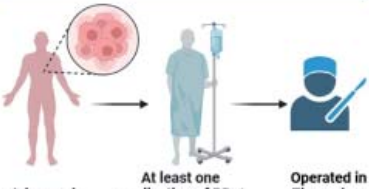
CONCLUSIONS
NAICT might be considered partially effective for advanced lung cancer, prolonging PFS and OS, but it should be validated in larger or prospective clinical trials.

Disclosure: No significant relationships.
Keywords: Neoadjuvant Immunochemotherapy (NAICT), Lung Cancer, Pathological Response, Clinical Trial, Surgery.

Researching Center

复旦大学附属中山医院 ZHONGSHAN HOSPITAL

Population

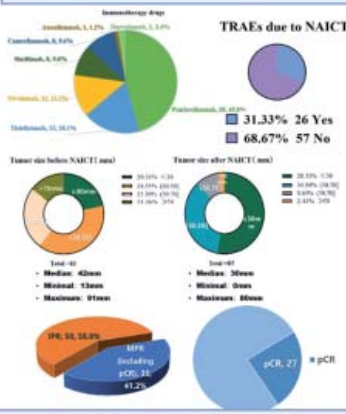


Advanced lung cancer patients

At least one application of PD-1 inhibitor as neoadjuvant theraoy

Operated in Zhongshan Hospital Fudan University

Results



Conclusion: Neoadjuvant immunochemotherapy may be considered partlypartially effective for advanced lung cancer, but it should be validated within larger and prospective clinical trials.

P-275

SINGLE-STAGED LARYNGOTRACHEAL RECONSTRUCTION IN IDIOPATHIC STENOSIS

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OBJECTIVES
To analyze the experience of a leading hospital in laryngotracheal reconstruction for patients with subglottic stenosis.

METHODS
Retrospective cohort study of patients who underwent interventions for subglottic laryngotracheal stenosis between 1986 and 2023. The study included patients with idiopathic stenosis. Demographic variables (gender, age, medical history), stenosis characteristics (distance to vocal cords, length, diameter, length of distal trachea), previous treatments, type of treatment, resected length, reconstruction technique, complications, reinterventions, and results in airway, phonation, swallowing, as well as mortality, were analyzed. Qualitative variables were presented as percentages and compared using the chi-square or Fisher's exact test. Quantitative variables were described as mean ± standard deviation and compared using Student's t-test. Significance was established at $p \leq 0.05$.

RESULTS
Ninety patients were operated on (92.2% women), with a mean age of 55.61 ± 16.88 years. The characteristics of stenosis and the performed treatments are described in Table 1. Six patients required infrahyoid laryngeal descent. Airway tutoring was implemented in 54.4% of cases, predominantly using the Montgomery T-tube (47 cases). The most frequent complications included granulomas (13.3%) and partial dehiscences (5.6%). Airway results were excellent in 89% of those operated on, compared to 25% of those treated endoscopically ($p = 0.001$). No significant differences were observed in phonation or dysphonia outcomes. Re-stenosis and reintervention rates were higher in the endoscopic group (37.5% vs. 2.4%, $p = 0.001$) and (50% vs. 6.1%, $p = 0.001$), respectively. There were no perioperative mortalities.

CONCLUSIONS
The treatment of idiopathic stenosis is not only feasible but also yields favorable results. Resection-anastomosis surgery offers superior outcomes, boasting lower recurrence rates and reduced need for reinterventions compared to endoscopic treatments, which should be reserved for non-surgical candidates.

Disclosure: No significant relationships.

LOCATION	RANGE	MEAN	STANDARD DEVIATION
DISTANCE TO VOCAL CORDS (mm)	2-35	11.55	6.68
LENGTH OF STENOSIS (mm)	5-40	16.86	15.0
LENGTH OF DISTAL TRACHEA (mm)	45-100	84.83	17.55
PERCENTAGE OF TOTAL TRACHEAL LENGTH	2%-34%	19.85%	8.47%
PRIOR TREATMENTS		**N**	**%**
NO		46	51.1
DILATION		5	5.5
TRACHEOTOMY		5	5.5
LASER		22	24.4
PRIOR RESECTION		5	5.5
PROSTHESIS		7	7.7
TYPES OF TREATMENT		**N**	**%**
DILATION		7	7.8%
SURGERY		82	91.1%
LASER		1	1.1%
SURGERY TYPE		**N**	**%**
PEARSON OPERATION		25	27.8%
TRACHEAL OPERATION		1	1.1%
MADDAUS OPERATION		21	23.3%
GRILLO OPERATION		14	15.6%
COURAUD OPERATION		20	22.2%
TRACHEOPLASTY		1	1.1%
APPROACH		**N**	**%**
CERVICOTOMY		81	90%
CERVICO-STERNOTOMY		1	1.1%
		MEAN	**STANDARD DEVIATION**
RINGS RESECTED		3,24	0,94
LENGTH OF RESECTION (mm)		23,1	10,2
PERCENTAGE RESECTED		19.85%	8,47%

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SPREAD THROUGH AIR SPACES IS A POWERFUL PROGNOSTIC PREDICTOR IN PATIENTS WITH COMPLETELY RESECTED PATHOLOGICAL STAGE I LUNG ADENOCARCINOMA WITH INVASIVE SIZE ≤ 2 CENTIMETERS (CM)

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OBJECTIVES
To investigate the association between spread through air spaces (STAS) and various clinicopathological factors in completely resected primary stage I lung adenocarcinoma with pathological invasive size ≤ 2 cm.

METHODS
Overall, 207 patients (lobectomy: 118, segmentectomy: 47, wedge resection: 42) with completely resected pathological stage I lung adenocarcinoma with invasive size ≤ 2 cm were included. Clinicopathological factors such as preoperative carcinoembryonic antigen (CEA) value, tumour diameter, consolidation tumour ratio (CTR), maximum standardized uptake value (SUVmax) of the tumour on fluorodeoxyglucose-positron emission tomography, histological type, presence of STAS, and vascular and lymphatic invasion were investigated.

RESULTS
The median postoperative follow-up period was 60 months. Forty-eight patients (23.1%) had STAS. Five-year overall survival rates in the STAS-positive and STAS-negative groups were 84.0% and 92.3% (p=0.1623), and five-year recurrence-free survival rates were 76.1% and 93.6% (p=0.0002), respectively. The STAS-positive group had significantly larger invasion diameter, higher CTR, higher preoperative CEA, more micropapillary patterns, and more vascular invasion. The presence of STAS and the diameter of pathological invasion, CTR, and micropapillary patterns were correlated. Multivariate analysis revealed that high preoperative CEA and STAS were predictive factors for postoperative recurrence, and high preoperative CEA was also a significant predictor for postoperative death. Recurrence was observed in eight patients (3.9%) and seven patients had STAS-positive disease. The number of recurrences included five lung metastases (two ipsilateral, one contralateral, and two surgical margin), one pleural dissemination, two mediastinal lymph node metastases, and one distant metastasis (bone) (duplicate data).

CONCLUSIONS
STAS is one of the factors associated with postoperative recurrence after lung resection for pathological stage I lung adenocarcinoma with invasive diameter ≤ 2 cm.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Spread Through Air Spaces, Prognostic Factors.

P-277

SPREAD THROUGH THE AIR SPACE: SURVIVAL AND RECURRENCE IN A SINGLE COHORT OF EARLY-STAGE LUNG ADENOCARCINOMAS

Samuele Nicotra[1], Luca Melan[1], Alessandro Bonis[1], Stefano Silvestrin[1], Giorgio Cannone[1], Vincenzo Verzeletti[1], Stefano Dal Moro[1], Ivan Lomangino[1], Giulia Lorenzoni[2], Dario Gregori[2], Alessandro Rebusso[1], Andrea Dell'Amore[1], Federico Rea[1]
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OBJECTIVES
The concept of Spread Through the Air Space (STAS) is widely accepted, but its role in early-stage lung adenocarcinoma (ADC) is still not entirely clear. In this study we aim to address the role of STAS in early-stage resected ADCs in terms of recurrence and overall survival.

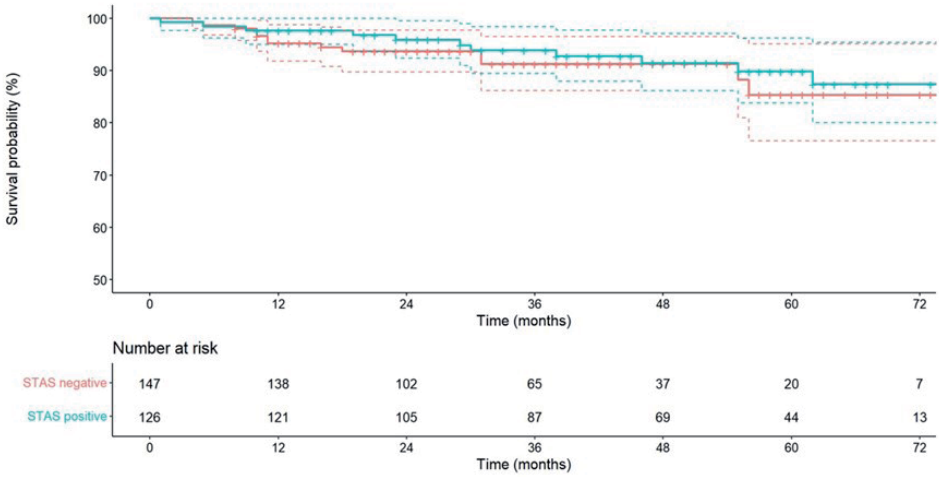
METHODS
In our center 283 early-stage lung ADCs (237 lobectomies and 46 segmentectomies) from pT1a to pT2a pN0pM0 were operated between January 1st 2017 to December 31th 2022. STAS was defined as the presence of neoplastic cells within air spaces in the lung parenchyma beyond the edge of the main tumor, and it was also differentiated into three categories: no STAS, limited STAS and extended STAS. The patients were divided into two groups based on presence (limited or extended) or absence of STAS. In addition, we evaluated the presence/absence of STAS parameter considering separately lobar and sublobar resections.

RESULTS
In our analysis, the parameter of extended STAS was reported in few cases n=10; 3.6%). Analyzing the overall survival, no difference was evidenced in STAS positive (STAS+) vs STAS negative (STAS-) group (p=0.49). The absence of STAS provided a 1, 3 and 5-years survival of 95, 91 and 85%, whereas the presence of STAS provided a 1, 3 and 5-years survival of 98, 94 and 90%. Analyzing the overall recurrence rate, no differences were detected between STAS+ and STAS- (p=0.83). The presence of STAS in the different types of surgical resection, didn't seem to influence neither the overall survival nor recurrence.

CONCLUSIONS
Despite the limited number of extended STAS and the single center experience, in resected early-stage ADCs surgically treated, STAS doesn't seem to influence recurrence or mortality. Studies with wider samples need to be conducted in order to validate the statistical significance of our results.

Disclosure: No significant relationships.
Keywords: STAS, Alveolar Diffusion, Early-Stage Adenocarcinomas, NSCLC.

Figure 1. Overall Survival in STAS + (blue line) and STAS- (red line) patients. No difference in terms of OS was reported (p=0.49).



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STAGE OF RECURRENCES FOLLOWING PRIMARY STEREOTACTIC BODY RADIATION THERAPY VERSUS SURGERY FOR EARLY-STAGE NON-SMALL CELL LUNG CANCER

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OBJECTIVES
While surgery remains the preferred initial treatment for early-stage non-small cell lung cancer (NSCLC), stereotactic body radiation therapy (SBRT) is increasingly accepted as an option and is standard-of-care for inoperable patients. While overall survival generally favors surgery, disease-free survival remains controversial. We hypothesized that it may be difficult to identify recurrences promptly following SBRT due to the difficulty identifying tumor within post-SBRT scarring.

METHODS
We retrospectively identified patients who experienced recurrent diagnosis following primary SBRT or surgery for early-stage NSCLC at our institution between 2005 to present. We compared these groups, focusing on stage of the recurrent tumor according to AJCC 8th edition Cancer Staging Manual.

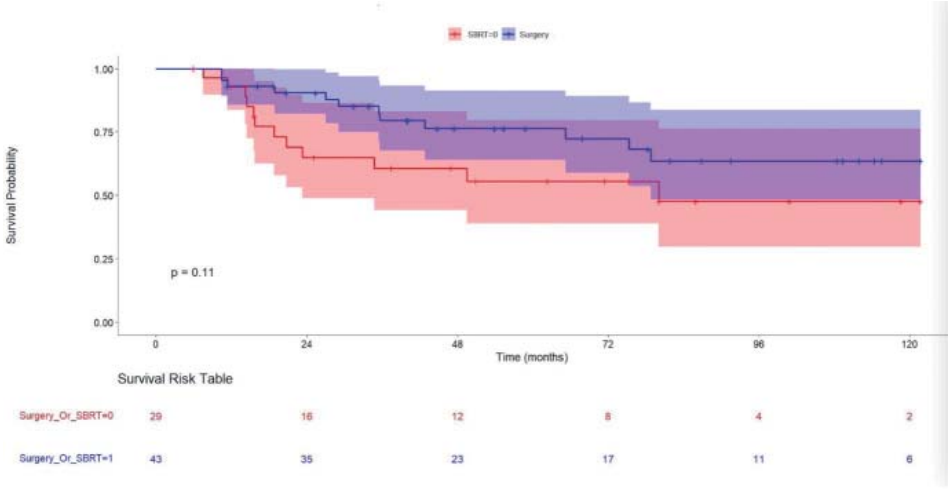
RESULTS
There were 70 recurrences, 41 following surgical resection and 29 following SBRT. Patients who underwent surgical resection were more likely at initial diagnosis to have larger tumors [20 vs 17 mm, p=0.04] and higher baseline FEV1 [89% vs 70%, p=0.001]. Other baseline characteristics including age, sex, stage, and site of tumor (upper, middle, lower lobe) were similar between groups. Compared to recurrences following surgical resection, recurrences following SBRT were more frequently T3/4 (51.9% vs. 20.8%, p=0.02), N2/3 (76.9% vs. 47.5%, p=0.02), and M1 (16.0% vs. 0%, p=0.016). SBRT recurrences were also more likely to have higher overall TNM staging (81.5% stage III/IV vs. 48.8%, p=0.019) (Table 1). Recurrent tumor size demonstrated a trend toward significance, with larger sizes among SBRT patients [14 vs. 22 mm, p=0.041]. Notably, patients who underwent surgical resection showed a trend toward improved 10-year survival (63.6% vs. 47.7%, p=0.11).

CONCLUSIONS
Recurrences following SBRT in patients with early-stage lung cancer are diagnosed when more locally advanced and at higher overall stages compared to recurrences following surgical resection. Late identification of recurrences appears to be an additional risk of SBRT that should be discussed with patients being considered for SBRT as primary therapy.

Disclosure: No significant relationships.
Keywords: Recurrence, Radiation, Surgery, Lung Cancer.

Locoregional recurrence after surgery vs. SBRT for early-stage non-small cell lung cancer. Results are documented as median (IQR)

	Entire cohort (n=70)	Primary Treatment		p-value
		Surgery (n=41)	SBRT (n=29)	
Initial Tumor Size (mm)	19 (15-27.5)	20 (16-30)	17 (12.5-25.5)	0.07
Stage at Initial Diagnosis				
-Stage 1A	49 (72.1%)	26 (63.4%)	23 (85.2%)	
-Stage 1B	8 (11.8%)	5 (12.2%)	3 (11.1%)	0.15
-Stage 2A	8 (11.8%)	7 (17.1%)	1 (3.7%)	
-Stage 2B	3 (4.4%)	3 (7.3%)	0 (0%)	
Recurrent Tumor Size (mm)	18.5 (13-32)	14 (13-20)	22 (13-37)	0.041
Stage at Recurrent Diagnosis				
-Stage I	11 (16.4%)	9 (22.5%)	2 (7.4%)	
-Stage II	14 (20.9%)	11 (27.5%)	3 (11.1%)	0.01
-Stage III	38 (56.7%)	20 (50%)	18 (66.7%)	
-Stage 4IV	4 (6%)	0 (0%)	4 (14.8%)	
Salvage Therapy				
-Systemic	39 (67.2%)	29 (72.5%)	10 (55.6%)	0.20
-Radiotherapy	41 (70.7%)	28 (70%)	10 (72.2%)	0.86
-Surgery	5 (8.6%)	3 (7.5%)	2 (11.1%)	0.64
-Palliative	1 (1.7%)	1 (2.5%)	0 (0%)	1.0


SBRT=0
Surgery
Survival Probability
1.00
0.75
0.50
0.25
0.00
p = 0.11
0
24
48
72
96
120
Time (months)
Survival Risk Table
Surgery_Or_SBRT=0 29 16 12 8 4 2
Surgery_Or_SBRT=1 43 35 23 17 11 6

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STAPLED VERSUS (VS) NON-STAPLED LOBECTOMY AND SEGMENTECTOMY – A RETROSPECTIVE SINGLE CENTRE STUDY

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OBJECTIVES
In times of economic scarcity and the need to save carbon emissions, it is becoming increasingly important for surgeons to become more creative in using cost effective methods and avoiding the usage of disposable materials, all while at the same time providing the same quality of care for all patients.
One way of saving resources is to avoid the usage of endoscopic staplers, accompanied by complimentary application of hand suture and dissection. We propose that non stapled lobectomies and segmentectomies are a non-inferior method to stapled resections.

METHODS
We analysed all VATS anatomic lung resections for lung cancer from 2012 to 2018 using our prospective patient data registry. Patients were categorized according to the method of dissection of parenchyma, blood vessels and bronchi. We used linear endoscopic staplers, hand sutures or Titanium clips.

RESULTS
Between 2012 and 2018, 277 patients underwent lobectomy or segmentectomy using only endoscopic staplers as method of dissection of the parenchyma, bronchi or vessels whereas 144 patients were operated on without the usage of endoscopic staplers. There was no difference between the two groups regarding basic patient criteria (e.g., age, gender, type of resection, smoking status, C-reactive protein preoperatively, FEV 1). Also, length of hospitalization (9.2 [8.6 – 9.9] days for stapled and 8.6 [7.8 – 9.5] days for non-stapled) and drainage time (5.5 [5.0 – 6.1] days vs. 5.1 [4.4 – 6.8] days) showed no significant difference. Operation time was significantly shorter in the stapled group in comparison to the non-stapled group regardless whether segmentectomy of lobectomy was performed (103.8 [93.0 – 114.7] and 128.6 [114.4 – 142.8] vs. 146.2 [139.3 – 153.2] and 161.3 [150.9 – 171.6]. A cost analysis will be appended.

CONCLUSIONS
Non- stapled lobectomy and segmentectomy is a viable alternative to stapled lobectomy and segmentectomy without reduction in patient care quality.

Disclosure: No significant relationships.
Keywords: Video-Assisted Thoracoscopy, Stapled, Non-Stapled, Segmentectomy, Lobectomy.

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SUBLOBAR RESECTION VERSUS (VS) LOBECTOMY IN CLINICAL STAGE Ⅰ A3 NON-SMALL-CELL LUNG CANCER: AN ANALYSIS FOCUSED ON THE CONSOLIDATION TUMOR RATIO (CTR)

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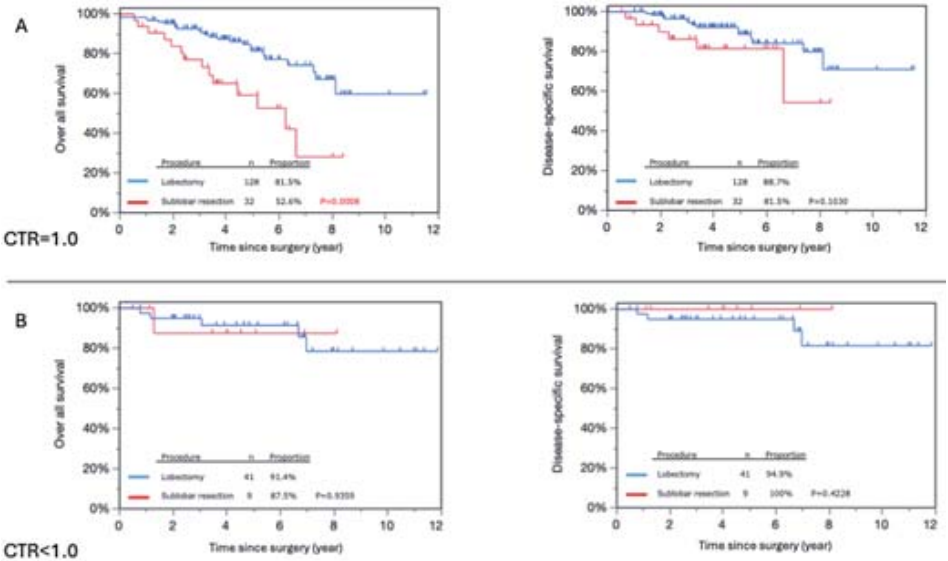
OBJECTIVES
Intentional sublobar resection is feasible for peripheral non-small cell lung cancer (NSCLC) if the tumor is smaller than 2 cm. However, whether it can be applied for tumors >2 cm in size has not been clarified. This study aimed to verify the feasibility of sublobar resection for clinical stage I A3 NSCLC.

METHODS
From 2012 to 2021, 210 patients with clinical stage IA3 NSCLC who underwent lobectomy (n=169) or sublobar resection (n=41; segmentectomy, n=15; wedge resection, n=26) at our institution were retrospectively reviewed. Based on computed tomography, we classified the tumors into two groups: part-solid (consolidation tumor ratio: CTR<1.0) and solid (CTR=1.0). The clinicopathological features, including overall survival (OS), disease-specific survival (DSS), and the recurrence rate were compared between the surgical procedures.

RESULTS
All 41 sublobar resections were selected because of advanced age, low respiratory function, or other comorbidities. Among all patients, sublobar resection was significantly inferior to lobectomy in terms of 5-year OS (66% vs. 84%), but not in terms of 5-year DSS (86% vs. 90%) and recurrence rate (24% vs. 22%). Tumors were classified into solid (n=160) and part-solid (n=50) groups. In the Solid group, sublobar resection was significantly inferior to lobectomy in terms of 5-year OS (53% vs. 81%), but not for DSS or recurrence rate (Figure A). In the Part-solid group, sublobar resection was not inferior to lobectomy in terms of 5-year OS (88% vs. 91%), DSS, or recurrence rate (Figure B).

CONCLUSIONS
This study showed that sublobar resection was not inferior to lobectomy in the part-solid group despite the fact that the patients who underwent sublobar resection represented a high-risk cohort. This suggests that intentional sublobar resection could be applied for clinical stage Ⅰ A3 NSCLC, especially for tumors with a CTR of <1.0.

Disclosure: No significant relationships.
Keywords: Lung Cancer, CTR, Sublobar Resection.


A
Over all survival
Disease-specific survival
Time since surgery (year)
CTR=1.0
B
CTR<1.0

P-281

SUBXIPHOID SINGLE-PORT ROBOTIC THYMECTOMY USING THE SINGLE-PORT ROBOTIC SYSTEM VERSUS VIDEO-ASSISTED THORACIC SURGERY THYMECTOMY: A RETROSPECTIVE, MULTI-INSTITUTIONAL STUDY

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[2]*Anam Hospital, Korea University College of Medicine, Seoul, South Korea*
[3]*Ansan Hospital, Korea University College of Medicine, Ansan, South Korea*

OBJECTIVES
We have previously demonstrated the feasibility of subxiphoid single-port robotic thymectomy using the da Vinci single-port robotic surgical system (SP® system). However, its efficacy was not established. This study aimed to investigate the multi-institutional experiences of subxiphoid single-port (SP) robotic thymectomy using the SP® system, comparing it with subxiphoid SP video-assisted thoracic surgery (VATS) thymectomy.

METHODS
We collected data retrospectively from patients who underwent subxiphoid SP robotic thymectomy and subxiphoid SP VATS thymectomy performed by three thoracic surgeons at three institutions between September 2018 and October 2023.

RESULTS
This study included 88 patients: 69 underwent SP robotic thymectomy, and 19 underwent SP VATS thymectomy. There were no significant differences in total operative time (169.45 ± 74.96 vs 164.47 ± 65.40 min, P=.793), postoperative complications rate (none) (93% vs. 84%, P=.362), and peak pain score (3.68 ± 1.50 vs. 3.79 ± 1.71, P=.788). One patient who underwent SP VATS thymectomy need to conversions to sternotomy. SP robotic thymectomy was associated with a lower conversion rate to multi-port surgery (3% vs. 26%, P=.005) and shorter chest tube duration (1.48 ± 1.02 vs. 2.11 ± 1.44 days, p=.034).

CONCLUSIONS
Compared with SP VATS thymectomy, subxiphoid SP robotic thymectomy using the SP® system may offers several advantages such as a shorter chest tube duration, a lower conversion rate to multiport surgery, and improved surgeon ergonomics. With the ongoing advancement and innovations in the SP® system, this technique can be performed in more complicated cases. A future large-scale randomized controlled study is necessary to establish its benefits.

Disclosure: No significant relationships.
Keywords: Robotics, Thymectomy.

Table 1. Patient characteristics and postoperative outcomes

Variable	Robotic surgery (n=69)	VATS (n=19)	p-value
Age (years)	54.22 ± 21.95	56.58 ± 15.72	0.504
Sex: Male	26 (37%)	10 (53%)	0.241
BMI (kg/m2)	24.81 ± 3.87	24.79 ± 3.47	0.980
Comorbidities: MG	7 (10%)	3 (18%)	0.445
ASA score	2.29 ± 0.75	2.26 ± 0.73	0.890
Mass size (cm)	3.44 ± 1.62	3.94 ± 1.76	0.249
Resected adjacent structures			
Lung	1 (1%)	2 (10%)	0.116
Innominate vein	2 (3 %)	0	1.000
Phrenic nerve	0	1 (5%)	0.216
Pericardium	1 (1%)	1 (5%)	0.387
Extent of resection			
Total thymectomy	67 (97%)	17 (89%)	0.202
Conversion			
To sternotomy	0	1 (5%)	0.216
To. multi-port	**2 (3%)**	**5 (26%)**	**0.005**
Total operative time (min)	169.45 ± 74.96	164.47 ± 65.40	0.793
Pathological diagnosis			
Thymoma	28 (40%)	10 (53%)	0.348
Thymic carcinoma	7 (10%)	0	0.338
Benign cystic lesions	25 (36%)	5 (26%)	0.419
Other	9 (13%)	4 (21%)	0.466
Chest tube duration (days)	**1.48 ± 1.02**	**2.11 ± 1.44**	**0.034**
Postoperative hospital stays (days)	3.03 ± 1.33	7.63 ± 13.31	0.150
Peak pain during the admission (VAS score)	3.68 ± 1.50	3.79 ± 1.71	0.788
Pain on POD 0 (VAS score)	3.36 ± 1.45	3.53 ± 1.54	0.669
Pain on POD 1 (VAS score)	2.91 ± 1.39	3.00 ± 1.37	0.809
Pain on POD 2 (VAS score)	2.07 ± 1.04	2.50 ± 1.61	0.181
Postoperative complications (Clavien-Dindo classfication)			
None	64 (93%)	16 (84%)	0.362
I/II/ III/ IV	2(3%)/1(1%)/3(4%)/0	1(5%)/1(5%)/0/1(5%)	

BMI, body mass index; MG, Myasthenia gravis; ASA, American Society of Anesthesiology; VAS, visual analog scale; POD, postoperative day.

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SUCCESSFUL TREATMENT OF OBSTRUCTIVE PNEUMONIA WITH HEMOPTYSIS CAUSED BY NON-ABSORBABLE SUTURE ASSOCIATED GRANULATION 12 YEARS AFTER LOBECTOMY FOR A PULMONARY CARCINOID TUMOUR

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OBJECTIVES

Background: Bronchial-stump-related complications are rare, specifically bronchial obstruction due to granulation caused by suture material at the bronchial stump. Here, we present an unusual case of bronchial obstructive pneumonia resulting from non-absorbable suture associated granuation 12 years after lobectomy.

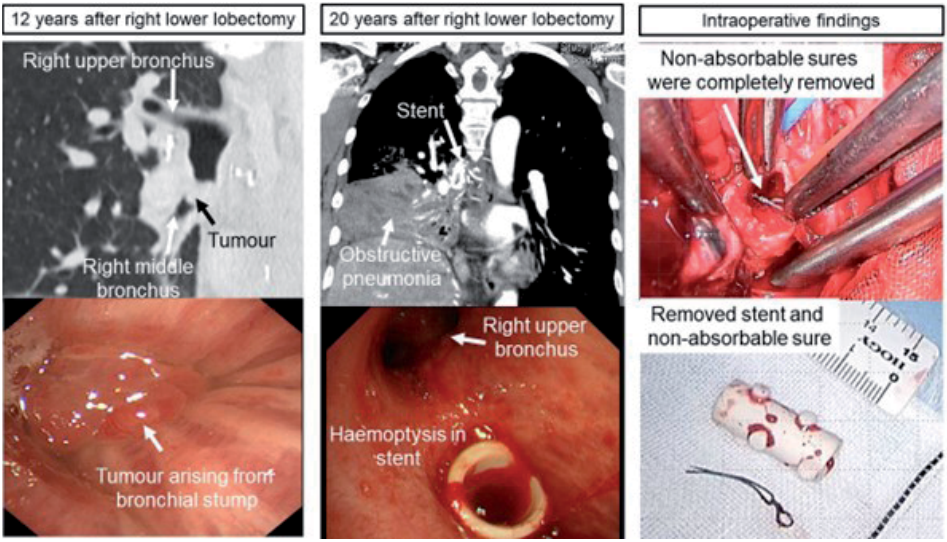
CASE DESCRIPTION

A 43-year-old man underwent a right lower lobectomy with ND2a-2 for a pulmonary carcinoid tumour (pT1bN0M0-stage IA) in 2003.
In 2015, a CT scan revealed an intrabronchial nodule arising from the bronchial stump, obstructing the right middle lobe bronchus. Biopsy confirmed granulation tissue, and a bronchial stent from the intermediate bronchus to the right middle bronchus was implanted.
Despite being asymptomatic during outpatient follow-ups, the patient presented to his previous general hospital in 2023 with massive haemoptysis and obstructive right upper and middle lobe pneumonia. Bronchial artery embolisation was ineffective, and the patient was transferred to our hospital.
The right upper and middle lobes were adequately treated for severe pneumonia with haemostatic agents and antibiotics. A middle lobectomy was performed, revealing firm adhesions throughout the thoracic cavity. The pulmonary vein was ligated into the pericardial cavity. Because dissection of the intermediate bronchus was challenging owing to adhesions, the middle lobe bronchus was incised. The stent and two nonabsorbable sutures used in the right lower lobectomy were removed. The intermediate bronchus was closed by five sutures of 4-0 PDS. Pathological examination revealed granuloma without carcinoid recurrence. The patient remained asymptomatic for one year post-surgery.

CONCLUSIONS

We presented a rare case successfully treated with right middle lobectomy for obstructive pneumonia with haemoptysis caused by a granuloma of the bronchial stump, which developed 12 years after the lobectomy.

Disclosure: No significant relationships.
Keywords: Granuloma, Non-Absorbable Suture, Bronchial Stent, Haemoptysis.


12 years after right lower lobectomy
Right upper bronchus
Tumour
Right middle bronchus
Tumour arising from bronchial stump
20 years after right lower lobectomy
Stent
Obstructive pneumonia
Right upper bronchus
Haemoptysis in stent
Intraoperative findings
Non-absorbable sures were completely removed
Removed stent and non-absorbable sure

P-283

SURGICAL AND NEUROLOGICAL OUTCOMES IN ROBOTIC THYMECTOMY FOR MYASTHENIC THYMOMATOUS PATIENTS

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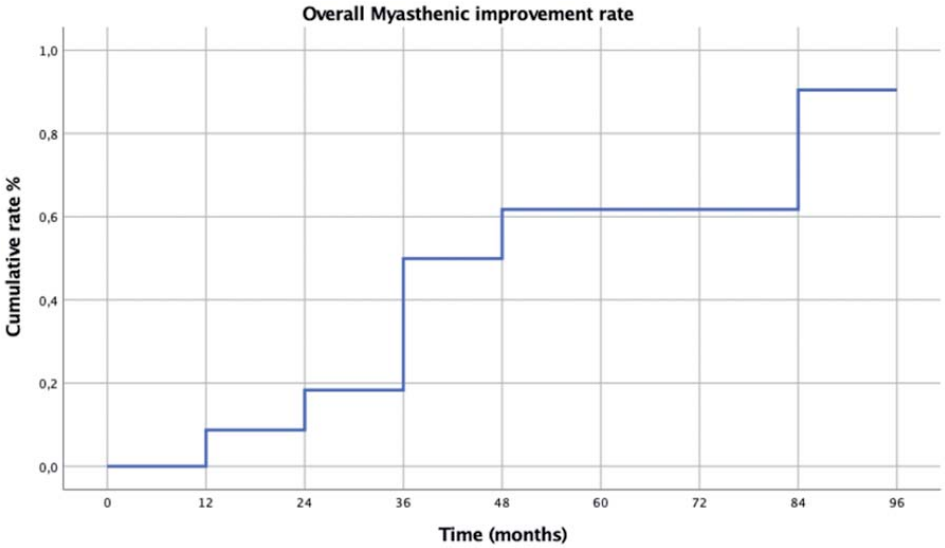
OBJECTIVES
The main aim of this study was to evaluate surgical and neurological outcomes of patients undergone robotic thymectomy (RATS) for thymoma. In Myasthenic patients, neurological outcomes were also analyzed.

METHODS
Among 128 Robotic thymectomies performed at our center from October 2013 to January 2022, the clinical-pathological data of 55 patients with diagnosis of thymoma were reviewed. Thirty (54.5%) patients had concomitant acetylcholine-receptor-antibody-associated Myasthenia Gravis (MG). The Myasthenia Gravis Foundation of America post-intervention score (MGFA-PIS) was used to assess neurological outcomes.

RESULTS
Thirty-nine (70.9%) procedures were performed from the left side. The mean surgical duration was 196.9±79.9 min in MG patients vs 175.8±61.6 min in non-MG (p:0.285), with a longer in-hospital stay (4.8±2.6 vs3.3±2.2 days, p: 0.01) and a significant necessity of ICU admission ($p<0.01$) compared to the other group. Mortality was null. Conversions (3.3% vs 4.0%,p:0.895) and complications (p:0.813) were similar in myasthenic and non-myasthenic thymomas. At multivariable analysis, the main risk factors for conversion and complications were lung involvement (p:0.023) and extended resection (p:0.019), respectively.
The mean age of surgery for MG patients was 54.5±15.9 years. After a mean follow-up of 35.6±25.7 months, 18 (60%) myasthenic patients had an improvement of their clinical conditions: complete stable remission (CSR) was observed in 2 (6.6%) patients, pharmacological remission (PR) in 2(6.6%), minimal manifestation (MM) in 12(40.0%), PR+MM in 4 (13.3%). Twelve patients (40%) showed a stable condition. No worsening was recorded. The 2- and 5-year overall improvement rate was 50% and 90%, respectively.

CONCLUSIONS
RATS thymectomy is safe and feasible treatment in thymomatous patients. Patients with concomitant MG may benefit from a good rate of neurological improvement.

Disclosure: No significant relationships.
Keywords: Robotic Thymectomy, Thymoma, Myasthenia Gravis, Neurological Outcomes.


Overall Myasthenic improvement rate
Cumulative rate %
1,0
0,8
0,6
0,4
0,2
0,0
0
12
24
36
48
60
72
84
96
Time (months)

P-284

WITHDRAWN

P-285

SURGICAL OUTCOMES AFTER EXTENDED THYMECTOMY WITH RESECTION OF MEDIASTINAL VASCULAR STRUCTURES

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OBJECTIVES
To assess surgical outcomes of thymectomy with resection of mediastinal vascular structures.

METHODS
Retrospective analysis of patients undergoing resection of advanced (Masaoka-Koga stage III+) thymic malignancy from 12/1996-7/2023, focusing on venous complications. Clinical features and short-term outcomes were compared with Fisher or Kruskal-Wallis tests and overall survival (OS) with log-rank tests. Pairwise tests corrected for multiple comparisons with the Holm method.

RESULTS
Of 248 patients who underwent thymectomy for malignancy, 53 (21.4%) had advanced disease. Twenty (8.1%) cases included vascular resection: 14 resection of left or right innominate vein (1 with reconstruction), 5 resection and reconstruction of the SVC, 1 resection and reconstruction of the aortic arch (Table 1). Four patients who had vascular resection and reconstruction required CPB, 1 veno-venous bypass, and 2 SVC crossclamping without shunting. Median bypass time was 69 min [range 28-262]. Rates of major postoperative complication were higher after vascular resection and reconstruction than cases with no vascular resection (57.1% vs 9.1%, pairwise p=0.02). Postoperative VTE occurred in 8 patients: 6 DVT, 2 SVC syndrome. Of 6 patients with reconstructed veins, 3 had VTE in the graft. VTE occurred more often after vascular resection and reconstruction than cases with no vascular resection (57.1% vs 6.1%, pairwise p=0.015). Median length of stay was longer after vascular resection and reconstruction than cases with no vascular resection (9 vs 6 days, pairwise p=0.01). There was one 90-day mortality. Patients who underwent vascular resection and reconstruction more often required postoperative anticoagulant use for >6 months (57.1% vs 0%, p<0.001). One-year OS was 100% in cases with vascular resection only and 85.7% in cases with vascular resection and reconstruction (pairwise log-rank p=0.33).

CONCLUSIONS
Thymectomy with resection and reconstruction of mediastinal vascular structures carries significant risk of perioperative morbidity and mortality. Patients undergoing reconstruction of mediastinal veins are likely to require long-term anticoagulation.

Disclosure: No significant relationships.
Keywords: Thymectomy, Thymic Cancer, Venous Reconstruction, Venous Thromboembolism, Complications.

	A. No vascular resection (*n* = 33)	B. Vascular resection only (*n* = 13)	C. Vascular resection and reconstruction (*n* = 7)	*p*-value
Neoadjuvant treatment, *n* (%)	19 (57.6)	9 (69.2)	6 (85.7)	0.350
Chemotherapy alone, *n* (%)	8 (24.2)	6 (46.2)	2 (28.6)	0.344
Chemoradiation, *n* (%)	11 (33.3)	3 (23.1)	4 (57.1)	0.336
Structure resected, *n* (%)				<0.001*
Innominate vein	-	13 (100)	1 (14.3)	
SVC	-	0 (0)	5 (71.4)	
Aortic arch	-	0 (0)	1 (14.3)	
Bypass/crossclamping technique, *n* (%)				<0.001*
None required	33 (100.0)	13 (100)	0 (0)	
Crossclamping only	0 (0)	0 (0)	2 (28.6)	
VVB	0 (0)	0 (0)	1 (14.3)	
CPB	0 (0)	0 (0)	4 (57.1)	
Median bypass time (mins), median [range]	-	-	69 [28-262]	NA
Vascular reconstruction material, *n* (%)				NA
Polyester (Dacron ®)	-	-	3 (42.9)	
Autologous pericardium	-	-	2 (28.6)	
Bovine pericardium	-	-	1 (14.3)	
PTFE (Gore-Tex ®)	-	-	1 (14.3)	
Postoperative length of stay (days), median [IQR]	6 [4 - 7]	6 [5 - 12]	9 [7 - 25]	0.022*
Anya postoperative complication, *n* (%)	17 (51.5)	11 (84.6)	7 (100.0)	0.013*
Majorb postoperative complication, *n* (%)	3 (9.1)	7 (53.8)	4 (57.1)	0.001*
Returned to the operating room, *n* (%)	0 (0)	4 (30.8)	1 (14.3)	0.004*
Readmission, *n* (%)	5 (15.2)	2 (15.4)	2 (28.6)	0.756
Postoperative VTE, *n* (%)	2 (6.1)	2 (15.4)	4 (57.1)	0.008*
Discharged on anticoagulant, *n* (%)	2 (6.1)	2 (15.4)	4 (57.1)	0.008*
Long-term anticoagulant use, *n* (%)	0 (0)	0 (0)	4 (57.1)	<0.001*
30-day mortality	0	0	0	NA
90-day mortality, *n* (%)	0 (0)	0 (0)	1 (14.3)	0.132
Microscopically complete (R0) resection, *n* (%)	16 (48.5)	6 (46.2)	1 (14.3)	0.293
Macroscopically complete (R0/1) resection, *n* (%)	28 (84.8)	13 (100)	6 (85.7)	0.435
1-year overall survival [95% CI]	96.7% [90.5-100%]	100% [100-100%]	85.7% [63.3-100%]	0.26
5-year overall survival [95% CI]	55.9% [38.9-81.9%]	77.1% [53.5-100%]	42.9% [18.2-100%]	0.270

[a]Clavien-Dindo grade II and above.

[b]Clavien-Dindo grade III and above.

CI: confidence interval; CPB: cardiopulmonary bypass; SVC: superior vena cava; VTE: venous thromboembolism; VVB: veno-venous bypass.

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SURGICAL OUTCOMES AFTER NEOADJUVANT CHEMO-IMMUNOTHERAPY IN RESECTABLE LUNG CANCER

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OBJECTIVES
To evaluate the surgical outcomes following neoadjuvant chemo-immunotherapy and surgery for locally advanced non-small cell lung cancer.

METHODS
Prospective analysis on all consecutive patients who underwent neoadjuvant chemotherapy and nivolumab followed by surgery (March 2023-November 2023), in a single centre. Indication for neoadjuvant treatment was tumour size ≥4cm or biopsy proven nodal disease. Patients met with an oncologist and surgeon prior to initiation of pathway, to ensure resectability and operability.

RESULTS
Thirty patients entered the neoadjuvant pathway. PD-L1 expression was >1% in 11(37%) patients. Adenocarcinoma was the histological subtype in 19 (63%) patients. Five (17%) patients did not proceed to surgery: 4 developed disease progression, 1 was unfit for surgery following chemo-immunotherapy. Chemotherapy dose reduction was required for 8 patients (27%).
Of the 25 patients that proceeded to surgery, 22(88%) were minimally invasive(conversion rate 16%). Lobectomy was the most common resection (20[80%]) with a single pneumonectomy(4%). Mean blood loss was 166ml(30–650 ml). Mean length of stay was 6.6 days(range 2 – 33 days, median = 4). 18 (72%) patients were deemed more complex than a standard resection, as per MD Anderson complexity score.
Nineteen (76%) patients stage shifted down with the remaining six not experiencing any stage shift. All patients received an R0 resection. Six (24%) patients had a complete pathological response (cPR) with a further 5(20%) having a major pathological response(MPR). Incomplete pathway was seen more in the patients that required a dose reduction (50% vs 95%, p=0.048), however, there was no correlation between dose reduction and rates of MPR or cPR.

CONCLUSIONS
Our surgical findings appear similar to those reported by the Checkmate 816 study (histology, PDL-1 expression, surgical rate). Importantly, we found similar rates of MPR and cPR amongst our cohort and the Checkmate 816 findings, despite dose reductions. Dose reduction is predictive of an incomplete pathway.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Neoadjuvant, Immunotherapy.

Outcome	Checkmate 816	Our data
Chemo-IO pathway	n=179	n=30
Age	64	65.5
Gender (female)	28.50%	52.0%
AdenoCa	51.40%	63.3%
SCC	48.60%	33.3%
≥ IIIA	63.10%	59.3%
PD-L1 > 1%	49.70%	63.3%
Proceeded to surgery	84.4%	83.3%
Disease progression	6.7%	13.3%
Adverse events	1.1%	0.0%
Other reason	7.8%	3.3%
Pneumonectomy	16.80%	4.0%
Bilobectomy	2.00%	13.6%
Lobectomy	77.20%	80.0%
Minimally invasive	29.50%	88.0%
Conversion rate	11.40%	16.0%
Delay to surgery	3.40%	13.6%
LoS (days)	10 [7 - 14]	6.6 [2 - 33]
R0	83.20%	100%
cPR	24%	24.0%
MPR	36.90%	20.0%

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SURGICAL OUTCOMES AND PROGNOSES OF PATIENTS HAVING LUNG CANCER COMBINED WITH INTERSTITIAL LUNG DISEASE

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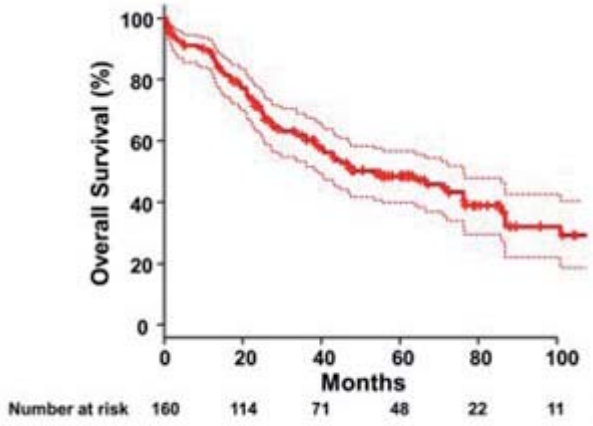
OBJECTIVES
There are some reports on poorer surgical outcomes of lung cancer patients with interstitial lung disease (ILD), which derives from the risks of acute exacerbation of ILD and poor prognoses of ILD itself. In this study, we retrospectively analyzed the perioperative and long-term outcomes in our institution.

METHODS
Between 2004 and 2021, 2317 patients underwent surgical intervention for lung cancer. Among them, 176 patients had lung cancer combined with clinically diagnosed ILD. In this study, 160 ILD patients without a history of lung cancer treatment within 5 years before surgery and undergoing complete resection were enrolled. Perioperative and long-term outcomes including prognoses were investigated in these 160 patients.

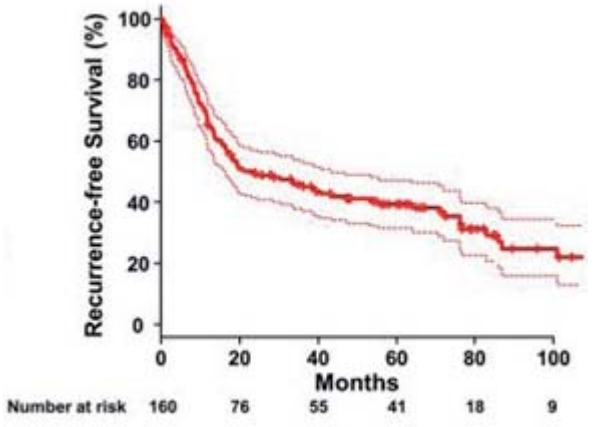
RESULTS
Median age was 74 years (range, 53-89), and 140 were male. Clinical stage was as follows; 104 for stage I, 37 for stage II, and 19 for stage III (8th edition of TNM classification). The mainly performed operation was lobectomy (n=136), followed by partial resection (n=15), segmentectomy (n=7) and pneumonectomy (n=2). Concerning perioperative outcomes, 90-day postoperative mortality was 10 (6.3%) and complications (≥Grade 3 in Clavien-Dindo classification) were observed in 49 patients (30.6%). Regarding long-term outcomes, lung cancer recurrence was observed in 61 patients. Eighty-seven patients died during the observation period, but only 33 patients (37.9%) died from lung cancer recurrence. Second primary lung cancer occurred in 18 patients (11.2%). Five-year overall survival and recurrence-free survival was 48.5% (95% confidence interval [CI]: 39.8-56.6%, Figure A) and 39.4% (95% CI: 31.4%-47.3%, Figure B), respectively.

CONCLUSIONS
A relatively high 90-day mortality was shown. Deaths from other than lung cancer recurrence were observed more frequently than those from lung cancer recurrence. In the selection of treatment strategies for lung cancer combined with ILD, the risks of acute exacerbation of ILD and the progression of ILD should be considered.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Interstitial Lung Disease, Acute Exacerbation, Surgical Outcomes.


Overall Survival (%)
100
80
60
40
20
0
0
20
40
60
80
100
Months
Number at risk 160 114 71 48 22 11

(A)


Recurrence-free Survival (%)
100
80
60
40
20
0
0
20
40
60
80
100
Months
Number at risk 160 76 55 41 18 9

(B)

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SURGICAL OUTCOMES OF COMPLEX SEGMENTECTOMY FOR CLINICAL STAGE IA NON-SMALL CELL LUNG CANCER ADJACENT TO THE INTERSEGMENTAL PLANE OF S6 SEGMENT

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OBJECTIVES
We investigated the clinical efficacy of complex segmentectomy for non-small cell lung cancer (NSCLC) adjacent to the intersegmental plane between S6 and basal segment.

METHODS
From 2009 to 2023, 135 clinical-stage IA NSCLC located adjacent to the intersegmental plane were retrospectively evaluated. The intersegmental plane was identified using the 3D image analysis system (SYNAPSE VINCENT), and the distance (=X) from the intersegmental plane to the caudal side of the tumor was measured. Tumor location was classified into 4 groups: Group A: located in S6, $10 \leq X < 20$mm; Group B: located in S6, $0 < X < 10$mm; Group C: on the plane (X=0); Group D: located in basal segment. Clinicopathological characteristics, perioperative outcomes, and recurrence patterns were compared between the two surgical modes: S6 segmentectomy (S6 group) and complex segmentectomy including S6+S10 or S6+S8 segmentectomy (Complex group).

RESULTS
Of all, 123 patients were in S6 and 12 were in Complex groups. The mean maximum tumor size was 17.1 mm and that of solid size was 9.2 mm. Twenty-nine patients (21%) showed pure-solid, and 75 (56%) located in peripheral region. Tumor distributions were 43 (32%) in group A, 35 (26%) in group B, 15 (11%) in group C, and 42 (31%) in group D. Group D showed significantly more in Complex group (58% vs. 28%, p=0.03). Furthermore, Complex groups showed more pure solid nodules (42% vs. 20%, p=0.07) and longer operative time (142min vs. 132min, p=0.07). Postoperative complications were similar between the 2 groups (Grade 3 or higher: S6: 11%, Complex: 8%), and there were no 90-day deaths in either group. Local recurrence was found in 3 patients, which was exclusive in S6 group (resection margin in 1, intrapulmonary metastasis in 1, and mediastinal lymph node in 1).

CONCLUSIONS
Complex segmentectomies are effective surgical options for NSCLC nearly located on the intersegmental plain of S6 segment.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Complex Segmentectomy, S6 Segment, Intersegmental Plane.

P-289

SURGICAL OUTCOMES OF REPEATED ANATOMICAL LUNG RESECTION AFTER IPSILATERAL SEGMENTECTOMY

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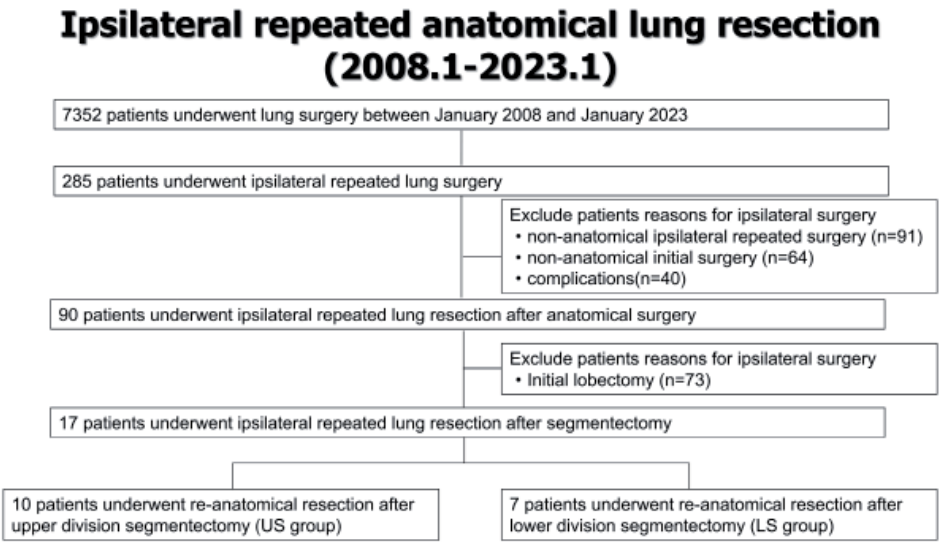
OBJECTIVES
Segmentectomy have been standardized for early-stage non-small cell lung cancer based on the results of JCOG0802/WJOG4607L and CALGB140503. Repeated anatomical lung resection should be considered for local recurrence and ipsilateral metachronous lung cancers. However, the difficulty of re-anatomical resection has not yet been established. In this study, we evaluated the surgical outcomes of patients who underwent ipsilateral re-anatomical lung resection after segmentectomy.

METHODS
Of the 7352 lung resections performed at our institution from 2008 to 2023, 285 (3.9%) patients required ipsilateral lung resection, excluding cases of reoperation for postoperative complications. Among them, 17 (0.2%) patients who underwent ipsilateral re-anatomical resection after segmentectomy were evaluated. Patients who underwent re-anatomical resection after upper division segmentectomy were defined as the post-upper segmentectomy group (US group, n=10), and those who underwent re-anatomical resection after lower division segmentectomy were defined as the post-lower segmentectomy group (LS group, n=7). In addition, comparisons were made regarding patient characteristics and perioperative outcomes of the two groups. p-values less than 0.05 were considered statistically significant.

RESULTS
Surgical procedures were residual pneumonectomy in 2, residual lobectomy in 10, and residual segmentectomy in 5. Median interval time from initial segmentectomy to ipsilateral re-anatomical resection was 68 months (range, 9-120 months). There were no differences in age, sex, pack-year smoking, or tumor size between the US group and the LS group. The US group tended to have longer operative times (median 252 vs. 178 min, p=0.0332). Arterio-plasty and intrapericardial vascular division were needed in 6 and 4 patients in the US group, respectively. There was no 30-day mortality in the LS group, but two patients who underwent residual pneumonectomy for the status of post-left upper division segmentectomy died in the US group.

CONCLUSIONS
Ipsilateral re-anatomical lung resection after segmentectomy is difficult and highly invasive surgery, especially in patients who initially underwent upper division segmentectomy.

Disclosure: No significant relationships.
Keywords: Repeated Anatomical Resection, Segmentectomy, Lung.


Ipsilateral repeated anatomical lung resection (2008.1-2023.1)
7352 patients underwent lung surgery between January 2008 and January 2023
285 patients underwent ipsilateral repeated lung surgery
Exclude patients reasons for ipsilateral surgery
• non-anatomical ipsilateral repeated surgery (n=91)
• non-anatomical initial surgery (n=64)
• complications(n=40)
90 patients underwent ipsilateral repeated lung resection after anatomical surgery
Exclude patients reasons for ipsilateral surgery
• Initial lobectomy (n=73)
17 patients underwent ipsilateral repeated lung resection after segmentectomy
10 patients underwent re-anatomical resection after upper division segmentectomy (US group)
7 patients underwent re-anatomical resection after lower division segmentectomy (LS group)

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SURGICAL STABILIZATION OF MULTIPLE RIB FRACTURES USING A CLAW-TYPE TITANIUM PLATE: A SINGLE-CENTER EXPERIENCE

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OBJECTIVES
Recent studies have highlighted the benefits of early surgical stabilization of rib fractures (SSRF) in patients with flail chest and respiratory failure. In Japan, where clear criteria for SSRF are lacking, this study evaluated the outcomes of SSRF using KANI® titanium plates at our institution.

METHODS
We retrospectively reviewed patients treated with SSRF using KANI® plates for rib fractures between January 2016 and December 2023. Our operative criteria primarily included flail chest with respiratory failure, lung injury requiring repair, and improvement in pain/deformity.

RESULTS
The median age of the 71 patients (48 males, 23 females) was 71 years (range 23-96). The injury mechanisms included traffic accidents (36.6%), falls (53.5%), crush injuries (5.6%), and others (4.2%). Bilateral rib fractures were observed in 17 patients (23.9 %). The median number of fractured ribs was eight (range 2-18). Surgical indications included flail chest (11.3%), improvement in pain/deformity (74.6%), and lung injury requiring repair (14.1%). The median time from injury to surgery was 7 days (range 2-26), with an average of 4 ribs fixed per patient (range 1-10). Fixation predominantly involved the 3rd through 11th ribs, with 94.4% of fixations involving the 4th through 10th ribs. Postoperative hospital stay was 16 days (range 6-185). Intraoperative complications were not observed. Pulmonary interventions were required in nine cases (12.7%). Of the 32 patients with only chest trauma, postoperative complications occurred in two (pulmonary embolism and respiratory infection). Plate dislodgement was noted in six cases, with one patient reporting plate-related pain, but no plate removal was required. No adverse events related to plate dislodgement were observed in the other five cases.

CONCLUSIONS
SSRF with KANI® plates is an effective and safe treatment for rib fractures, provides significant improvements with minimal complications, and is a reliable option in the context of undefined surgical criteria in Japan.

Disclosure: No significant relationships.
Keywords: Rib Fractures, Surgical Stabilization Of Rib Fractures, Rib-Specific Plate.

P-291

SURGICAL TREATMENT OF AN ACQUIRED BENIGN TRACHEOESOPHAGEAL FISTULA AFTER TREATMENT FOR DIFFUSE LARGE B-CELL LYMPHOMA

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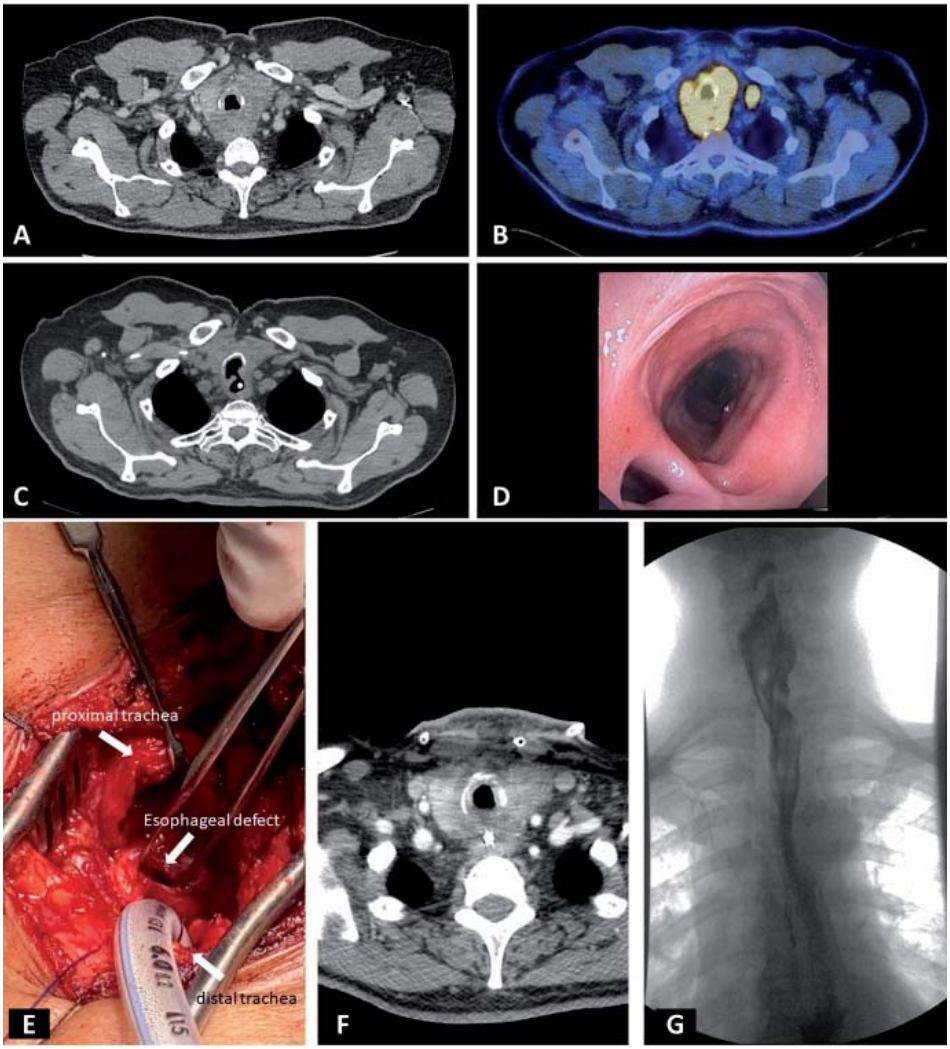
OBJECTIVES
The purpose of this manuscript is to describe a benign acquired traqueoesophageal fistula (TEF) that occurred after treatment for diffuse large B cell lymphoma.

CASE DESCRIPTION
A 69-years-old male had a 6-months history of weight loss, malaise, and dysphagia. Initial investigation with a CT-scan showed a large cervico-mediastinal mass that involved the thyroid gland, trachea and esophagus. Biopsy revealed a grade IV diffuse large B-cell lymphoma. (Figures-A/B)
The patient was started on R-chop protocol. He underwent 2 cycles, but by the end of the 2nd cycle had to be hospitalized. A CT-scan diagnosed a lobar pneumonia and a TEF. Bronchoscopy showed a 10mm TEF at the level of the 2nd tracheal ring.(Figures-C/D). A naso-enteric tube was placed, and the patient underwent the third chemotherapy cycle. He had another pulmonary infection and it was decided to perform the surgical repair of the TEF.
The patient was operated through a cervicotomy. The trachea was opened at the level of the TEF and the esophageal defect was exposed. (Figure-E) A 1.5cm segment of trachea was resected. The esophageal mucosal edges were debrided and the defect was closed over a nasogastric tube in two layers. A pedicled strap muscle flap was mobilized and placed over the esophageal repair. Crico-tracheal anastomosis was performed with a continuous running suture of polydioxanone 4-0 in the membranous wall and separated sutures of polyglactin 3-0 in the cartilaginous wall.
The patient has an uneventful recovery. CT scan and a esophagram were performed prior to hospital discharge. (Figures-F/G) He was able to restore oral intake and continued R-chop treatment.

CONCLUSIONS
The occurence of a benign acquired TEF after lymphoma treatment is very rare. Nonetheless, surgical treatment was feasible. Whenever possible, single-stage primary repair of both airway and esophagus is the treatment of choice, and provides the best long-term results.

Disclosure: No significant relationships.
Keywords: Tracheo-Esophageal Fistula, Surgery, Lymphoma.


A
B
C
D
proximal trachea
Esophageal defect
distal trachea
E
F
G

P-292

SURGICAL TREATMENT OF CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION AFTER FOAM SCLEROTHERAPY: IDENTIFICATION OF A NEW RISK FACTOR FOR CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH)

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OBJECTIVES

Treatment of Chronic Thromboembolic Pulmonary Hypertension (CTEPH) is pulmonary endarterectomy (PEA), if the disease is accessible. Although there are well-defined risk factors for the development of CTEPH, a new risk factor is identified in our series. We hereby present our PEA results in patients with CTEPH after foam sclerotherapy.

METHODS

Between March 2011 and January 2024, 1042, consecutive patients underwent PEA at our institution. Among them, a total of 4 patients were surgically treated with CTEPH related to foamed sclerosing agents. All data were retrospectively reviewed from a database in terms of demographics, clinical features, perioperative and postoperative complications, short and long-term results, length of hospital stay, morbidity and mortality.

RESULTS

Four patients (all female, mean age 45.5 (45–55) years) were identified. All patients had a history of foam sclerotherapy for the treatment of varicose veins. No mortality was observed in the series. Pulmonary vascular resistance improved significantly from 443 dyn/s/cm-5 (344–533) to 210 (134–301) dyn/s/cm-5 ($p<0.005$). Significant difference was also detected in mean mPAP as decline from 43.8 mmHg (38-51) to 22 mmHg (15-24) ($p<0.005$) following surgery. Mean length of hospital stay of the survivors was 9.5 days (8-11). Mean follow-up after PEA was 25 (18-36) months. The intraoperative and postoperative data are summarized in Table 1.

CONCLUSIONS

We hereby report the first series of PEA patients with CTEPH because of foamed sclerosing agents (Figure 1). As foam sclerotherapy has become more and more popular every day in the treatment of varicose veins, we should keep our awareness on development of CTEPH in the follow up of those patients.

Disclosure: No significant relationships.
Keywords: CTEPH, Pulmonary Endarterectomy, Sclerotherapy.

Table. Intraoperative and postoperative data[a]

Characteristics	Value or n
CBP (min)	174 min (185-215)
Aortic cross-clamp (min)	24 min (10-34)
TCA (min)	17 (8-25)
ECMO (n)	0
MV time (days)	1 day (1-1)
ICU (days)	2 days (2-2)
LOS (days)	9.5 days (8-11)
Postoperative mPAP (mm Hg)	22 mm Hg (15-24)
Postoperative PVR (dyn/s/cm^{-5})	210 dyn/s/cm^{-5} (134-301)
Postoperative NYHA class I (n)	4 (100%)

[a] The values are presented as a number (the percentage of variables) or the mean value (range).
Abbreviations: CBP, cardiopulmonary bypass; ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; LOS, length of hospital stay; MV, mechanical ventilation; min, minute; mPAP, mean pulmonary arterial pressure; NYHA, New York Heart Association; PVR, pulmonary vascular resistance; TCA, total circulatory arrest.

P-293

SURGICAL TREATMENT OF POST-PNEUMONECTOMY ESOPHAGOPLEURAL FISTULA

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OBJECTIVES
Esophagopleural fistula is a rare complication following pneumonectomy with few cases reported in literature. It is a devastating condition that can lead to life-threatening sepsis. Its treatment can be endoscopic or surgical, depending on the characteristics of the fistula. Hereby a case of surgical treatment of a large esophagopleural fistula post-pneumonectomy for lung cancer, after failure of endoscopic treatment.

CASE DESCRIPTION
A 65-year-old female patient diagnosed with lung adenocarcinoma received neoadjuvant chemotherapy and immunotherapy, followed by surgical treatment with left pneumonectomy and en-bloc resection of a portion of aortic adventitia. On the 8th postoperative day, onset of fever, increased inflammatory markers and presence of purulent fluid and food particles in the chest tube. After oral administration of methylene blue dye and its subsequent drainage from the pleural space, the patient underwent esophagogastroduodenoscopy with diagnosis of esophagopleural fistula. The initial treatment was insertion of an esophageal stent, however this approach was unsuccessful and after 26 days the patient underwent open thoracostomy procedure with debridement of the pleural cavity, where the fistula was seen to extend beyond the esophageal stent. The stent was subsequently removed, and the patient transferred to our unit. After optimization of the patient's nutritional status, surgical procedure was performed with bipolar exclusion of the esophagus, retrosternal esophagogastric bypass and jejunostomy. Lastly, on the 8th postoperative day after esophageal exclusion, the open thoracostomy was surgically closed and on the 10th postoperative day the patient reintroduced oral intake of liquids with no further complications. The esophagogram performed 3 months postoperatively showed a good caliber of the esophageal anastomosis.

CONCLUSIONS
Surgical treatment of large esophagopleural fistulas is indicated when endoscopic treatment fails. Furthermore, bipolar exclusion of the esophagus and reconstruction of the digestive tract is the best course of action when the extent of fistulous tract may present a problem for direct repair.

Disclosure: No significant relationships.
Keywords: Esophagopleural Fistula, Esophageal Exclusion, Post-Pneumonectomy Complications.

P-294

SURGICAL VERSUS NON-SURGICAL TREATMENT FOR ADVANCED THYMIC EPITHELIAL TUMORS: A RETROSPECTIVE CASE – CONTROL STUDY

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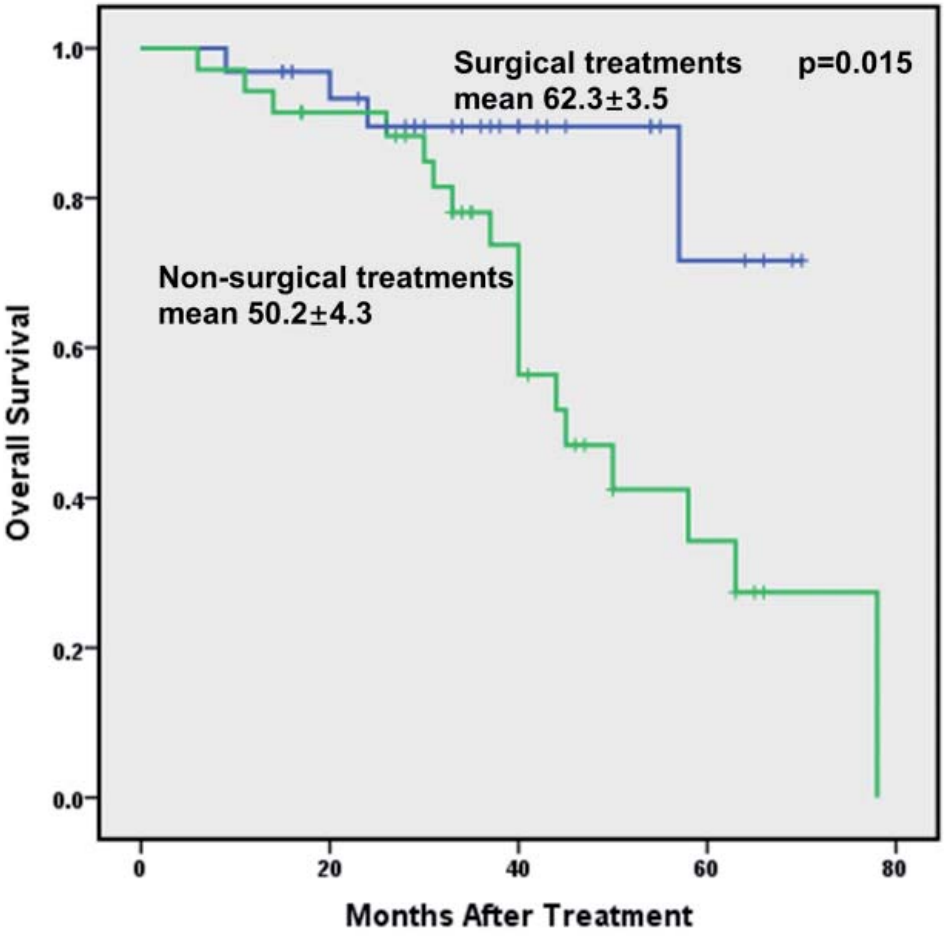
OBJECTIVES
Only some patients with advanced thymic epithelial tumors (TETs) which invaded brachiocephalic vein, superior vena cava, lung, etc. have the opportunity for radical surgical resection. For those patients with advanced TETs that cannot be surgically removed due to tumor invasion of the aorta, pulmonary artery, etc., or distant metastasis, non-surgical treatment is more likely to be chosen. Here we aim to compare the long-term survival of surgical versus non-surgical treatment for advanced TETs.

METHODS
A retrospective case-control study was designed to compare outcomes of patients with advanced TETs who underwent surgical or non-surgical treatment at our center from January 2016 to July 2022. The methods of the surgical treatments included radical surgical resection only, radical surgical resection combined with chemotherapy, and radical surgical resection combined with radiotherapy. The methods of the non-surgical treatments included chemotherapy, radiotherapy, targeted therapy, immunotherapy and other treatments alone or in combination. The overall survival was assessed by using Kaplan–Meier curve.

RESULTS
A total of 67 patients were included in this study, 32 surgical and 35 non-surgical treatments, respectively. There were no statistical differences between the two groups in terms of patient gender, age, and tumor size. The Masaoka stage of the non-surgical group was significantly later than that of the surgical group. The median follow-up was 41 months. The overall survival of the surgical treatment group was significantly better than that of the non-surgical treatment group (mean 62.3±3.5 vs 50.2±4.3, p=0.015; Figure 1), especially after 2 years of treatment, the survival advantage of the surgical treatment group was even more obvious (Figure 1).

CONCLUSIONS
Compared with non-surgical treatments, surgical treatments can bring significant long-term survival benefits to patients with advanced TETs, especially after 2 years.

Disclosure: No significant relationships.
Keywords: Thymic Epithelial Tumors, Advanced TETs.


Surgical treatments
mean 62.3±3.5
p=0.015
Non-surgical treatments
mean 50.2±4.3
Overall Survival
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
Months After Treatment

P-295

SURVIVAL AND RECURRENCE AFTER ROBOTIC RESECTION OF THYMOMAS GREATER THAN FIVE CENTIMETERS

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OBJECTIVES
Size as criterion for minimally invasive thymectomy is controversial given the paucity of long-term outcomes for large thymoma resections. We aimed to compare recurrence and survival of patients with ≥5cm thymomas resected robotically versus open and ≥5cm versus <5cm thymomas robotically resected.

METHODS
Consecutive upfront thymoma resections between 2006-2022 were reviewed. Thymic carcinoma/neuroendocrine tumors, video-assisted thoracoscopic resections, stage IV disease, open resections <5cm, and those missing imaging were excluded. Clinical size was used for characterization. For thymomas ≥5cm, open versus robotic resections were compared. In robotic resections, thymomas ≥5cm versus <5cm were compared. Outcomes of interest were freedom from recurrence (FFR) and overall survival (OS) estimated via Kaplan-Meier method.

RESULTS
A total of 92 patients were included; 77 (84%) underwent robotic resection while 15 (16%) were open. Of robotic resections, 25 (32%) were ≥5cm while 52 (68%) were <5cm.
Overall, the median age was 63 (IQR:51-69) years. There were 29 (32%) partial thymectomies and 87 (95%) patients had R0 resection. Further characteristics are listed in the table. The median follow-up was 5 (IQR:2-9) years with 4 (4%) patients having recurrence and 5 (5%) demised.
In thymomas ≥5cm, the groups were similar; except for higher Charlson-Deyo index in the open group [Table]. Five-year FFR (100% versus 100%, p=0.221) and OS (100% versus 100%, p=0.340) were comparable between the groups.
Characteristics of robotic resections of thymomas <5cm were similar to thymomas >5cm except those <5cm were more frequently Masaoka-Koga stage II [Table]. Five-year FFR (88% versus 100%, p=0.474) and OS (98% versus 100%, p=0.616) were similar between the groups.

CONCLUSIONS
Large thymomas, ≥5 centimeters, can feasibly be resected robotically with no difference in recurrence or survival when compared to open resection or smaller robotic resections. These maturing results, along with other growing long-term data support the continued expansion of minimally invasive surgery for thymoma resection.

Disclosure: No significant relationships.
Keywords: Thymoma, Thymectomy, Robotic Surgery, Recurrence, Survival.

		THYMOMA ≥ 5 CM			ROBOTIC RESECTION		
	Total	**Open**	**Robotic**	**p value**	**≥ 5 cm**	**< 5 cm**	**p value**
	n=92	**n=15**	**n=25**		**n=25**	**n=52**	
DEMOGRAPHICS AND CLINICAL CHARACTERISTICS							
Median Age, years (IQR)	63 (51-69)	56 (47-68)	58 (49-69)	0.345	58 (49-69)	66 (56-69)	0.467
Female	50 (54%)	4 (27%)	14 (56%)	0.071	14 (56%)	32 (62%)	0.642
Median BMI, kg/m^2 (IQR)	27 (23-31)	29 (26-34)	27 (25-31)	0.247	27 (25-31)	26 (22-30)	0.234
ECOG ≥ 1	27 (29%)	7 (47%)	6 (24%)	0.175	6 (24%)	14 (27%)	0.784
Charlson-Deyo Comorbidity Index				**0.024**			0.535
0	69 (75%)	13 (87%)	20 (80%)		20 (80%)	36 (69%)	
1	18 (20%)	0	5 (20%)		5 (20%)	13 (25%)	
≥ 2	5 (5%)	2 (13%)	0		0	3 (6%)	
Myasthenia Gravis	17 (19%)	1 (7%)	4 (16%)	0.633	4 (16%)	12 (27%)	0.474
OPERATIVE CHARACTERISTICS							
Conversion to Open	1 (1%)	-	0	NA	0	1 (2%)	1
Partial Thymectomy	29 (32%)	1 (7%)	9 (36%)	0.060	9 (36%)	19 (37%)	0.963
En Bloc Structures Resected							
Lung	8 (9%)	4 (27%)	3 (12%)	0.237	3 (12%)	1 (2%)	0.098
Pericardium	6 (7%)	4 (27%)	1 (4%)	0.056	1 (4%)	1 (2%)	0.547
PATHOLOGICAL CHARACTERISTICS							
Histology (1 unknown)				1			0.842
MNT	4 (4%)	0	1 (4%)		1 (4%)	3 (6%)	
A/AB/B1	54 (59%)	10 (67%)	16 (64%)		16 (64%)	28 (54%)	
B2/B3	34 (36%)	5 (33%)	8 (32%)		8 (32%)	20 (40%)	
R0 Resection	87 (95%)	15 (100%)	24 (96%)	1	24 (96%)	48 (92%)	1
Masaoka-Koga Staging				0.309			0.023
I	42 (46%)	7 (47%)	16 (64%)		16 (64%)	19 (37%)	
II	49 (53%)	7 (47%)	9 (36%)		9 (36%)	33 (63%)	
III	1 (1%)	1 (7%)	0		0	0	
AJCC Staging				0.375			NA
I	91 (99%)	14 (93%)	25 (100%)		25 (100%)	52 (100%)	
II	0	0	0		0	0	
III	1 (1%)	1 (7%)	0		0	0	

		THYMOMA ≥ 5 CM			ROBOTIC RESECTION		
	Total	**Open**	**Robotic**	**p value**	**≥ 5 cm**	**< 5 cm**	**p value**
	n=92	**n=15**	**n=25**		**n=25**	**n=52**	
POST-OPERATIVE TREATMENT AND OUTCOMES							
Adjuvant Radiation	13 (14%)	3 (20%)	2 (8%)	0.358	2 (8%)	8 (15%)	0.485
New Onset Myasthenia Gravis	1 (1%)	0	0	NA	1 (2%)	0	1
Recurrence	4 (4%)	0	1 (4%)	1	1 (4%)	3 (6%)	1
Local	2 (50%)	0	0		0	1 (33%)	
Regional	1 (25%)	0	1 (100%)		1 (100%)	1 (33%)	
Distant	1 (25%)	0	0		0	1 (33%)	
Median Follow Up, years (IQR)	5 (2-9)	10 (5-13)	5 (2-9)	0.056	5 (2-9)	4 (2-8)	0.237
Five-Year Freedom from Recurrence (95%CI) *	94% (88-100%)	100% (100-100%)	100% (100-100%)	0.221	100% (100-100%)	85% (76-100%)	0.474
Five-Year Overall Survival (95%CI) *	99% (97-100%)	100% (100-100%)	100% (100-100%)	0.340	100% (100-100%)	98% (94-100%)	0.616

CM, centimeter; BMI, Body Mass Index; ECOG, Eastern Cooperative Oncology Group Performance Status; IQR, interquartile range; MNT, micronodular thymoma; AJCC, American Joint Commission on Cancer (8th edition); 95%CI, 95% Confidence interval. *- estimated via Kaplan-Meier method and compared with log-rank test.

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SURVIVAL ASSESSMENT IN PATIENTS WITH DESCENDING NECROTIZING MEDIASTINITIS

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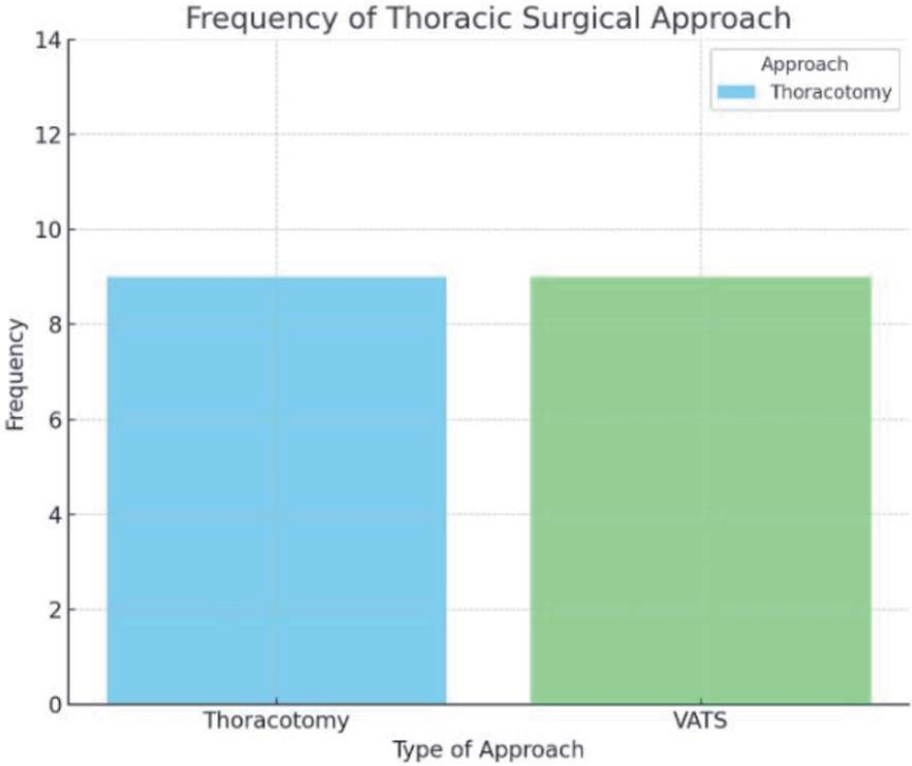
OBJECTIVES
Descending necrotizing mediastinitis (DNM), a rare and severe complication of deep neck infections, often extending into the mediastinum, was the focus of this study. Our aim was to evaluate the epidemiological and clinical characteristics of acute DNM and analyze treatment modalities, including length of stay and surgical interventions.

METHODS
A retrospective analysis of data from a public hospital database covering the period from 2018 to 2023 was conducted, with a specific focus on cases of acute mediastinitis, according to the ENDO classification for this pathology.

RESULTS
This study examined 31 patients, primarily male, with an average age of 46.5 years old. Common symptoms included odynophagia and fever, with tonsillar abscess and odontogenic focus as the primary causes. The time lapse between appearance of symptoms and hospital admission was after 96 hours in 77% of patients. Furthermore, antibiotics were used in combined therapies and severity varied, with 51.6% classified as Grade IIB, 29.03% as Grade I, and 19.35% as Grade IIA. Surgical interventions were VATS (45%) and thoracotomy (55%) (Figure 1). A substantial number required ventilation and tracheostomy. In addition to this, 40% underwent thoracic reoperation and approximately 54.8% experienced complications. There was a 12.9% mortality rate, underscoring the condition's gravity and associated procedures. These findings provide valuable insights into mediastinitis characteristics and outcomes in this cohort.

CONCLUSIONS
This retrospective study on acute DNM highlights its severity, predominantly affecting males, with a relatively high mortality rate. The common use of pre-hospitalization antibiotics underscores the importance of early medical attention. Diverse clinical presentations emphasize the condition's complexity, reinforcing the necessity for early diagnosis, multidisciplinary treatment, and ongoing efforts to improve patient outcomes, including extended hospitalization and diverse surgical strategies.

Disclosure: No significant relationships.
Keywords: Mediastinitis, Mediastinum.


Frequency of Thoracic Surgical Approach
Approach
Thoracotomy
Frequency
0
2
4
6
8
10
12
14
Thoracotomy
VATS
Type of Approach

P-297

SURVIVAL FOLLOWING SYSTEMIC TREATMENT AND ESOPHAGECTOMY IN ESOPHAGEAL SQUAMOUS CELL CARCINOMA WITH DISTANT LYMPH NODE METASTASIS

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OBJECTIVES
The role of surgery in oligometastatic esophageal squamous cell carcinoma (ESCC) is under debate. This study evaluates oncological outcomes in ESCC patients with distant lymph node (LN) metastasis undergoing surgery post-chemoradiotherapy or chemotherapy.

METHODS
We retrospectively analyzed 180 ESCC patients with nodal metastasis, treated with chemoradiotherapy or chemotherapy followed by esophagectomy between 2010 and 2020, comparing outcomes between patients with distant LN metastasis (dLN+) and those with exclusively regional LN metastasis (dLN-). Primary outcomes included overall survival (OS) and recurrence-free survival (RFS).

RESULTS
The cohort comprised 69 dLN+ and 111 dLN- patients. The median follow-up duration after the initial diagnosis was 37.5 months. Survival was significantly better in dLN- patients compared to dLN+ patients (5-year OS: 51.9% vs 25.5%, $p<0.001$; RFS: 47.2% vs 18.1%, $p<0.001$). Multivariate Cox analysis identified distant LN metastasis as an independent prognostic factor for both OS (HR=2.17, $p<0.001$) and RFS (HR=2.19, $p<0.001$).

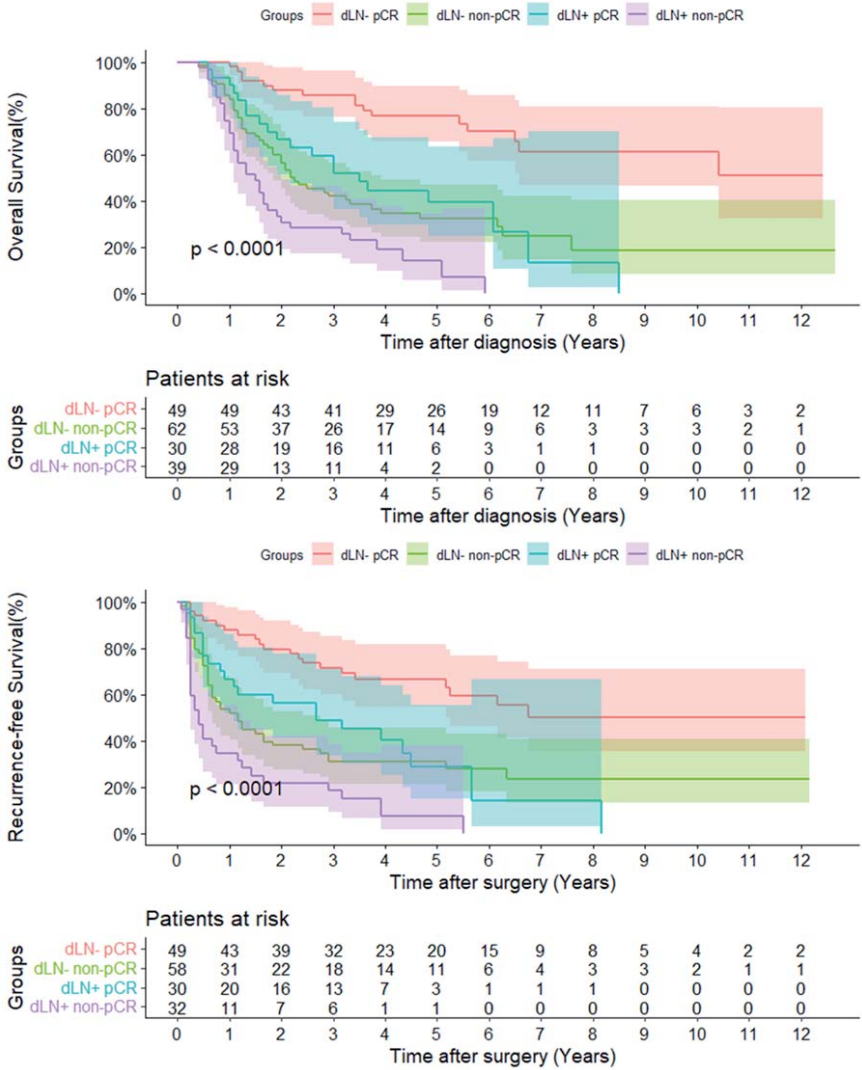
When stratified by yp stage, 49 dLN- and 30 dLN+ patients achieved pathological complete response (pCR). In dLN- patients, the OS was substantially higher in the pCR group (5-year OS: 76.7%) compared to the non-pCR group (32.4%). For dLN+ patients, these rates were 39.6% and 14.2%, respectively. The highest OS was observed in dLN-/pCR patients, significantly outperforming both dLN-/non-pCR and dLN+/pCR groups ($p<0.001$). There was no OS difference was noted between dLN-/non-pCR and dLN+/pCR groups ($p=0.613$). The dLN+/non-pCR group had the worst OS. RFS analysis paralleled these OS findings.

CONCLUSIONS
dLN+ patients had inferior outcomes compared to dLN- counterparts, irrespective of pCR status. No significant survival differences were observed between dLN-/non-pCR and dLN+/

pCR groups. The results imply a potential need for adjuvant therapy in dLN+ patients following systemic treatments and surgery, even with achieved pCR.

Disclosure: No significant relationships.

Keywords: Esophageal Squamous Cell Carcinoma, Esophagectomy, Distant Lymph Node Metastasis.



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SURVIVAL OUTCOME IN PN1 NON SMALL CELL LUNG CANCER (NSCLC) AFFECTED PATIENTS: A MULTICENTRIC PROSPECTIVE STUDY

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[5]*Thoracic Surgery Unit, Università di Pisa, Pisa, Italy*
[6]*Thoracic Surgery Unit, San Raffaele Hospital, Milan, Italy*
[7]*Thoracic Surgery Unit, Humanitas Hospital, Milan, Italy*
[8]*Thoracic Surgery Unit, APHP, Centre Université de Paris Cité site Cochin, Paris, France*

OBJECTIVES

The aim of this study is to describe the prognostic factors for survival in pN1 NSCLC patients who underwent surgical treatment for NSCLC, with particular interest on nodal characteristics and pathology.

METHODS

Data of patients surgically treated for NSCLC in 8 centres between 1/05/2020 and 30/06/2023 that resulted to be pN1, were prospectively collected and analysed. Patients who underwent wedge resection, with distant metastasis at the time of surgery, and with incomplete data about the lymphadenectomy, were excluded.

The primary outcome was Disease free survival (DFS), calculated as the time between the surgery and the recurrence occurrence. Clinical and pathological characteristics were described using descriptive statistics. Clinical and pathological characteristics were associated to DFS using Kaplan-Meier curves and log rank analysis.

RESULTS

The final analysis was conducted on 158 pN1 patients that met the inclusion criteria. Clinical and pathological characteristics are reported in table 1. At preoperative, 112(70.9%) were cN0 and 46(29.1%) were cN1. The majority of tumours had dimension between 2 and 3 cm. Lymphatic invasion was present in 46(29.1%) patients. STAS was present in 26(16.5%) patients. In the majority of cases (121,76.6%) more than 1 hilar station and more than 3 mediastinal station (83,52.5%) were removed.

At univariate analysis, cN1 (p=0.05) and lymphatic invasion presence (p=0.03) were significantly correlated to worse DFS. In detail, 3YDFS resulted 66.1% vs 44% in cN0 vs c N1 patients and 51.4% in patients with lymphatic invasion vs 72.7% in patients without. No significant association was found between DFS and the dimension, the number of removed hilar and mediastinal stations and removed nodes and the number of positive hilar stations.

CONCLUSIONS

Our study showed a survival advantage in patients pre-operatively cN0 patients and without lymphatic invasion at the pathological analysis. These parameters may be further validated to plan ad hoc post-operative treatments.

Disclosure: No significant relationships.
Keywords: Lung Cancer, N1, Staging, Adjuvant Therapy, Surgery.

Clinicopathologic Findings	Total (N=158)	P value (HR 95%)
Sex Female Male	 59 (37.3) 99 (62.7)	0.291
Tobacco exposure Yes Not	 48 (30.4) 110 (69.6)	0.934
Diabetes No Yes	 130 (82.3) 28 (17.7)	0.124
Tumor location LLL LUL RLL ML RUL Right Hilum Left Hilum	 32 (20,3) 42 (26,6) 26 (16,5) 11 (7) 45 (28,5) 1 (0,6) 1 (0,6)	0.633
cN1 No Yes	 112 (70.9) 46 (29.1)	**0.05**
Kind of resection lobectomy bilobectomy/sleeve pneumonectomy segmentectomy	 131 (82,9) 7 (4,4) 16 (10,1) 5 (2.5)	
pT dimension (cm) <2 2-3 3-5 >5 Missing	 44 (27.8) 46 (29.1) 40 (25.3) 27 (17.1) 1 (0.6)	0.215
Histology Adenocarcinoma Squamous cell carcinoma Other	 102 (27.8) 40 (25.3) 16 (10.1)	0.190
STAS No Yes	 132 (83,5) 26 (16,5)	0.457
Pleural infiltration No Yes	 91 (57,6) 67 (42,4)	0.861

Clinicopathologic Findings	Total (N=158)	P value (HR 95%)
Lymphatic invasion No Yes	 112 (70,9) 46 (29,1)	0.3
Vascular Invasion No Yes	 111 (70,3) 47 (29,7)	0.422
Kind of Lymphoadenectomy Lobe specific radical dissection	 52 (32,9) 106 (67,1)	0.848
N hilar resected station 0-1 >1	 37 (23,4) 121 (76,6)	0.155
N hilar metastatic station 0-1 >1	 139 (88) 19 (12)	0.495
N hilar resected nodes 0-3 ≥3	 25 (15,8) 133 (84,2)	0.118
N hilar metastatic nodes 0-1 >1	 89 (56,3) 69 (43,7)	0.102
N mediastinal resected station 0-3 ≥3	 75 (47,5) 83(52,5)	0.230
Adjuvant therapy No Yes Missing	 51 (32,3) 81 (51,3) 26 (16,5)	0.133

P-299

SURVIVAL OUTCOMES OF PATIENTS WITH ADENOCARCINOMA OF THE ESOPHAGOGASTRIC JUNCTION: A SINGLE CENTER EXPERIENCE IN CHINA

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OBJECTIVES
Adenocarcinoma of the esophagogastric Junction (AEG) is a rare subtype of esophageal cancer. Current treatment strategies for optimal perioperative and surgical intervention pathways remain unclear, especially in Asia, where there is a lack of reported evidence. This study reviews the real-world treatment of AEG from a Chinese high-volume esophageal cancer center.

METHODS
This study reviewed patients with AEG who underwent surgical treatment at our center from 2015-2021, AEG was diagnosed by computed tomography, esophageal endoscopy, and postoperative pathology. Patients were categorized into surgical, neoadjuvant, and adjuvant therapy groups based on the choice of different treatment modalities, and prognosis was compared.

RESULTS
The incidence of AEG in our center is about 5.5% and a total of 279 patients with AEG were included. Depending on the treatment modality, a total of 120 patients received only surgery, 17 patients underwent surgery after neo-adjuvant therapy, and 142 patients received adjuvant therapy after surgery. The survival analysis demonstrated that the neoadjuvant group had poorer overall survival (OS) compared to the adjuvant group (Figure A). Subgroup analyses showed that among pN+ patients, the adjuvant therapy group had an OS benefit compared with the surgery group, and had the highest 5-year survival rate (Figure B). In patients with clinical stage with stage III-IV, the adjuvant therapy group had the highest 5-year survival rate and a significant OS benefit compared with the neoadjuvant therapy group (Figure C-D). Multivariable COX regression analysis showed that different treatment modalities ($p=0.006$) and positive pathologic N-stage ($p<0.001$) were independent prognostic factors for OS in patients with AEG.

CONCLUSIONS
Neo-adjuvant therapy was rarely used in AEG and showed a relatively poor long-term prognosis. For clinical stage III-IV and pN+ patients, Adjuvant therapy after surgery is associated with better survival. Future real-world studies with larger samples based in Asia are needed to explore more appropriate treatment modalities.

Disclosure: No significant relationships.
Keywords: Esophageal Cancer, Esophagogastric Junction, Adenocarcinoma.

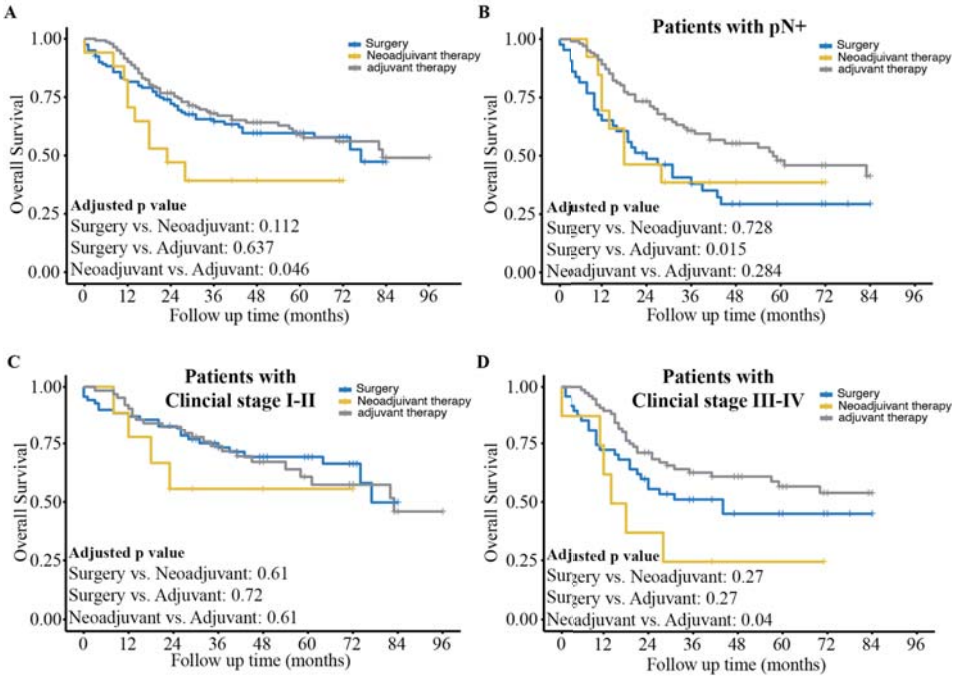

Figure :(A) Comparsions of OS between different treatment modalities. ()Comparsions of OS between different treatment modalities in patients with pN+.(C-D)Comparsions of OS between differert treatment modalities in patients with clinical stage I-II and III-IV.

P-300

SURVIVAL OUTCOMES OF STAGE III MANAGED BY SURGERY OR DEFINITIVE RADIATION THERAPY IN THE ERA OF IMMUNOTHERAPY

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OBJECTIVES
The introduction of immunotherapy in the management of locally advanced non-small cell lung cancers (NSCLCs) has significantly improved patient outcomes. In 2017, our center evaluated immunotherapy for stage III NSCLCs as follows: induction chemo- immunotherapy followed by surgery for potentially resectable and chemo-radiation therapy followed by immunotherapy for non-resectable NSCLCs. Here, we report and compare the outcomes of 68 stage III NSCLCs (45 single N2 and 23 bulky N2 or N3) managed by multimodal therapy including immunotherapy and surgery or radiation therapy.

METHODS
Using our prospectively collected database, we reviewed all stage III NSCLCs patients treated in our institution between 2017 and 2023 with chemo- immunotherapy and surgery or radiation therapy. We recorded clinico-pathological characteristics, perioperative complications, and long-term outcomes. We compared groups using Stata®.

RESULTS
Thirty-two patients (26 single N2 and 6 bulky N2/N3) underwent surgery and 36 (19 single N2 and 17 bulky N2/N3) underwent radiation therapy. Patients were significantly older (75 vs 63 years old, $p<0.05$) and had worst lung diffusion capacity (61% vs 85% of predicted value, $p<0.05$) in the radiation group. Tumor stages were equilibrated between both groups. All potentially resectable patients had surgery after induction chemo-immunotherapy (lobectomy/bilobectomy n=31, 97%, pneumonectomy n=1, 3%). Pulmonary and cardiac morbidity were comparable between surgery and radiation groups (40% vs 33% and 19 vs 14%, $p>0.05$). No 30-day mortality occured. Complete pathological response occurred in 7 patients (6 of 26 single N2 and 1 of 6 bulky N2/N3). Overall survival was significantly higher in the surgery group and was the best in patients with complete pathological response (Figure 1).

CONCLUSIONS
The inclusion of immunotherapy in neoadjuvant protocols has improved tumor response and allowed to consider potentially resectable bulky N2/N3 NSCLCs for surgery with good outcomes. Careful patient selection within multidisciplinary tumor boards remains mandatory and further studies are required.

Disclosure: No significant relationships.
Keywords: NSCLC, Neoadjuvant, Chimiotherapy, Immunotherapy, Surgery.

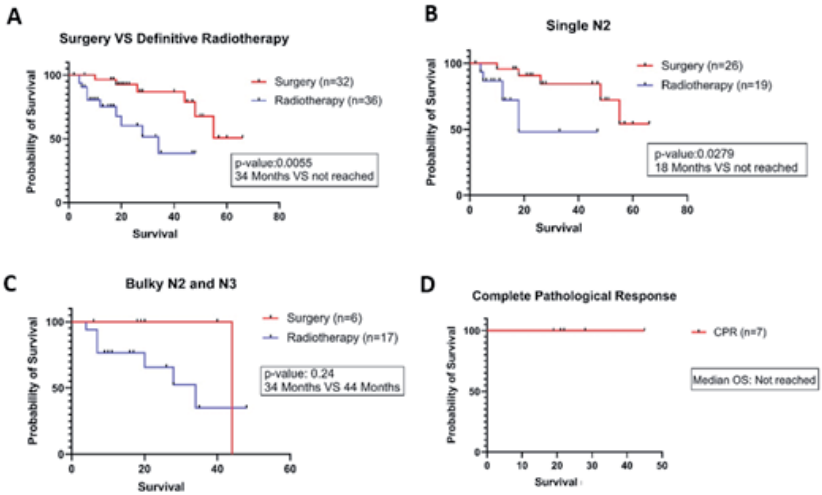

Fig. 1: Kaplan-Meier analysis comparing overall survival in months (OS) between A) surgery and radiotherapy, B) single N2 patients, C) bulky N2 and N3 patients. D) Kaplan-Meier analysis of surgical patients with complete pathological response. Median OS are reported for radiation and surgery groups respectively.

P-301

SYNCHRONOUS LUNG RESECTION FOR NON SMALL CELL LUNG CANCER (NSCLC), CORONARY REVASCULARIZATION AND AORTIC VALVE REPLACEMENT

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OBJECTIVES

Coexisting cardiac disease is an important risk factor in patients undergoing lung resection for non-small cell lung cancer. In large centers it is reported that only 0.5% of patients require simultaneous cardiac and thoracic surgery, however, there are no official guidelines.

CASE DESCRIPTION

We present 2 cases, a 71-year-old man, who presented with a lesion in the upper left lobe, PET-positive and severe aortic valve stenosis along with coronary artery disease and a 74-year-old woman with renal insufficiency, a PET-positive lesion in the right lower lobe and unstable angina. Both patients underwent a detailed examination with chest computed tomography, positron tomography and bronchoscopy, echocardiography and coronary angiography. Bronchoscopy revealed squamous cells in both cases. Considering our findings, we decided on a combined operation consisting of left upper lobectomy and lymph node dissection through median sternotomy followed by extracorporeal circulation, aortic valve replacement along with coronary revascularization in the first case and right lower lobectomy followed by coronary revascularization in the second one. Our patients were extubated after 12 hours and they were admitted to the ward after 48 hours. One presented full atelectasis of the rest of the lung on the 4th postoperative day, he underwent urgent bronchoscopy and bronchial toilet and was placed on non-invasive mechanical ventilation for 48h . Intensive respiratory physical therapy was essential for both patients. Mortality was 0. Histology revealed squamous lung carcinoma pT2bN0M0.

CONCLUSIONS

1. Combined lung resection for malignancy and surgical management of severe heart disease is deemed necessary in very selected patients after MDT.
2. The most common approach is median sternotomy.
3. Most authors prefer cardiac surgery without the use of extracorporeal circulation. However, if its use is considered unavoidable, lung resection should precede cardiac operation.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Unstable Angina, Aortic Stenosis.

P-302

SYSTEMIC INFLAMMATION ASSESSMENT IN THE MANAGEMENT OF NON-SURGICALLY RESECTED MALIGNANT PLEURAL MESOTHELIOMA: A BREAKTHROUGH ON CLINICAL OUTCOMES AND PROGNOSIS

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OBJECTIVES
Inflammation represents a core factor in pathogenesis and progression of malignant pleural mesothelioma (MPM). The aim of this study was to investigate the prognostic role of inflammatory biomarkers in non-surgically resected MPM patients.

METHODS
Baseline and 3-days post-operative (p.o.) clinical and laboratory data of a single-center 15-year cohort of consecutive patients who underwent video-assisted thoracoscopic talc pleurodesis for MPM were retrospectively collected. Inflammation-related indexes included: platelet-to-lymphocyte ratio (PLR), neutrophil-to-lymphocyte ratio (NLR) and systemic immune-inflammation index (SII). Pleural effusion recurrence at 30 and 90 days p.o., and overall survival (OS) were also recorded.

RESULTS
From 2008 to 2022, seventy-seven (59M, 18F) patients, with a mean age of 69.2 ± 21.2 years, were included. Forty-five (59.2%) patients presented an early-stage disease (stage I and II) and fifty (65.8%) had an epithelioid subtype. Median baseline PLR, NLR and SII were 172.6 (range: 68.6-574.0), 5.1 (range: 1.7-26.1) and 1258.4 (range: 76.5-8094.4), respectively. Median p.o. PLR, NLR and SII were 188.7 (range: 54.9-505.9), 3.4 (range: 1.3-15.9) and 1256.9 (range: 240.1-7055.4), respectively. Ipsilateral pleural effusion recurrence occurred in 29 patients (38.2%) at 30-days p.o. and in thirty-eight (49.4%) at 90-days p.o. Median OS was 9.5 (range: 3-96) months. Baseline inflammation-related parameters did not impact on pleural effusion recurrence. Conversely, p.o. inflammatory markers significantly affected pleural effusion recurrence after 30-days (PLR: p=0.035 and SII: p=0.019) and 90-days (NLR: p=0.006, PLR: p=0.013, and SII. p=0.042). Patients with p.o. PLR>190 and SII>1000 had a higher risk of pleurodesis failure. Univariate analysis showed that PLR index, NLR>5 and SII>1200 were associated with poor prognosis. Multivariable analysis confirmed baseline NLR>5, p.o. PLR and p.o. SII as independent negative predictors of OS (Table).

CONCLUSIONS

Systemic inflammation strongly influences the prognosis of patients with not surgically resected MPM. The inflammatory markers showcase a potentially valuable support for predicting the risk of pleural effusion recurrence.

Disclosure: No significant relationships.

Keywords: Malignant Pleural Mesothelioma, Systemic Inflammation, Platelet-To-Lymphocyte Ratio, Neutrophil-To-Lymphocyte Ratio, Systemic Immune-Inflammation Index.

Table. Univariate and multivariable analysis investigating inflammation-related risk factors of mortality and pleural effusion recurrence

	Univariate analysis		Multivariable analysis	
OVERALL SURVIVAL				
Variable	**HR [95% CI]**	**p-value**	**HR [95% CI]**	**p-value**
NLR ***Baseline NLR>5*** **p.o.***	2.38 [1.37-4.14] 1.10 [1.01-1.20]	**0.002** **0.046**	2.29 [1.27-4.13]	**0.006**
PLR* ***Baseline*** **p.o.**	1.01 [1.01-1.02] 1.01 [1.01-1.02]	**0.016** **0.009**	1.01 [1.01-1.02]	**0.007**
SII ***Baseline SII>1200*** **p.o.***	1.92 [1.10-3.36] 1.00 [1.00-1.00]	**0.022** **0.018**	1.00 [1.00-1.00]	**0.038**
30-days p.o. PLEURAL EFFUSION RECURRENCE				
NLR* ***Baseline*** **p.o.**	0.98 [0.86-1.11] 1.16 [0.95-1.41]	0.978 0.158		
PLR ***Baseline**** **p.o. PLR>190**	1.01 [0.99-1.01] 2.69 [1.03-7.80]	0.321 **0.049**	1.01 [1.01-1.02]	**0.027**
SII > 1000 ***Baseline*** **p.o.**	1.15 [0.41-3.27] 3.72 [1.24-11.17]	0.792 **0.019**	1.01 [1.01-1.02]	**0.044**
90-days p.o. PLEURAL EFFUSION RECURRENCE				
NLR* ***Baseline*** **p.o.**	1.04 [0.86-1.25] 1.55 [1.07-2.26]	0.722 **0.021**		
PLR ***Baseline**** **p.o. PLR>190**	1.01 [0.99-1.01] 3.33 [1.02-12.21]	0.255 **0.049**	1.01 [1.01-1.02]	**0.027**
SII > 1000 ***Baseline*** **p.o.**	0.82 [0.26-2.55] 4.82 [1.18-19.68]	0.729 **0.029**	1.01 [1.01-1.02]	**0.044**

HR, hazard ratio; CI, confidence interval; NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; SII, systemic immune-inflammation index.* Continuous variable.

P-303

TEN YEARS EXPERIENCE OF UNCONTROLLED DONATION AFTER CIRCULATORY DEATH (DCD) PROGRAM ON A MEDIUM-VOLUME LUNG TRANSPLANTATION CENTRE

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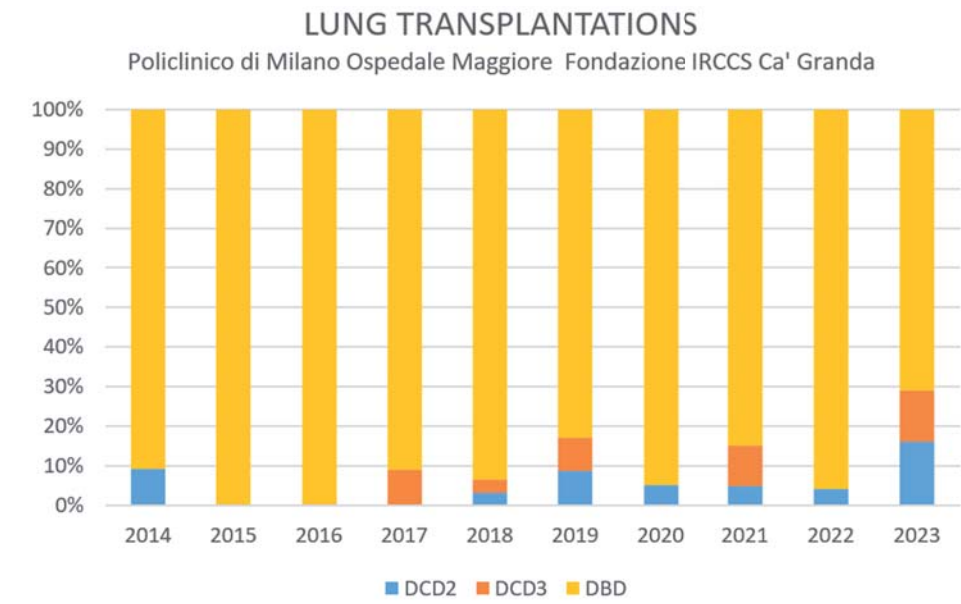
OBJECTIVES
Lung transplantation from uncontrolled donation after circulatory death (uDCD) donors made it possible to expand the pool of donors despite being more complex to manage because of timing, graft preservation, consent authorization and logistical organization.

METHODS
Data on uDCD donors and recipients undergoing lung transplantation (LT) at our Centre were collected. Our centre's protocol employs an in-situ open and ventilated normothermic lung preservation (i.e., protective ventilation and continuous positive airway pressure) without topical cooling, followed by an ex-situ graft evaluation (i.e., ex-vivo lung perfusion). After one year of preclinical phase in 2013, we started with the clinical program, interrupted in 2015 and 2016 for logistical reasons, but kept open during the COVID-19 pandemic.

RESULTS
We performed 13 bilateral lung transplantations from uDCD donors. In particular, we approached 55,56% of the referrals, obtaining consent to donation in 84% of the cases. After an initial on-site assessment, our equipe recovered 90,48% of the evaluated donors. 94,74% of the recovered lungs underwent EVLP. Eventually, the 72,22% of the lungs that underwent EVLP were considered suitable for transplantation. The most frequent reasons for donor refusal were: smoking habits, organ pathologies, logistic problems within our hospital. However, clinical outcomes of LT with uDCD donors are satisfactory despite extended ischemic times. We have had a constant increase in lung donors of this type. In particular, in the last year, both type 2 and 3 DCD donors have impacted approximately 30% of our activity (Fig. 1).

CONCLUSIONS
Despite the difficulties associated with lungs recovery in uDCD donations, excellent results can be achieved according to this protocol. Furthermore, uncontrolled DCD donations can increase the number of potential donors with satisfying outcome comparable with those from DBD transplantations. collaboration between centres is essential for rapid and effective recovery of the organ.

Disclosure: No significant relationships.
Keywords: Lung; Transplantation; Dcd; Udcd; Dcd2; Evlp.


LUNG TRANSPLANTATIONS
Policlinico di Milano Ospedale Maggiore Fondazione IRCCS Ca' Granda
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
DCD2
DCD3
DBD

P-304

THE CHEST-TUBE POSITION THROUGH UTILITY INCISION AFTER U-VIDEO ASSISTED THORACIC SURGERY (VATS) LOBECTOMY DOES NOT AFFECT POST-OPERATIVE PLEURAL EFFUSION. A COMPARATIVE STUDY

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OBJECTIVES
To investigate whether the routinely position of chest-tube through utility incision after U-VATS lobectomy affects the residual post-operative pleural effusion.

METHODS
Here a retrospective analysis of 214 patients consecutively underwent pulmonary lobectomy for lung cancer, submitted to different surgical video-thoracoscopic approach divided into two groups. Group A (107 patients) underwent U-VATS with chest-tube positioned through the utility incision, while Group B (107 patients) underwent triportal-VATS with chest-tube fixed through the camera port. Perioperative and clinical data of two groups were analyzed and compared focusing on post-operative pleural effusion among both groups (primary outcome) using the chest X-ray carried out at the end of surgery, at 3rd post-operative day and before discharged home. The post-operative pleural effusion was evaluated by volume predictions (score from 0 to 3) provided by Blackmore based on the presence or absence of a meniscus on chest radiographs.

RESULTS
The two groups had a similar pre-operative characteristic with no significant differences about age, gender, smoking status, body mass index, FEV1, DLCO, major comorbidity and resected lung lobe ($p>0,05$). Using Blackmore score system, we analyzed the primary outcome: the U-VATS group had less pleural effusion at the end of surgery ($p<0,001$) and at 3rd post-operative days ($p<0,001$) both significantly, but no significant differences were found at chest X-ray performed before discharged home ($p=0,145$). Furthermore, the U-VATS group had less operative time (180 vs 241 median time; $p<0,001$), few days of chest tube (3 vs 5 mean days; $p=0,004$) and lower size in diameter of chest tube (75% vs 20% of 24 french tube, $p<0,001$) (Table 1).

CONCLUSIONS

The chest tube position through utility incision after U-VATS lobectomy does not affect the residual pleural effusion compared to triportal-VATS, while the uniportal approach maintaining several advantages such as the shorter operation time and days of chest tube in place.

Disclosure: No significant relationships.

Keywords: Chest-Tube; U-VATS Lobectomy; Triportal VATS Lobectomy; Lung Cancer.

Patients characteristics		U-VATS (n=107)	Triportal VATS (n=107)	p
Male, n (%)		67 (63)	57 (53)	0,166
Age, median (IQR)		69 (62-76)	7 (64-77)	0,619
BMI, mean (SD)		25,85 (4,38)	25,4 (4,22)	0,451
FEV1, median (IQR)		104,5 (90-119)	104 (89,25-117,5)	0,687
DLCO, mean (SD)		84,7 (17,9)	81,48 (16,7)	0,189
Smokers, n (%)		70, (65)	79 (74)	0,181
COPD n (%)		24 (22)	23 (21)	0,869
Diabetes n (%)		21 (20)	15 (14)	0,273
Dyslipidemia n (%)		4 (38)	36 (34)	0,476
Neoadjuvant therapy n (%)		1 (1)	3 (3)	0,614
Type of lobectomy	*Upper right lobe n (%)*	*29 (27)*	*38 (36)*	
	Middle lobe n (%)	*4 (4)*	*11 (10)*	
	Lower lobe n (%)	*25 (23)*	*14 (13)*	
	Upper left lobe n (%)	*28(26)*	*24 (22)*	0,167
	Lower left lobe n (%)	*18 (17)*	*17 (16)*	
	Upper bilobectomy n (%)	*1 (1)*	/	
	Lower bilobectomy n (%)	*2 (2)*	*3 (3)*	
Operative time median (IQR)		180 (149-226)	235 (191-269)	***<0,001***
Chest tube time (mean days)		3 (3-5)	5 (3-7)	***0,004***
Chest-tube 24 French n (%)		79 (75)	23 (20)	***<0,001***
Postop. complications n (%)		36 (34)	44 (41)	*0,281*
Pneumonia n (%)		1 (1)	3 (3)	*0,620*
Fever n (%)		8 (7,48)	12 (11,21)	*0,359*
Blackmore's chest X-ray score*		**chest X-ray at the end of surgery**		
0 n (%)		85 (79)	51 (48)	
1 n (%)		15 (14)	50 (47)	
2 n (%)		6 (6)	6 (6)	***<0,001***
3 n (%)		/	/	
NA n (%)		1 (1)	/	
		chest X-ray at 3rd postoperative day		
0 n (%)		85 (79)	51 (48)	
1 n (%)		15 (14)	50 (47)	
2 n (%)		6 (6)	6 (6)	***<0,001***
3 n (%)		/	/	
NA n (%)		1(1)	/	
		chest X-ray before discharged home		
0 n (%)		47 (44)	36 (34)	
1 n (%)		36 (34)	53 (50)	
2 n (%)		17 (16)	14 (13)	***0,145***
3 n (%)		6 (6)	4 (4)	
NA n (%)		1 (1)	/	

* Blackmore's scoring system for chest X-ray: score 0= normal cardiophrenic angle (CPA); score 1= pleural effusion is visible and blunted the CPA below the level of the hemidiaphragm (HD); score 2= the CPA was blunted at the level of the HD; score 3= the HD was completely obscured.

P-305

THE CONTRIBUTION OF STERNOTOMY IN THE INFLAMMATORY RESPONSE TO CARDIOTHORACIC SURGERY IN CHILDREN

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OBJECTIVES

Cardiothoracic surgery using cardiopulmonary bypass (CPB) causes a systemic inflammatory response. It is not clear what sternotomy contributes to the overall inflammatory effects during cardiothoracic surgery with CPB. The purpose of this study is to determine if sternotomy alone contributes significantly to the cumulative inflammatory response during pediatric cardiothoracic surgery with CPB and sub-zero ultrafiltration.

METHODS

In this sub-analysis of a prospective single-arm clinical study (forty pediatric patients undergoing cardiothoracic surgery with CPB), a descriptive analysis was conducted comparing changes in 33 inflammatory mediators (complement factors, chemokines, cytokines, and leukocyte adhesion molecules) at three timepoints: 1) pre-sternotomy, 2) post-sternotomy, and 3) end of CPB. Differences in inflammatory mediator concentrations at all timepoints were assessed in a pairwise fashion, and the median difference (MD) [95% confidence interval] was calculated between timepoints 1-to-2 and 2-to-3. The fold change for each mediator was calculated by (MD/median pre-sternotomy concentration) and (MD/median post-sternotomy concentration), respectively.

RESULTS

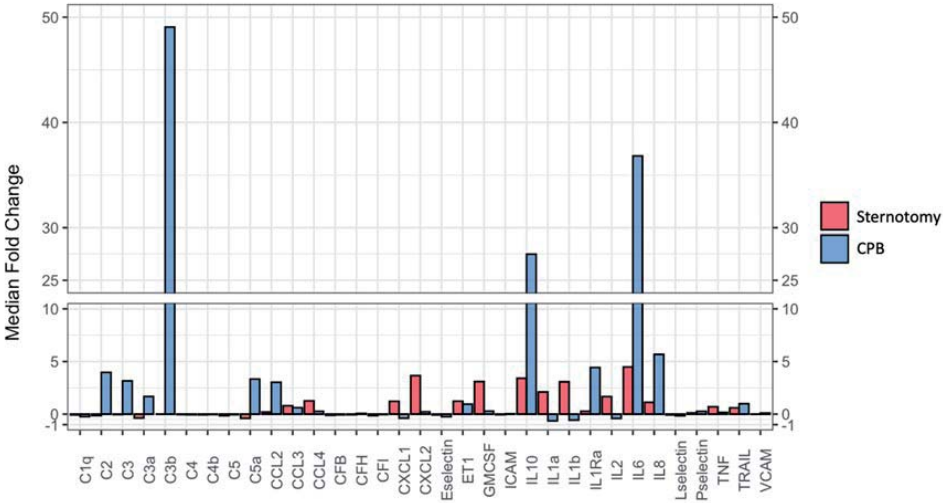
With sternotomy, 23 of 33 inflammatory mediators changed significantly ($p < 0.05$), but importantly, all cytokines and chemokines increased. As displayed in the figure, the largest median fold increases were in IL-6 (4-fold), CXCL2 (4-fold), IL-10 (3-fold), GM-CSF (3-fold), and IL-1b (3-fold). Complement factors did not increase significantly.
From post-sternotomy to end-CPB, 22 of 33 mediators increased significantly. The fold increases were substantially higher for almost all mediators, as seen in the figure, with the largest increases in C3b (49-fold), IL-6 (36-fold), and IL-10 (27-fold).

CONCLUSIONS

Sternotomy, a form of major tissue trauma, is primarily associated with increased expression of pro-inflammatory cytokines and chemokines. In contrast, CPB is primarily associated with increased expression of complement factors, and most significantly C3b (which triggers the inflammatory cascade). We conclude that the magnitude of the fold increases in inflammatory mediators on CPB dwarfs the change seen in mediators in the same patients after sternotomy alone.

Disclosure: No significant relationships.

Keywords: Pediatric Cardiothoracic Surgery, Sternotomy, Cardiopulmonary Bypass, Congenital Heart Disease, Inflammation.



P-306

THE EFFECT OF AWAKE VIDEO-ASSISTED THORACIC SURGERY (A-VATS) ON PERIOPERATIVE AND POSTOPERATIVE PARAMETERS IN PLEURAL SURGERY

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OBJECTIVES
To evaluate the effect of A-VATS on perioperative and postoperative parameters in pleural pathologies and to assess its potential as a standard practice.

METHODS
Data from 37 intubated patients and 22 patients who underwent A-VATS for pleural causes between June 2015 and January 2023 were retrospectively evaluated. Vital signs, laboratory values, operative follow-up, and postoperative follow-up were compared between intubated and awake groups.

RESULTS
Postoperative arterial blood pressure (115/70±21/12 vs. 127/78±19/12), pain scores (1.4±1.1 vs. 2.6±1.2) and NSAID requirement (63.6% vs. 86.5%) were lower in the awake group ($p<0.05$). Peroperative pulse rate (80±10 vs. 91±17) and postoperative body temperature (35.9 vs. 36.4) were lower in the intubated group ($p<0.05$). Neutrophil percentage change (110±100% vs. 58±77%), percentage increase in neutrophil percentage (30.8±24.6% vs. 12.8±30.1%) and postoperative lymphocyte/monocyte ratio (2.5±1.8 vs. 1.6±0.9%) were higher in the intubated group ($p<0.05$). The presence of atelectasis was higher in the intubated group (26 [70.3%] vs. 5 [22.7%], $p<0.05$). Anesthesia satisfaction (4.08±0.81 vs. 3.19±0.84, $p<0.001$), postoperative hospitalization (9±9.5 days vs. 3.38±3.2 days, $p=0.013$), and drain length of stay (5.7±4.9 days vs. 2.7±2.4 days, $p=0. 009$), postoperative onset of oral intake (86±63 minutes vs. 298±162 minutes), mobilization (122±102 minutes vs. 365±283 minutes) and flatus/discharge time (1143±1232 minutes vs. 1931±1143 minutes) ($p<0.001$) ($p<0.001$) and cost (610±436 $ vs. 881±779 $, $p=0.028$) were significantly lower.

CONCLUSIONS
A-VATS should be considered for all patients scheduled for VATS due to its faster return to normal physiologic values in the postoperative period and easier return to normal functioning. Randomized controlled studies with large series including different surgical procedures are needed for its use for diagnosis and treatment in the same session. Our clinical applications on this subject will continue.

Disclosure: No significant relationships.
Keywords: Awake VATS, Minimally Invasive Thoracic Surgery, Pleural Disease, Pleural Effusion, Spontaneous Respiration.

	Intubated VATS				Awake VATS				p	
	Mean±SD / N-%			Median	Mean±SD / N-%			Median		
Anesthesia satisfaction score (0-5)	3.19	±	0.84	3	4.09	±	0.81	4	***<0.001***	m
Total duration of anesthesia (min)	113.8	±	38.4	105.0	92.7	±	33.6	92.5	0.055	m
Operation duration (min)	68.9	±	36.0	60.0	50.0	±	22.5	50.0	0.058	m
Length of hospital stay (days)	3.38	±	3.2	2.0	9	±	9.5	5.0	***0.013***	m
Hemorrhage (ml)	32.8	±	46.5	25.0	21.1	±	7.4	20.0	0.158	m
Incision size (cm)	1.6	±	0.7	1.2	1.6	±	0.7	1.2	0.371	m
Initiation of oral intake (min)	298	±	162	280	86	±	63	65	***<0.001***	m
Start of mobilization (min)	365	±	283	300	122	±	102	78	***<0.001***	m
Onset of flatulance/fecal discarge (min)	1931	±	1143	1540	1143	±	1232	810	***<0.001***	m
Total drainage (ml)	443	±	425	400	567	±	507	350	0.395	m
Air leak duration (days)	0.46	±	2.06	0.00	1.9	±	3.96	0.00	0.133	m
Chest tube length of stay (days)	2.7	±	2.4	2.0	5.7	±	4.9	4.0	***0.009***	m
Cost ($)	881	±	779	763	610	±	436	481	***0.028***	m

[m] Mann-Whitney u test

P-307

THE EFFECT OF BIOACTIVITY OF AIRWAY EPITHELIAL CELLS USING METHACRYLATED GELATIN SCAFFOLD LOADED WITH EXOSOMES DERIVED FROM BONE MARROW MESENCHYMAL STEM CELLS

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OBJECTIVES

To evaluate the effect of exosomes derived from bone marrow mesenchymal stem cells on airway epithelial cells in vivo and in vitro and to predict their possible mechanisms.

METHODS

Exosomes derived from bone marrow mesenchymal stem cells and epithelial cells were obtained through primary culture and characterization. The biological effects of exosomes derived from bone marrow mesenchymal stem cells on epithelial cells, especially, proliferation and migration were detected in vitro. Further sequencing analysis and prediction of possible molecular mechanisms were carried out. Finally, exosomes derived from bone marrow mesenchymal stem cells were used in animal models in vivo to evaluate their efficacy.

RESULTS

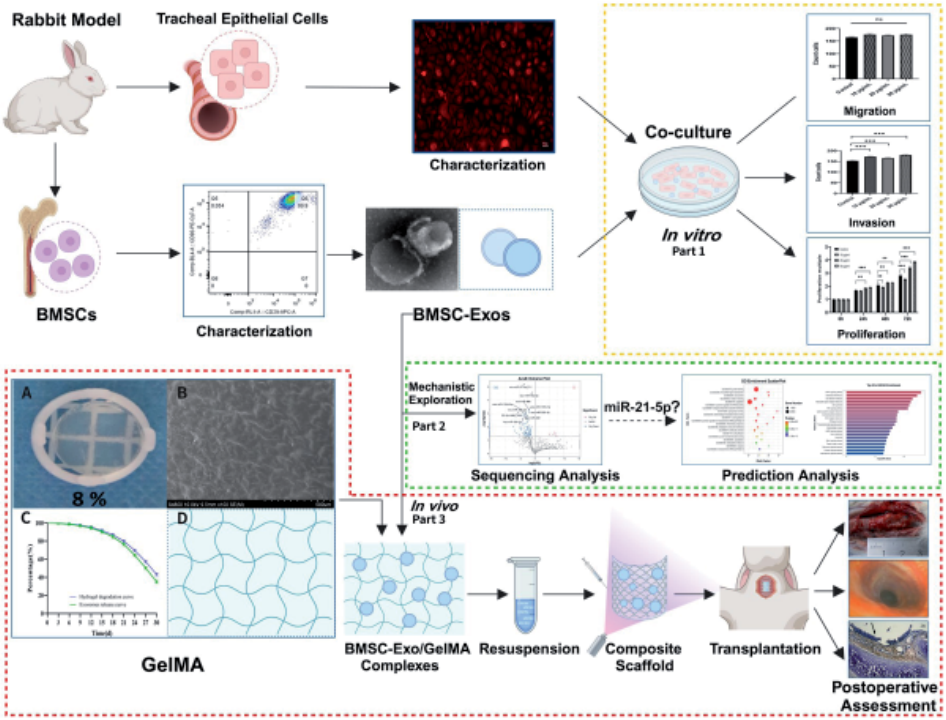
In this study, primary bone marrow mesenchymal stem cells and epithelial cells were efficiently isolated and cultured, and high-purity exosomes were obtained. Upon uptake of exosomes derived from bone marrow mesenchymal stem cells, epithelial cells exhibited enhanced proliferation ($P<0.05$), while migration showed no difference ($P>0.05$). Notably, invasion demonstrated significant difference ($P<0.05$). Sequencing analysis suggested that miR-21-5p may be the key molecule responsible for the effects of exosomes derived from bone marrow mesenchymal stem cells, potentially mediated through the MAPK or PI3k-Akt signaling pathway. The in vivo experiments showed that the presence of methacrylated gelatin loaded with exosomes derived from bone marrow mesenchymal stem cells in composite scaffolds significantly enhanced epithelial crawling in the patches in comparison to the pure decellularized group.

CONCLUSIONS

The biological effects of bone marrow mesenchymal stem cells on epithelial cells may be exerted through exosomes, which may activate the downstream target protein pathway through miR-21-5p, promoting the proliferation and invasion of epithelial cells in vitro and in vivo, thus favoring the epithelialization process of tracheal grafts.

Disclosure: No significant relationships.

Keywords: Stem Cells, Exosomes, Epithelial Cells, Molecular Mechanism, Orthotopic Tracheal Transplantation.



P-308

THE EFFECT OF MULTIPLE AND SINGLE STATION PN1 INVOLVEMENT AND OTHER PROGNOSTIC FACTORS ON POSTOPERATIVE SURVIVAL IN NON-SMALL CELL LUNG CANCER

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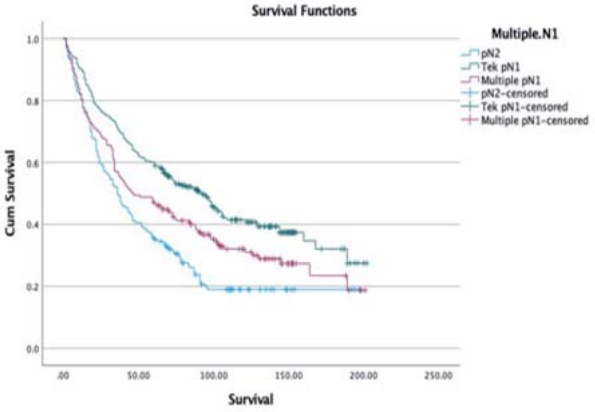
OBJECTIVES
This study investigates the factors affecting survival after surgery in NSCLC patients with pN1 or pN2 nodal involvement. In particular, the independent effects of different levels of nodal involvement, age, gender, type of surgical intervention, and histopathological subtype on survival will be investigated.

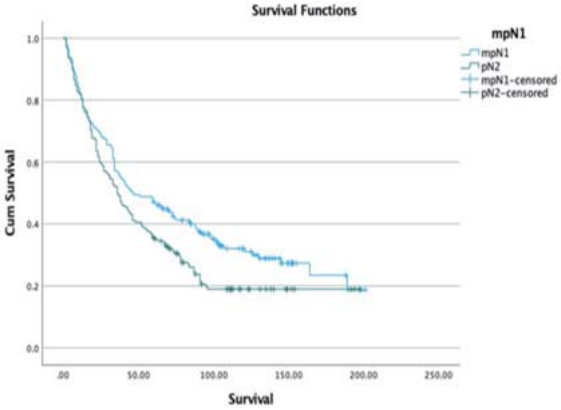
METHODS
In this retrospective study, 613 patients who underwent surgery for non-small cell lung cancer (NSCLC) between 2007 and 2018 and whose pathology results showed pN1 or pN2 nodal involvement were analyzed. The nodal status of the patients was divided into two groups: single station pN1 (spN1) and multiple station pN1 (mpN1).

RESULTS
The mean survival of patients with pN2 was 36 months, the mean survival of patients with spN1 was 92 months, and the mean survival of patients with mpN1 was 46 months ($p<0.001$). In subgroup analysis, a statistically significant difference in mean survival was found when mpN1 was compared with pN2 ($p=0.021$), and a statistically significant difference was found when spN1 was compared with mpN2 ($p=0.006$). In multivariate analysis, those aged 70 years and older (HR 1.69; 95% CI: 1.23-2.13, $p<0.001$) and those with adenocarcinoma histopathology (HR 0.685; 95% CI: 0.55-0.84, $p<0.001$) was found to be a poor prognostic factor. pN2 (HR 1.73; 95% CI: 1.36-2.20 , $p<0.001$) and mpN1 (HR 1.45; 95% CI: 1.14-1.83 , $p<0.001$) were observed as poor prognostic factors compared to spN1.

CONCLUSIONS
This study comprehensively analyses the factors affecting post-surgical survival of NSCLC patients, revealing the role of nodal involvement levels, age, gender, type of surgical intervention, and histopathological subtype as independent prognostic factors. The findings could guide the clinical management of NSCLC, determine patient prognosis, and contribute to developing future treatment strategies.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Thoracic Surgery.


Survival Functions
Multiple.N1
pN2
Tek pN1
Multiple pN1
pN2-censored
Tek pN1-censored
Multiple pN1-censored
Cum Survival
1.0
0.8
0.6
0.4
0.2
0.0
.00
50.00
100.00
150.00
200.00
250.00
Survival


Survival Functions
mpN1
mpN1
pN2
mpN1-censored
pN2-censored
Cum Survival
1.0
0.8
0.6
0.4
0.2
0.0
.00
50.00
100.00
150.00
200.00
250.00
Survival

P-309

THE EFFECTS OF PREOPERATIVE IMMUNOTHERAPY USE ON MINIMALLY INVASIVE SURGICAL OUTCOMES IN PATIENTS WITH NON-SMALL CELL LUNG CANCER

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OBJECTIVES

This study aims to evaluate the feasibility, safety, and results of video-thoracoscopic anatomic lung resection (VATS-LR) in NSCLC patients receiving immunotherapy by comparing it with other patients.

METHODS

The data of patients who underwent anatomical lung resection and lymph node dissection with the diagnosis of NSCLC in two academic clinics between January 2018 and 2023 were prospectively recorded and analyzed retrospectively. The patients were divided into three groups. Group 1: patients who did not receive oncological treatment before surgery (G1), Group 2: patients who received neoadjuvant/induction chemotherapy or chemoradiotherapy before surgery (G2), and Group 3: patients who received immunotherapy before surgery (G3). Surgical approach (VATS-LR vs thoracotomy (T-LR)), demographic characteristics, clinical stages, treatment regimens, postoperative complications and pathological stages of the groups were compared.

RESULTS

The study included 1230 patients (G1=895(72.8%), G2=261(21.2%), G3=74(6%)). Segmentectomy in 199 (16.2%) patients (G1=184, 20.6%, G2=12, 4.6%, G3=3,4.1%), lobectomy in 966 (78.5%) patients (G1=686, 76.6%, G2=216, 82.8%, G3=64, 86.5%), pneumonectomy in 65 (5.3%) patients underwent (G1=25, 2.8%, G2=33, 12.6%, G3=7, 9.5%) (p=0.001). VATS-LR were performed in 953 (77.5%) of the patients (G1=793, 88.6%, G2=106, 40.6%, G3=54, 73%)(p=0.001). Conversion rate from vats to thoracotomy was done in G1=4.2%, G2=11.1%, and G3=6.8%. Complications were seen in 326 (26.5%) patients (G1= 198, 22.1%, G2=108, 41.4%, G3=20, 27.4%)(p=0.001). Mortality was observed in 15 patients (1.2%) (G1=10, 1.1%, G2=4, 1.5%, G3=1, 1.4%)(p=0.65). In the histopathological examination, complete response was detected in 37 patients (14.2%) in G2, while it was found in 25 patients (33.8%) in G3 (p=0.001)(Table 1).

CONCLUSIONS

Our study showed that video-thoracoscopic anatomic lung resection could be performed safely and feasible in patients who have received chemotherapy/chemoradiotherapy

and immunotherapy. Additionally, pathological complete response rate increases after immunotherapy treatment.

Disclosure: No significant relationships.
Keywords: Immunotherapy, VATS, Lung Resection.

	Total (n=1230)	Group 1 (n=895)	Group 2 (n=261)	Group 3 (n=74)	p
Age years (min-max)	64.59 (17-95)	65.03 (26-95)	63.62 (37-86)	62.65 (17-84)	
Gender (Male/Female %)	857/373 (30.3%)	585/310 (34.6%)	223/38 (14.6%)	49/25 (33.8%)	
Pathology					
Squamous Cell	390 (31.7%)	226 (25.3%)	136 (52.1%)	28 (37.8%)	
Adenocarcinoma	679 (55.2%)	560 (62.6%)	87 (33.3%)	32 (43.2%)	
Other type	126 (10.2%)	103 (11.5%)	18 (6.9%)	5 (5.8%)	
VATS	953 (77.5%)	793 (88.6%)	106 (40.6%)	54 (73%)	0.001
Type of Lung Resection					
Lobectomy	966 (78.5%)	686 (76.6%)	216 (82.8%)	64 (86.5%)	
Pneumonectomy	65 (5.3%)	25 (2.8%)	33 (12.6%)	7 (9.5%)	
Segmentectomy	199 (16.2%)	184 (20.6%)	12 (4.6%)	3 (4.1%)	
Complication	326 (26.5%)	198 (22.1%)	108 (41.4%)	20 (27%)	
Mortality (90 days)	15 (1.2%)	10 (1.1%)	4 (1.5%)	1 (1.4)	0.65
PCR	62	-	37 (14.2%)	25 (33.8%)	0.001

Table 1: Demographic and clinical data of 1230 patients
(Min: minimum, max: maximum, VATS: video-thoracoscopy, PCR: Pathologic complete response)

P-310

THE IMPACT OF DOWNSIZED LUNG GRAFTS WITH RESECTION OF INJURED LOBES ON OUTCOMES IN BRAIN-DEAD DONOR LUNG TRANSPLANTATION

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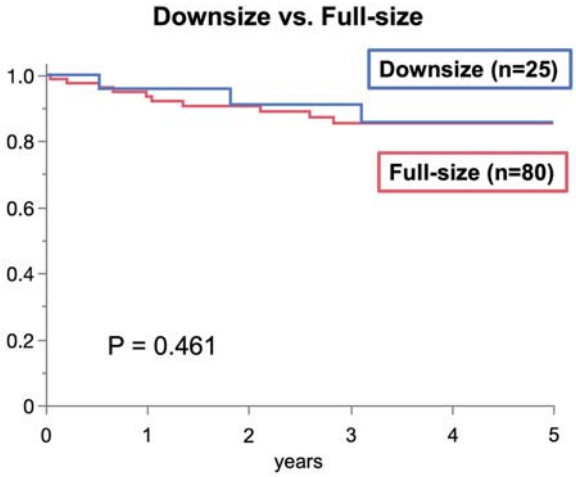
OBJECTIVES
In brain-dead donor lung transplantation, downsizing donor lungs with lobar resection is frequently performed in order to manage oversize grafts or to remove the injured lobes. However, there is a concern regarding potential minor injuries in the remaining lobar grafts. The purpose of this retrospective study was to examine the outcomes of downsizing lobar lung transplantation, particularly when it was performed to utilize downsized lung grafts with resection of injured lobes.

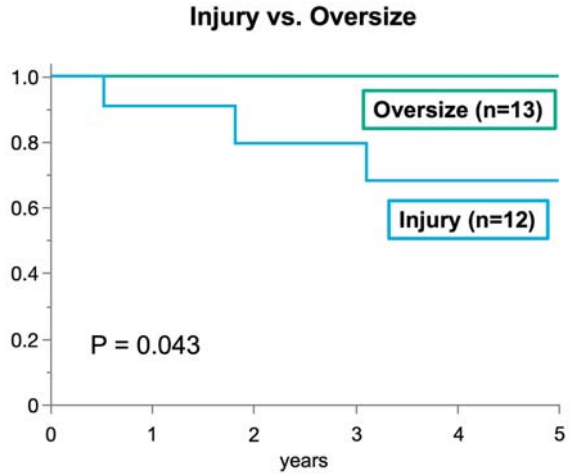
METHODS
Between 2010 and 2023, we performed 105 bilateral lung transplantation, including 25 lobar lung transplants with downsized grafts and 80 standard lung transplants with full-sized grafts. Downsizing of the donor lung grafts was performed for resection of the injured lobes in 12 cases (Injury group) and for volume reduction of the oversized grafts in 13 cases (Oversize group).

RESULTS
The 5-year overall survival rates were similarly good in downsize lung transplantation and full-size lung transplantation (85.6% vs. 85.4%, P=0.461). Further comparisons were conducted between the Injury and Oversize groups. In the Injury group, the resected lobes were damaged due to pneumonia (n=6), extensive atelectasis (n=5), and pulmonary contusion (n=1). The incidence of primary graft dysfunction grade 3 at 72 hours after transplantation was not significantly different between the groups (Injury: 8.3% vs. Oversize: 15.4%, P=1.000). Surgical site infection was also similarly observed in both groups (Injury: 25% vs. Oversize: 38.4%, P=0.673). There were no early-deaths and three late-deaths only in the injury group: multiple organ failure, pneumonia, and bronchiolitis obliterans syndrome. Although the Injury group showed acceptable 5-year overall survival rate, it was significantly lower than that of the Oversize group (Injury: 68.2% vs. Oversize: 100%, P=0.043).

CONCLUSIONS
Downsizing lobar lung transplantation is a valuable option with encouraging outcomes. Downsizing injured lobes may expand the donor pool with acceptable results, but it should be done with caution.

Disclosure: No significant relationships.
Keywords: Lung Transplantation, Downsizing, Oversize, Infection.


Downsize vs. Full-size
Downsize (n=25)
Full-size (n=80)
P = 0.461
1.0
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
years


Injury vs. Oversize
Oversize (n=13)
Injury (n=12)
P = 0.043
1.0
0.8
0.6
0.4
0.2
0
0
1
2
3
4
5
years

P-311

THE IMPACT OF GROUND-GLASS OPACITY COMPONENT FOR THE RECURRENCE IN PATHOLOGICAL STAGE IB NON-SMALL CELL LUNG CANCER HARBORING EPIDERMAL GROWTH FACTOR RECEPTOR MUTATION

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OBJECTIVES

The interpretation of the ADAURA trial in pathological (p)-Stage IB non-small cell lung cancer (NSCLC) is controversial. The purpose of this study was to identify the population in which adjuvant osimertinib are considered necessary or unnecessary for epidermal growth factor receptor (EGFR)-mutated p-Stage IB NSCLC.

METHODS

Between 2008 and 2021, 307 patients underwent completely anatomical lung resection with mediastinal lymphadenectomy for p-Stage IB NSCLC. Among these, 121 patients were included after excluding cases with EGFR-wild type and unknown EGFR mutation. All patients were classified into 2 groups based on the presence of ground-glass opacity (GGO) component: with GGO arm and pure-solid arm. Fine-gray models were constructed for recurrence with a competing risk of death without recurrence.

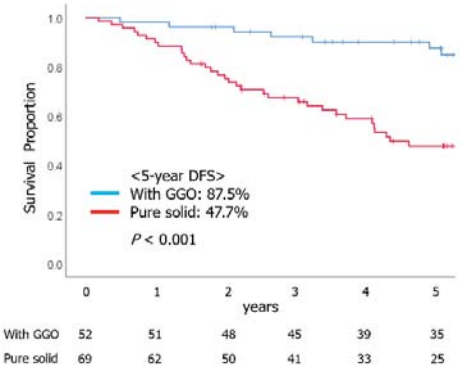
RESULTS

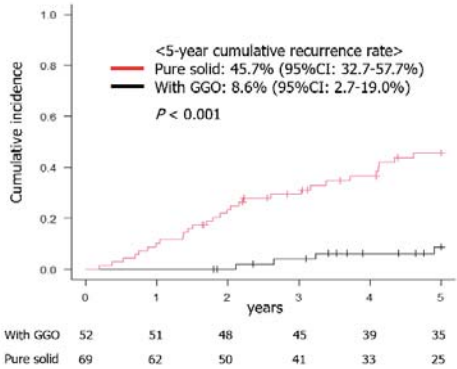
Of all, 69 (57%) were pure-solid arm, and 105 (87%) underwent lobectomy. Compared to with GGO arm, the proportion of lymphovascular invasion ($p < 0.01$) and solid predominant subtype ($p = 0.04$) were significantly high in pure-solid arm. The proportion of adjuvant chemotherapy was not significantly different between the 2 groups ($p = 0.38$), and no patients received adjuvant tyrosine kinase inhibitor (TKI). The 5-year disease-free survival (DFS) rate in pure-solid arm was significantly worse compared to with GGO arm (48.4% vs. 87.5%, $p < 0.01$). The five-year cumulative incidence of recurrence was particular high in pure-solid arm compared to with GGO arm (45.2% vs. 8.6%, $p < 0.01$). Multivariable analysis revealed that presence of a GGO was an independent good prognostic predictor for DFS ($p = 0.02$), while pathological factors were not prognostic predictor.

CONCLUSIONS

Among the EGFR-mutated p-Stage IB NSCLC, the presence of GGO was a significant predictor for lung cancer recurrence. Radiological pure-solid tumor might be a possible candidate of adjuvant EGFR-TKI, while it might not be necessary for patients with GGO component in EGFR mutated p-Stage IB NSCLC.

Disclosure: No significant relationships.
Keywords: Epidermal Growth Factor Receptor Mutation, Pathological Stage IB, Non-Small Cell Lung Cancer, Ground-Glass Opacity.





	With GGO n = 52 (%)	Pure-solid n = 69 (%)	P Value
Adjuvant chemotherapy	15 (28.8)	23 (33.3)	0.37
Proportion of recurrence	5 (9.6)	29 (42.0)	<0.01
Locoregional only	2 (3.8)	9 (13.0)	
Distant	3 (5.8)	20 (29.0)	

P-312

THE IMPACT OF THE GROUND-GLASS OPACITY COMPONENTS IN LYMPH NODE DISSECTION FOR CLINICAL STAGE IA HYPOMETABOLIC LUNG ADENOCARCINOMA

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OBJECTIVES
We evaluated the oncological role of a ground-glass opacity (GGO) component in lymph node dissection for clinical (c)-stage IA hypometabolic lung adenocarcinoma with a low maximum standardized uptake value.

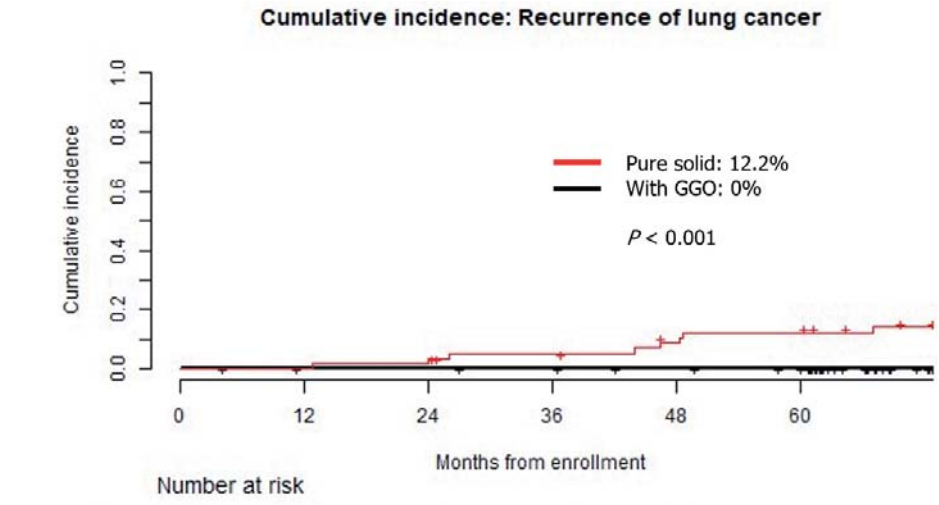
METHODS
Between 2008 and 2017, we retrospectively reviewed 575 patients who underwent anatomical lung resection and positron emission tomography for c-stage IA2-IA3 lung adenocarcinoma with a tumor diameter <3cm. SUVmax values were assessed on a second-generation PET system at a single-center. Among them, 200 cases with hypometabolic activity (maximum standardized uptake value ≤ 2.7 mg/dl) were evaluated. Furthermore, they were classified based on the presence of GGO: with GGO group and pure-solid group. The prognostic significance of a GGO in hypometabolic tumours was evaluated using the Gray models with a competing risk of death without recurrence. The disease-free survival (DFS) was estimated by the Kaplan-Meier method using a log-rank test.

RESULTS
There were 142 (71%) cases in the With GGO group and 58 (29%) in the Pure-solid group. Of all, 171 (86%) were c-stage IA2, and 164 (82%) underwent lobectomy. The tumor with consolidation tumor ratio > 0.5 were detected in 191 patients (96%). Mediastinal lymph node dissection was performed in 151 (76%). Pathological nodal metastases were observed in 5 cases (pN1 in 2 and pN2 in 3). Compared to the with GGO group, the proportion of pathological nodal metastasis (8.6% vs. 0%, $p < 0.01$) were significantly higher in pure-solid group. The 5-year DFS rate in pure-solid group was significantly worse compared to with GGO arm (82.5% vs. 95.1%, $p = 0.03$). The five-year cumulative incidence of recurrence was particular high in pure-solid group compared to with GGO group (12.2% vs. 0%, $p < 0.01$).

CONCLUSIONS
Radiological pure-solid tumor should be performed lymph node dissection, while it might not be necessary for patients with GGO component in c-stage IA2-IA3 hypometabolic lung adenocarcinoma.

Disclosure: No significant relationships.

Keywords: Lymph Node Dissection, Ground-Glass Opacity, Hypometabolic Tumor, Lung Adenocarcinoma, Clinical Stage IA.



Number at risk

Pure solid	58	58	57	53	49	47
With GGO	142	140	140	139	137	135

P-313

THE IMPORTANCE OF LUNG ULTRASOUND IN THE ASSESSMENT OF DIAPHRAGMATIC IMMEDIATE CHANGES AND PLEURAL SLIDING AFTER LUNG VOLUME REDUCTION SURGERY

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[2]*University of Rome, Rome, Italy*

OBJECTIVES
To evaluate the increase of pleural sliding and diaphragmatic excursion by lung ultrasound in patients undergoing lung volume reduction surgery (LVRS) for pulmonary emphysema.

METHODS
This is a single-institution prospective study of patients with moderate to severe pulmonary emphysema undergoing unilateral non-resectional LVRS from October 2021 to September 2023. All patients included in the study underwent lung ultrasound the day before and the day after surgery with the same probe and preset. We evaluated the speed of pleural sliding with Doppler mode and the excursion of the diaphragm with M mode. All patients were assessed in basal breathing, at rest in a sitting position. Non-parametric Wilcoxon test was used to compare the results before and after surgery.

RESULTS
42 patients were selected for the study. Median age was 62 years old (interquartile range, IQR, 54-69 years) and 59.5% of them were male. Lung ultrasound showed an increase for speed of pleural sliding with median values (IQR) of 12.1 cm/s (10.9-13.4 cm/s) in pre-operative evaluation versus 14.3 cm/s (12.8-15.5 cm/s) at post-operative day 1 (p=0.025). The study also revealed a statistically significant increase in diaphragmatic excursion from pre-operative assessment, with a median value of 1.2 cm (0.9 – 1.4 cm), to post-operative ultrasound, with a median value of 1.8 cm (1.6 – 2.0 cm) (p=0.036).

CONCLUSIONS
The study revealed an increase of lung sliding and diaphragm excursion at lung ultrasound after unilateral non-resectional LVRS. These findings are consistent with the positive effect of the surgical procedure on pulmonary ventilation, promoting a verticalization of the diaphragmatic muscle fibers thus and favoring a greater sliding of the pleural layers.

Disclosure: No significant relationships.
Keywords: Lung Volume Reduction Surgery, Lung Ultrasound, Thoracic Surgery, LVRS, Diaphragm.

P-314

THE LONG-TERM OUTCOMES OF NEOADJUVANT CHEMOIMMUNOTHERAPY VERSUS CHEMORADIOTHERAPY FOR ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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OBJECTIVES
The purpose of this study is to compare the long-term outcomes of patients with locally advanced esophageal squamous cell carcinoma (ESCC) who underwent esophagectomy after receiving neoadjuvant chemoimmunotherapy (NACI) or chemoradiotherapy (NACR).

METHODS
Patients receiving NACI or NACR for locally advanced ESCC (T2N+M0 or T3-4aN0-3M0) between Mar 2018 and Mar 2022 were included. All patients with NACI completed 2 cycles chemoimmunotherapy. All patients with NACR received a total dose of 40Gy of radiotherapy combined with 2 cycles of chemotherapy. Oncologic outcomes, recurrence patterns, overall survival (OS) and disease-free survival (DFS) were explored.

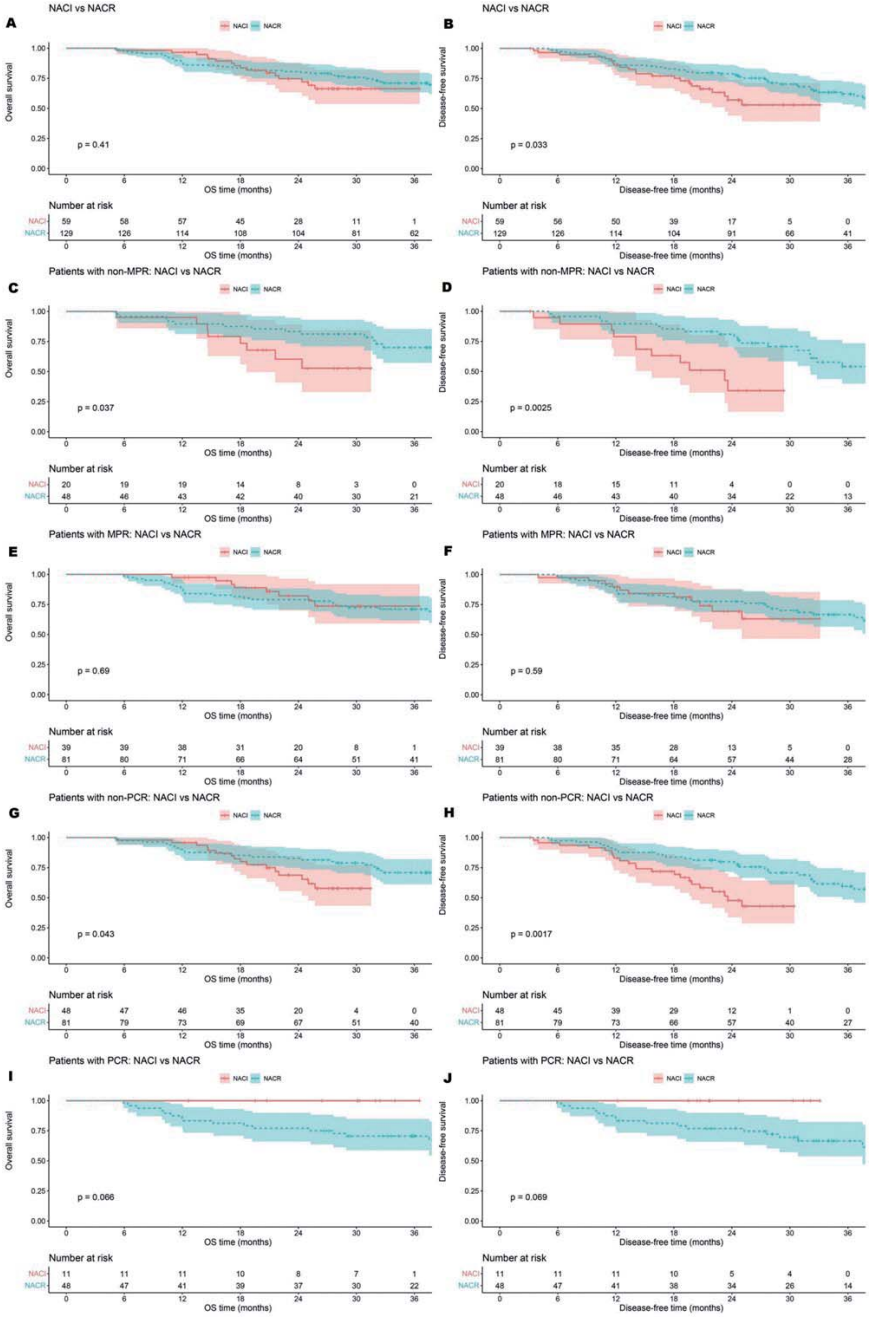
RESULTS
Patients included were divided into neoadjuvant NACI group (n = 59) and NACR group (n = 129). The pathologically complete response (pCR) rates were respectively 18.6% and 37.2% (p = 0.012). The median follow-up time was 35.7 months. For patients with pCR, 30-month OS (or DFS) in NACI group vs that in NACR group was 100% vs 70.6%, p = 0.066 (or 100% vs 66.5%, p = 0.069). But for patients with non-pCR, 30-month OS (or DFS) in NACI group vs that in NACR group was 57.8% vs 78.9%, p = 0.043 (or 43.0% vs 70.8%, p = 0.0017).

CONCLUSIONS
Compared to neoadjuvant chemoradiotherapy, neoadjuvant chemoradiotherapy has a higher proportion of achieving pathologic complete response (pCR). However, patients with pCR caused by NACI may have a better prognostic trend than those caused by NACR. Correspondingly, patients with non-pCR caused by NACI might be more prone to relapse than these caused by NACR. Patients who did not achieve pCR with NACI may require more aggressive adjuvant chemoradiotherapy. Similarly, non-pCR patients with NACR may require postoperative adjuvant immunotherapy.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Neoadjuvant Chemoradiotherapy, Neoadjuvant Chemoimmunotherapy, Pathologic Complete Response, Long-Term Outcome.

Variables	NACI (n=59)	NACR (n=129)	*p*
Sex ratio			
Male	49 (83.1)	114 (88.4)	0.319
Female	10 (16.9)	15 (11.6)	
Age, years (interquartile range)	61 (56-67)	60 (54-65)	0.239
cTNM stage			
II	5 (8.5)	6 (4.7)	0.584
III	43 (72.9)	98 (76.0)	
IVA	11 (18.6)	25 (19.4)	
ypTNM stage			
I	22 (37.3)	75 (58.1)	0.062
II	10 (16.9)	16 (12.4)	
IIIA	10 (16.9)	16 (12.4)	
IIIB	17 (28.9)	22 (17.1)	
AJCC 8th TRG scores			
0	11 (18.6)	48 (37.2)	0.012
1	28 (47.5)	33 (25.6)	
2	18 (30.5)	40 (31.0)	
3	2 (3.4)	8 (6.2)	
Median of lymph node examined count (interquartile range)	26 (19-35)	17 (12-22)	< 0.001

Data are expressed as n (%) unless otherwise specified ages and lymph nodes; NACI (neoadjuvant chemoimmunotherapy); NACR (neoadjuvant chemoradiotherapy); AJCC 8th TRG scores (tumor regression grade of American Joint Committee on Cancer)


A
NACI vs NACR
Overall survival
p = 0.41
OS time (months)
Number at risk
NACI 59 58 57 45 28 11 1
NACR 129 126 114 108 104 81 62
B
NACI vs NACR
Disease-free survival
p = 0.033
Disease-free time (months)
Number at risk
NACI 59 56 50 39 17 5 0
NACR 129 126 114 104 91 66 41
C
Patients with non-MPR: NACI vs NACR
p = 0.037
Number at risk
NACI 20 19 19 14 8 3 0
NACR 48 46 43 42 40 30 21
D
Patients with non-MPR: NACI vs NACR
p = 0.0025
Number at risk
NACI 20 18 15 11 4 0 0
NACR 48 46 43 40 34 22 13
E
Patients with MPR: NACI vs NACR
p = 0.69
Number at risk
NACI 39 39 38 31 20 8 1
NACR 81 80 71 66 64 51 41
F
Patients with MPR: NACI vs NACR
p = 0.59
Number at risk
NACI 39 38 35 28 13 5 0
NACR 81 80 71 64 57 44 28
G
Patients with non-PCR: NACI vs NACR
p = 0.043
Number at risk
NACI 48 47 46 35 20 4 0
NACR 81 79 73 69 67 51 40
H
Patients with non-PCR: NACI vs NACR
p = 0.0017
Number at risk
NACI 48 45 39 29 12 1 0
NACR 81 79 73 66 57 40 27
I
Patients with PCR: NACI vs NACR
p = 0.066
Number at risk
NACI 11 11 11 10 8 7 1
NACR 48 47 41 39 37 30 22
J
Patients with PCR: NACI vs NACR
p = 0.069
Number at risk
NACI 11 11 11 10 5 4 0
NACR 48 47 41 38 34 26 14

P-315

THE PROGNOSTIC POTENTIAL OF CIRCULATING BIOMARKERS FOR SARCOMA PATIENTS AFTER PLEURAL DISSEMINATION

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OBJECTIVES
Sarcomas are rare, aggressive and heterogenic malignancies that very often metastasize to the thoracic cavity. While sarcoma lung metastasectomy is a widely investigated subject, only scarce data is available about potential prognostic factors for sarcoma patients with pleural dissemination.

METHODS
We retrospectively analyzed 98 sarcoma patients with pleural dissemination (pleurasarcomatosis and/or malignant pleural effusion) at our thoracic surgery department between 2010 and 2023. Circulating biomarker values were collected preoperatively at the time of first pleural involvement. Overall survival was calculated from the first diagnosis of pleural dissemination.

RESULTS
56 male and 42 female patients were included in the cohort with a median age of 54.6 years (range: 15.9 - 84.3 years) at the time of pleural involvement. 77 patients had soft tissue sarcoma while 21 patients had the primary sarcoma in the bone (17%) or cartilage (4%). Among the 21 different sarcoma types, synovial sarcoma (13%), liposarcoma (11%), Ewing sarcoma (10%) and leiomyosarcoma (9%) were the most frequent. The median pleural involvement free interval was 17.1 months. Pleural dissemination was mostly metachron (at least 3 months after their primary diagnosis (91) while 7 cases were synchron. The median pleural involvement free interval was 17.1 months after sarcoma diagnosis. The median overall survival after pleural dissemination was 12 months. WBC values outside the normal range had no significant impact on overall survival. High LDH (>250 U/L) and CRP (>1 mg/dL) conferred significantly lower overall survival (8.6 months vs 19.1 months ($p<0.0001$) and 4.9 months vs 29 months ($p<0.0001$), respectively). Albumin alone showed no prognostic impact, however, modified Glasgow prognostic score was a strong prognosticator (20.4 vs 8.6 vs 1.7 months ($p<0.0001$).

CONCLUSIONS
The current study suggests that circulating biomarkers carry prognostic information for sarcoma patients with pleural dissemination and should be considered for risk stratification and personalized therapeutic decisions.

Disclosure: No significant relationships.
Keywords: Sarcoma, Pleurasarcomatosis, Pleural Effusion.

P-316

THE PROGNOSTIC SIGNIFICANCE OF HISTOPATHOLOGICAL PARAMETERS IN T1N0M0 NON-SMALL CELL LUNG CANCER PATIENTS UNDERGOING SEGMENTECTOMY

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OBJECTIVES

Segmentectomy has been shown to be non-inferior in patients with T1a-bN0M0 non-small cell lung cancer(NSCLC) patients. In addition to TNM staging, the impact of histopathological factors is yet to be identified. In our study, we aimed to reveal the effect of these prognostic factors in patients who underwent T1a/b/cN0M0 segmentectomy.

METHODS

Patients who underwent segmentectomy for T1a-b NSCLC between 2001 and 2023 were included in the study. Patients with tumors larger than 2.5 cm and those diagnosed as N1/2 were excluded from the study. There were 290 patients with T1a/b/cN0M0 NSCLC. Demographic data, respiratory parameters, and pathological data of the patients who underwent segmentectomy were recorded. Kaplan Meier test was used for survival analysis. Multivariate analysis were performed with Cox regression analyses.

RESULTS

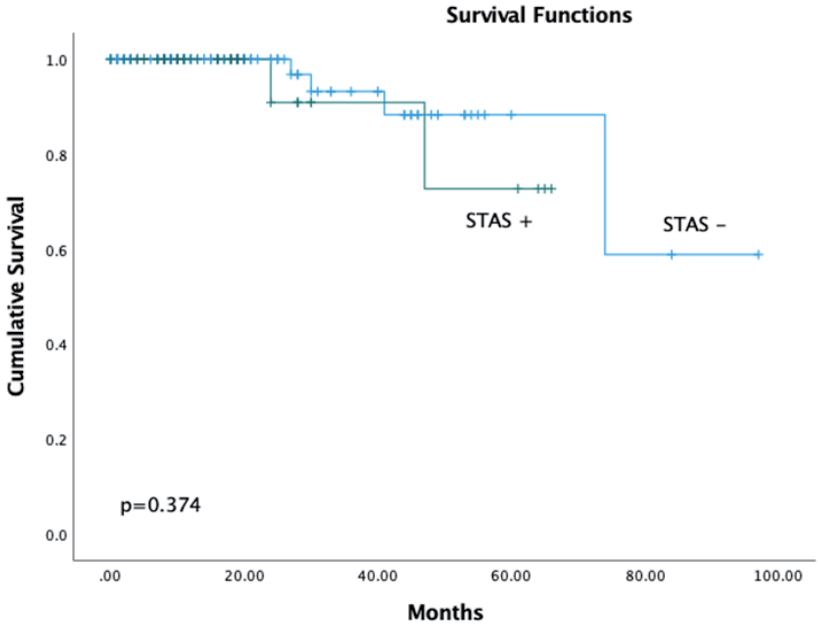
Mean age 64.1 ± 9.3 (16-85). There were 119 female patients (41%) and 171 male patients (59.0%). The mean tumor diameter was 1.4 ± 0.6 cm. The mean survival time in all patients was 135.8 ± 10.5, 5-year survival rate was 90.3%The mean surgical margin distance was 4.4 ± 7.5 cm. In the survival analysis, lymphatic invasion, vascular invasion, pathological diagnosis (adenocarcinoma/non-adenocarcinoma), spread-through air spaces (STAS) status, and pleural invasion were not found to be statistically significant prognosticators (p=0.084, p=0.186, p=0.212, p=0.374, p=0.825 respectively). In the Cox regression analysis performed for survival analysis, lymphatic invasion, vascular invasion and adenocarcinoma status were not detected as independent risk factors.

CONCLUSIONS

In T1a-bN0M0 NSCLC patients undergoing segmentectomy, histopathological factors including STAS do not seem to have an impact on survival. Segmentectomy may be deemed as procedure of choice in all patients with Stage 1A1 and 1A2 NSCLC.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Segmentectomy, Survival.

Pathological Feature	5-Year Overall Survival (Months ± SD)	p Value
Lymphatic Invasion -Yes -No	 76.6 ± 8.3 (95% CI 60.4-92.9) 80.1 ± 4.3 (95% CI 71.6-88.6)	0.084
Vascular Invasion -Yes -No	 57.1 ± 5.4 (95% CI 46.6-67.6) 84.5 ± 5.2 (95% CI 74.3-94.6)	0.186
STAS -Yes -No	 58.7 ± 4.5 (95% CI 49.9-67.6) 82.8 ± 6.6 (95% CI 69.9-95.7)	0.374
Pathological Diagnosis -Adenocarcinoma -Non-Adenocarcinoma	 136.3 ± 13.6 (95% CI 109.6-162.9) 96.2 ± 9.8 (95% CI 77.1-115.4)	0.212



P-317

THE PROGNOSTIC SIGNIFICANCE OF TREATMENT-FREE INTERVAL IN PATIENT AFTER PULMONARY METASTASECTOMY FOR SARCOMA

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OBJECTIVES

Disease-free interval, defined as the time from primary tumor resection to the development of metastases, has been identified as a significant prognostic factor in patients after pulmonary metastasectomy. However, the clinical courses of pulmonary metastases from sarcoma are extremely variable. Lung metastasis may be identified at initial presentation, during neo/adjuvant chemotherapy, or during the surveillance period. Here we evaluate the prognostic significance of treatment-free interval (TFI), which is defined as the time from the last date of primary tumor treatment (including resection and/or adjuvant chemotherapy) to pulmonary metastasectomy.

METHODS

We retrospectively reviewed patients undergoing pulmonary metastasectomy for metastatic sarcomas in a single center. The prognostic significance of TFI in recurrence-free interval (RFI), defined as the duration from pulmonary metastasectomy to identification of new pulmonary metastasis, and post-metastasectomy survival (PMS), defined as the duration from pulmonary metastasectomy to death, was analyzed with Kaplan-Meier survival plots and log-rank test.

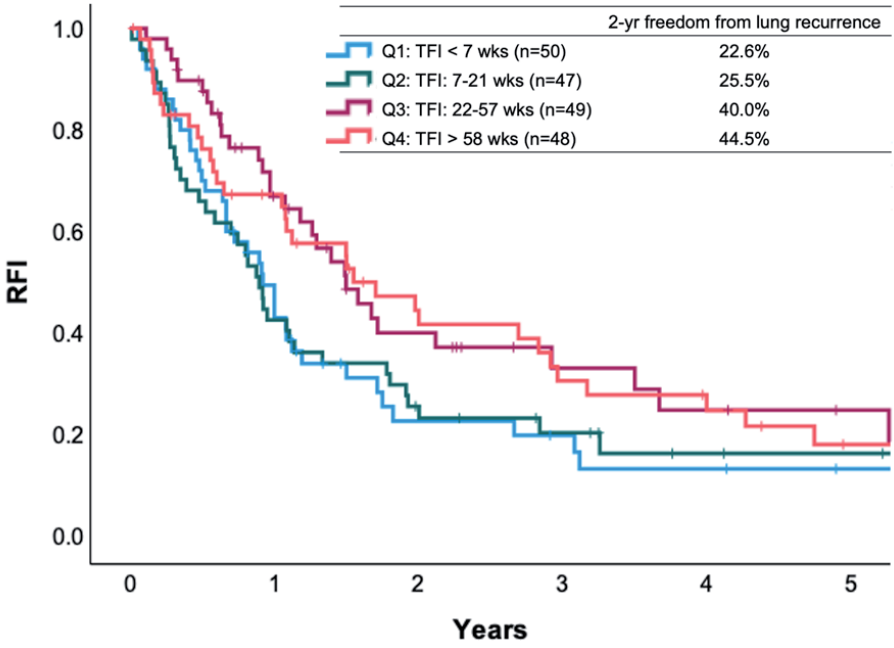
RESULTS

Data of 194 patients were included in the analysis. Based on TFI, patients were divided into quarters (Q1: TFI < 7 weeks; Q2: TFI: 7-21 weeks; Q3: TFI: 22-57 weeks; Q4: TFI > 58 weeks). In the RFI analysis, the 2-year freedom from lung recurrence was 22.6%, 25.5%, 40.0%, and 44.5% in Q1, Q2, Q3, and Q4, respectively. In the PMS analysis, the 5-year PMS rates were 34.2%, 47.2%, 58.1%, and 74.4% in Q1, Q2, Q3, and Q4, respectively. Patients in Q3/Q4 had significantly higher RFI ($p = 0.020$) and PMS ($p = 0.002$) compared to patients in Q1/Q2.

CONCLUSIONS

Patients with longer TFI were associated with better outcome after pulmonary metastasectomy for sarcoma. Considering the extremely variable clinical courses, TFI could be a useful prognostic factor for RFI and PMS in patient after pulmonary metastasectomy for sarcoma.

Disclosure: No significant relationships.
Keywords: Metastasis, Sarcoma.


2-yr freedom from lung recurrence
Q1: TFI < 7 wks (n=50) 22.6%
Q2: TFI: 7-21 wks (n=47) 25.5%
Q3: TFI: 22-57 wks (n=49) 40.0%
Q4: TFI > 58 wks (n=48) 44.5%
RFI
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
Years

P-318

THE RISK OF RECURRENCE IN PATHOLOGICAL STAGE II-IIIA NON-SMALL CELL LUNG CANCER WITHOUT LYMPH NODE METASTASIS

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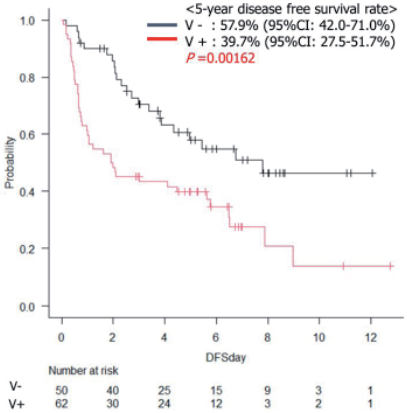
OBJECTIVES
Patients who diagnosed p-Stage II-III non-small cell lung cancer (NSCLC) are usually indicated for adjuvant chemotherapy including platinum-doublets according to LACE analysis. The aim of this study is to identify the risk of recurrence in NSCLC without lymph node metastasis.

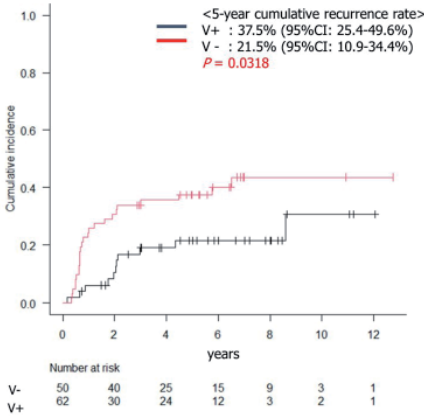
METHODS
Between 2009 and 2018, 187 patients underwent lung resection of one lobe or more than one lobe and mediastinal lymph node dissection for p-Stage II-IIIA NSCLC. Among these patients, 112 patients were included after excluding cases with a history of lung cancer, neoadjuvant chemotherapy, and adjuvant therapy. Staging was based on 8th Edition of AJCC staging system. Multivariable Fine-gray model was constructed for recurrence with a competing risk of death without recurrence.

RESULTS
Among the evaluated patients, 84 were male, and the median age was 67. Seventy-one (51.4 %) patients were diagnosed with adenocarcinoma.
Cancer stage included stage IIA in 34, stage IIB in 57, and stage IIIA in 21. Patients who underwent lobectomy, lobectomy + wedge resection, lobectomy + segmentectomy, bi-lobectomy, and pneumonectomy were 92, 7, 2, 7, and 7, respectively. Multivariable analysis revealed that vascular invasion (HR 3.142, 95% CI 1.230-8.031, p = 0.017) was the independent risk factor for recurrence. Gray's test for equality of cumulative incidence functions revealed the five-year cumulative incidence of recurrence was particularly high in patients with vascular invasion compared to patients without vascular invasion (21.5 % vs 37.5%, p=0.0318). The 5-year DFS and OS rate in patients without vascular invasion was significantly better compared to the patients with vascular invasion (DFS: 57.9% vs 39.7%, p=0.0016, OS: 65.7% vs 46.2%, p=0.0022).

CONCLUSIONS
In p-Stage II-IIIA NSCLC without lymph node metastasis, the vascular invasion was a significant predictor for lung cancer recurrence. These patients had a favorable prognosis with a recurrence rate of 21.5 %, which indicated that adjuvant chemotherapy might not be necessary for them.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Stgae II, StageIIIA, N0, Vascular Invasion.





Overall recurrence	V+ n = 62 (%)	V- n = 50 (%)	P Value
Proportion of recurrence	25 (40.3)	11 (22.0)	0.039
Locoregional only	7 (11.3)	3 (6.0)	
Distant	18 (29.0)	8 (16.0)	

P-319

THE ROLE OF BILATERAL THORACOSCOPIC SYMPATHECTOMY IN THE TREATMENT OF ELECTRICAL STORM OF THE HEART

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OBJECTIVES

Electrical storm of the heart is a condition when ventricular arrhythmias occur ≥3-times in 24 hours (at ≥5-minute intervals) and each time they require medical intervention. The treatment of choice is pharmacotherapy or electrical cardioversion (in cases of ineffectiveness). In chronic treatment, next to pharmacotherapy, implantation of ICD is used. If standard methods are unreliable, arrhythmogenic focus ablation is the option. In cases of electrical storm not amenable to other treatments, autonomic modulation may be considered.

CASE DESCRIPTION

Main indication for thoracic sympathectomy is reduction of excessive sweating of hands, arm pits or face. Destruction or innervation of sympathetic ganglions must be performed very carefully, especially when the stellate ganglion is involved as Horner's syndrome may occur.
In two cases of severe heart electrical storm (when all therapeutic methods turned out to be useless) we performed procedure of bilateral videothoracoscopy sympathectomies at the level of the stellate ganglion.
The anterior branches of the stellate ganglion and the thoracic ganglions at levels 2-4 were bilaterally destroyed with the use of electrocautery.
In the first operated case: ventricular arrhythmias disappeared on the 1st day after the surgery. In the second, cardiac arrhythmias disappeared immediately after surgery. In both surgical cases, no complications occurred, despite our concerns about Horner's syndrome. The patients were discharged home, which wasn't possible before the procedure due to their general condition. During the 4-month follow-up, both patients did not experience any recurrence of ventricular arrhythmias.

CONCLUSIONS

By analyzing both cases, we recognize a place for thoracic surgery in the treatment of the electrical storm of the heart. It is crucial to thoroughly understand the anatomy of the stellate ganglion and the technical possibilities of videothoracoscopic visualization of the stellate ganglion, which wasn't possible in the open surgery. Due to the improved safety of this procedure, additional cardiological indications are currently being investigated.

Disclosure: No significant relationships.
Keywords: Electrical Storm, Sympathectomy.

P-320

THE ROLE OF DIAPHRAGM DENSITY IN RESPIRATORY COMPLICATIONS IN LUNG CANCER SURGERY: PRELIMINARY RESULTS FROM AN ONGOING PROSPECTIVE OBSERVATIONAL STUDY

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OBJECTIVES

Respiratory muscle strength affects pulmonary function after lung resections, however the role of diaphragm density, an emerging index of muscle quality, remains unexplored. We investigated the role of crural diaphragm density (CDD) in respiratory complications (RC) after lobectomy for lung cancer.

METHODS

Twenty-one patients were prospectively enrolled between July and December 2023. Exclusion criteria were neoadjuvant therapy, thoracic trauma, and previous cardiothoracic and abdominal surgery. Demographic, functional, radiological and surgical data were collected. The CDD in Hounsfield Unit (HU) was defined as the average of the density of the right and left crural diaphragm at the level of the median arcuate ligament on computed tomography axial images. The RC (respiratory infections, atelectasis, pneumonia, respiratory failure, and ARDS) were recorded according to the European Perioperative Clinical Outcome definitions, moreover we included sputum retention requiring physiotherapy and/or bronchoscopic airway clearance.

RESULTS

The prevalence of postoperative RC was 38% (8 of 21), with sputum retention and respiratory infection being the most frequent (5 patients each, respectively), followed by atelectasis (1). More than 1 RC was recorded in 3 cases. The characteristics of the patients are summarised in Table1. RC occurred mostly in COPD patients (50% vs 7.7%, p=0.047), a lower FVC

(82.5% vs 95%, p=0.029), and a lower CDD (34.88HU vs 46.10HU, p=0.016). Furthermore, COPD patients presented a lower CDD [30.9HU (IQR30.6-38.4) vs 44HU (IQR39.4-50.5), p=0.015]. The optimal cut-off of CDD was 37.03HU (sensibility 63%, specificity 93%, AUC 0.82, p=0.017). A CDD≤37.03HU [HR 20 (95%CI 1.6548-241.723), p=0.018] and COPD [HR 12 (95%CI 1.019-141.34), p=0.048] were significant risk factors for postoperative RC at univariable analysis. Due to the small study population, multivariable analysis was not performed.

CONCLUSIONS

The CDD seems to be a simple and useful tool for predicting RC after lobectomy for lung cancer, in addition to COPD diagnosis.

Disclosure: No significant relationships.
Keywords: Diaphragm, Respiratory Complications, Lung Cancer.

	No RC (n=13)	RC (n=8)	p-value
Age (years)	68 (66-74)	69.50 (66.75-75.25)	0.404
Male sex, n (%)	4 (30.8)	6 (75)	0.080
BMI	26.61 (22.77-29.64)	29.71 (25.47-31.85)	0.374
Current smoker, n (%)	3 (27.3)	4 (57.1)	0.332
Cardiac disease, n (%)	7 (53.8)	2 (25)	0.367
OSAS, n (%)	1 (7.7)	0 (0)	1.000
COPD, n (%)	1 (7.7)	4 (50)	**0.047**
ASA score ≥3, n (%)	9 (69.2)	5 (62.5)	1.000
FEV1 (%)	97 (87-107)	76 (57.50-91)	0.103
FVC (%)	95 (92-101)	82.50 (72.25-86.75)	**0.029**
DLCO (%)	67 (57-74)	66 (49-74.75)	0.547
TLC (%)	96 (90-106.50)	97 (87.50-100)	0.717
RV (%)	103 (93-124)	92 (84-159.50)	0.928
MIP (%)	115 (59.25-165.75)	80.50 (58.75-114)	0.671
Right CDD (HU)	42.20 (37.70-49.30)	35.20 (31.30-40.15)	**0.027**
Left CDD (HU)	48.90 (41-52.50)	36.30 (34.10-43.45)	**0.019**
Mean CDD (HU)	46.10 (39.60-51.15)	34.88 (30.86-42.25)	**0.016**
Emphysemaptous changes (Fleischner) **Trace CLE / Mild CLE / Mild paraseptal** **Moderate CLE / Confluent CLE**	 8 (61.5) / 2 (15.4) / 0 (0) 1 (7.7) / 2 (15.4)	 3 (37.5) / 1 (12.5) / 2 (25) 0 (0) / 2 (25)	0.387
VATS/RATS **thoracotomy**	7 (53.8) / 3 (23.1) 3 (23.1)	6 (75) / 1 (12.5) 1 (12.5)	1.000
Upper lobectomy, n (%)	4 (30.8)	3 (37.5)	1.000
Right lobectomy, n (%)	8 (61.5)	3 (37.5)	0.387
Surgery duration (min)	160 (150-225)	201.50 (171.75-251.25)	0.158
Postoperative ICU stay, n (%)	5 (38.5)	3 (37.5)	1.000
Adenocarcinoma **Squamous/other**	13 (100) 0 (0)	4 (50) 4 (50)	**0.012**
pT1 **pT2**	7 (58.3) 5 (41.7)	5 (62.5) 3 (37.5)	1.000
p-stage (TNM 8th Edition) **IA-B** **IIA**	 11 (91.7) 1 (8.3)	 8 (100) 0 (0)	1.000

Continuous values are reported as median (interquartile range). RC: respiratory complications, BMI: body mass index, OSAS: obstructive sleep apnea syndrome, COPD: chronic obstructive pulmonary disease, ASA: American society of anesthesiologist, FEV1: forced expiratory volume in 1 s, FVC: forced vital capacity; DLCO: diffusing capacity of carbon monoxide, TLC: total lung capacity; RV: residual volume; MIP: maximal inspiratory pressure; CDD: crural diaphragmatic density, HU: Hounsfield Unit; CLE: centrolobular emphysema; VATS: video-assisted thoracic surgery; RATS: robotic-assisted thoracic surgery; ICU: Intensive care Unit.

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THE ROLE OF PULMONARY METASTASECTOMY IN OLIGOMETASTATIC MELANOMA PATIENTS AFTER THE INTRODUCTION OF IMMUNO AND TARGETED THERAPIES: RESULTS AND PROGNOSTIC FACTORS FROM A SINGLE CENTER EXPERIENCE

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OBJECTIVES

The role of pulmonary metastasectomy (PM) and prognostic factors influencing survival in oligometastatic patients affected by malignant melanoma (MM) in the era of Effective-Systemic-Therapies (ESTs) is still not completely clear. We aimed to investigate the efficacy of PM and determine prognostic factors affecting survival to improve patient selection.

METHODS

Clinical, surgical, and oncological data of 60 patients who underwent PM between June 2008 and January 2022 were collected.

RESULTS

All patients underwent surgical resection of the primary melanoma before PM. Nine (15%) patients had a synchronous lung metastasis. A wedge resection was performed in 95% of cases to radically remove the pulmonary localizations, while in the remaining cases, an anatomical resection was necessary. No major postoperative complications or postoperative mortality were recorded. Ten patients (16%) experienced minor complications. Mean in-hospital stay was 4.51±2.4 days. Following lung surgery, 92% of patients received adjuvant treatments (48.2% immunotherapy and 43.8% targeted therapy). Over a mean follow-up period of 107.9±81.5 months, 24 (40%) patients died due to melanoma disease, and 3 (5%) to other causes. Twenty-two patients (36.6%) experienced disease recurrence, and 8 (13.3%) developed extrapulmonary

metastases after PM. The CSS (time between first melanoma resection or PM and death from cancer) from melanoma resection was 86% at 5 years, 72% at 10, 53% at 15, 45% at 20, and 2% at 25, respectively. The 5- and 10-year CSS from LM were 73% and 29%, respectively. Prognostic factors negatively impacting CSS from PM in multivariable analysis were melanoma vertical growth ($p = 0.018$), synchronous lung metastasis ($p<0.001$), previous metastatic sites other than lungs ($p<0.001$), and Disease-Free-Interval(DFI) <24 months ($p=0.007$).

CONCLUSIONS

PM confirms its crucial role in stage IV oligometastatic melanoma with resectable pulmonary metastases. Patients with long DFI, radial-growth melanoma phase, metachronous, and no site of metastatization other than lung appears the best candidates for PM.

Disclosure: No significant relationships.
Keywords: Lung Metastases, Malignant Melanoma, Melanoma, Metastatic Melanoma, Pulmonary Metastasectomy.

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THE SOONER, THE BETTER: PREDICTION OF EARLY CHEST TUBE REMOVAL AND PROLONGED AIR LEAKAGE AFTER UNIPORTAL VIDEO-ASSISTED THORACOSCOPIC ANATOMICAL LUNG RESECTIONS USING A DIGITAL DRAINAGE DEVICE

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OBJECTIVES
With constant improvements in perioperative care for lung cancer patients undergoing surgery, current chest tube policies are being evaluated to provide earlier chest tube removal, and consequently, earlier mobilization, less pain, and shorter hospitalization. Digital drainage devices could play a pivotal role in predicting an optimal chest tube policy. Hence, this study assessed whether risk factors could be identified within historical and real-time digital drainage data in order to predict the postoperative air leakage course.

METHODS
This retrospective study included patients who underwent a (bi)lobectomy or segmentectomy, and excluded if an analog drainage system was used or digital drainage data was not available. The digital chest drainage device was set to -2 cm H2O and removed when air leakage was <40ml/min for a minimum of 4 consecutive hours regardless of fluid production from postoperative day 0. Patient characteristics, procedural information, and clinical outcomes were reported. The historic intrapleural pressure and air leakage flow values were analyzed. Regression analyses were performed to identify digital drainage factors within two hours after surgery that could predict the absence of air leakage and prolonged air leakage (PAL) of more than 5 days.

RESULTS
Preliminary results demonstrate a total of 152 uniportal VATS procedures were included, encompassing 28 segmentectomies, and 124 (bi)lobectomies. Median drainage duration was 1.0 day (p25=1.0; p75=3.0). Eighty-five (56%) of the patients had no air leakage, while 13 (8.6%) experienced PAL. Multivariable regression analyses revealed that maximum airflow could predict no air leakage after surgery, whereas maximum intrapleural pressure was associated with PAL. Further analyses will be conducted on the cut-off values of the aforementioned risk factors, and the effect of air leakage patterns.

CONCLUSIONS
Real-time digital drainage values within the first two postoperative hours could predict the postoperative air leakage course and may be useful for chest tube decision-making.

Disclosure: No significant relationships.
Keywords: Chest Tube, Digital Chest Drainage System, Pleural Pressure, Air Leak, Postoperative Management.

P-323

THE SURROGACY OF DISEASE-FREE SURVIVAL FOR OVERALL SURVIVAL IN LOCALLY ADVANCED SQUAMOUS CELL CARCINOMA AFTER NEOADJUVANT THERAPY: RESULTS FROM THE CMISG1701 TRIAL

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OBJECTIVES
The proposition positing disease-free survival (DFS) as a surrogate endpoint for overall survival (OS) in clinical trials has been put forth. However, the precise surrogacy of DFS remains unestablished. We aim to the surrogate relationship between DFS and OS in esophageal squamous cell carcinoma (ESCC) patients undergoing neoadjuvant therapy.

METHODS
A retrospective analysis was conducted on participants from CMISG1701. The individual-level surrogacy between DFS and OS was quantitatively assessed using the Spearman rank correlation coefficient. Moreover, an intensified scrutiny was performed to evaluate the correlation between DFS and OS at the trial level with weighted linear correlation. Finally, the assessment of surrogacy incorporated the actual survival data from the cohort, expected survival rates matched to the general population, and the standardized mortality ratio (SMR).

RESULTS
At both the individual patient and trial aggregate levels, a statistically significant and robust correlation was ascertained between DFS and OS (Spearman's $\rho = 0.779$, $P < 0.001$; linear correlation R2=0.821). Patients achieving DFS within 1 year exhibited a 4-year OS rate of 94.1%, albeit with a significantly heightened risk of death (SMR=4.80, P<0.001). Those attaining 2-year and 3-year DFS displayed 4-year OS rates of 98.3% and 96.1%, accompanied by notably lower SMR values of 1.31 and 0.66. Conversely, patients experiencing disease recurrence within 1, 2 or 3 years had 4-year OS ranging from 55.7-83.6%, with markedly elevated SMR (22.21-42.46, P<0.001).

CONCLUSIONS
DFS emerges as a substantiated surrogate marker for OS both individually and at the trial levels in ESCC after neoadjuvant therapy. Notably, those achieving 2-year DFS manifested a comparable OS with their matched counterparts in the general population, suggesting that 2-year DFS may serve as an optimal surrogate endpoint for OS.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Surrogate Endpoint, Neoadjuvant Therapy.

Group	Number of patients	Actual 4-year OS (%) (95% CI)	Expected 4-year OS (%)	SMR (95% CI)	P value of SMR
Patients who achieved DFS					
All patients (12 months)	168	94.1 (90.3, 97.8)	94.4	4.80 (4.17, 5.52)	<0.001
All patients (24 months)	136	98.3 (96.1, 100.6)	94.5	1.31 (0.76, 2.28)	0.413
All patients (36 months)	81	96.1 (90.7, 101.6)	94.4	0.66 (0.17, 2.52)	0.468
NCRT+MIE (12 months)	81	90.3 (83.4, 97.1)	94.3	4.67 (3.80, 5.74)	<0.001
NCRT+MIE (24 months)	65	96.4 (91.9, 101.2)	94.3	1.20 (0.51, 2.86)	0.711
NCRT+MIE (36 months)	41	91.7 (80.1, 103.3)	94.5	0.89 (0.21, 3.67)	0.864
NCT+MIE (12 months)	87	97.5 (94.2, 100.9)	94.4	4.92 (4.06, 5.96)	<0.001
NCT+MIE (24 months)	71	100 (100, 100)	94.6	1.42 (0.70, 2.89)	0.435
NCT+MIE (36 months)	40	100 (100, 100)	94.4	0.43 (0.02, 7.62)	0.404
Patients who failed DFS					
All patients (12 months)	96	55.7 (45.4, 65.9)	94.3	42.46 (41.11, 43.85)	<0.001
All patients (24 months)	128	66.5 (58.2, 74.8)	94.2	37.04 (35.96, 38.16)	<0.001
All patients (36 months)	183	83.6 (78.2, 89.1)	94.3	22.21 (21.40, 23.05)	<0.001
NCRT+MIE (12 months)	51	57.6 (43.8, 71.4)	94.4	48.21 (46.29, 50.21)	<0.001
NCRT+MIE (24 months)	67	66.5 (55.0, 77.9)	94.4	40.39 (38.85, 41.99)	<0.001
NCRT+MIE (36 months)	91	84.3 (76.8, 91.9)	94.2	24.30 (23.14, 25.53)	<0.001
NCT+MIE (12 months)	45	53.7 (38.6, 68.8)	94.3	36.98 (35.12, 38.95)	<0.001
NCT+MIE (24 months)	61	66.5 (54.5, 78.5)	94.1	33.81 (32.30, 35.39)	<0.001
NCT+MIE (36 months)	92	82.9 (75.0, 90.8)	94.4	20.28 (19.16, 21.46)	<0.001

DFS, disease-free survival; NCRT, neoadjuvant chemoradiation therapy; NCT, neoadjuvant chemotherapy; MIE, minimal invasive esophagectomy; OS, overall survival; SMR, standardized mortality ratio
Actual 4-year OS was defined as the 4-year OS of specific patient subpopulations; the expected 4-year OS defined as the 4-year OS of general population after matching based on age, sex, and country etc. information.

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THE USE OF HOLOGRAPHIC THREE-DIMENSIONAL (3D) RECONSTRUCTIONS IN ASSESSING INTERSEGMENTAL FISSURE FOR LUNG SEGMENTECTOMY

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OBJECTIVES
Identifying the distance between the nodule and the intersegmental fissures is challenging and this can lead to the removal of more than one segment or even the entire lobe during surgery if the healthy resection margin is not present.
We evaluated the use of the hologram of lung reconstructions for the study of intersegmental fissure in surgical planning.

METHODS
It was a single-center retrospective study. 72 patients were included who underwent segmentectomy in the period from January 2021 to June 2023.
Patients were retrospectively divided into two groups based whether the lung segmentectomy was performed with the aid (Holographic Group) or not (Standard Group) of holographic three-dimensional (3D) reconstructions.
The demographic and operative data along with complications were recorded and analyzed.

RESULTS
Our study population counted 72 patients of which excluding 27. The remaining 45 patients were divided thus: 17 in the Holographic group and 28 in Standard group. No intergroup differences were found regarding the clinic characteristics and histological diagnosis of lesions. The Standard Group compared to the Holographic group was associated with significant longer operative time (110.0 ± 38.19 vs 95.0 ± 15.66, p=0.001) mainly due to the choice of performing further lung resection such as the removal of further sub-segment, another segment or even the completion lobectomy.

CONCLUSIONS
Holographic 3D lung reconstructions allow you to accurately visualize the distance of the tumor from the intersegmental fissures during preoperative planning. This tool allowed to program the typical segmentectomy or a possible atypical segmentectomy, avoiding to be forced to change surgical strategy in the course of section of the intersegmental fissure and reducing operating time. Since a retrospective monocentric study has been conducted, further studies are needed.

Disclosure: No significant relationships.

Keywords: Lung Segmentectomy, Holographic Three-Dimensional 3D Lung Reconstruction, Intersegmental Fissure.

Table 1. Comparison of the two study groups

Variables	All Patients	Holographic Group	Standard Group	P-Value
AGE, *median*	64.0 ± 7.33	65.0 ± 7.42	64.0 ± 7.53	0.715
FEV1, *median*	88.0 ± 16.42	88.0 ± 20.10	87.0 ± 13.83	0.306
DLCO, *median*	89.0 ± 14.41	85.0 ± 19.11	93.0 ± 10.69	0.480
Nodule diameter (mm)	12.0 ± 2.26	12.0 ± 2.24	13.0 ± 2.73	0.218
PET (SUV), *median*	2.6 ± 0.65	2.5 ± 0.48	2.7 ± 0.71	0.064
Operative time (min)	100.0 ± 34.12	95.0 ± 15.66	110.0 ± 38.19	0.001
Blood loss (ml)	200.0 ± 80.69	200.0 ± 74.51	200.0 ± 85.65	0.877

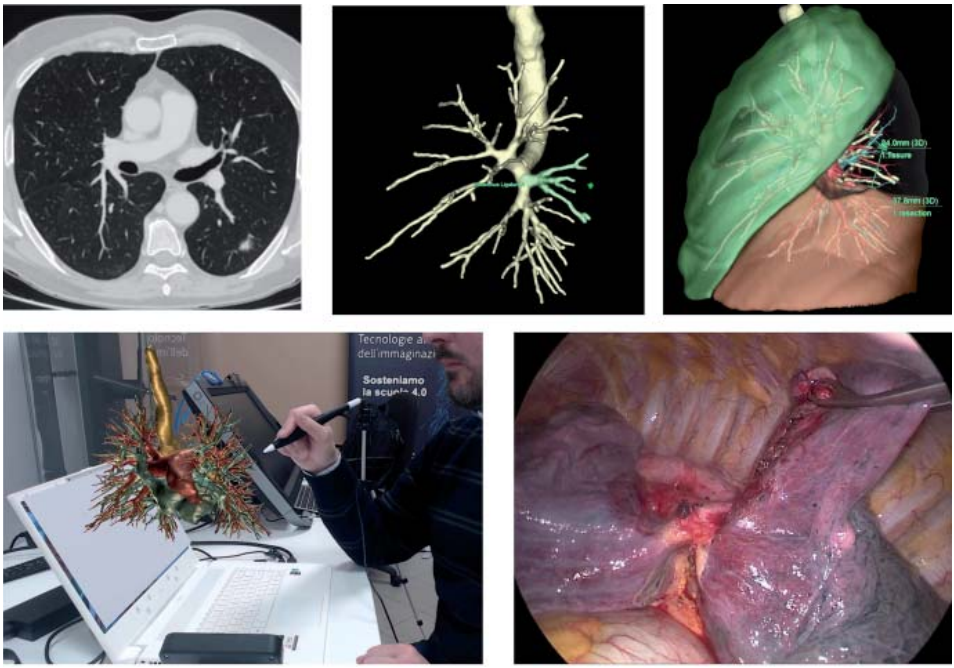

Figure 1. 68-year-old patient with lung adenocarcinoma stage IA. a) CT scan showing the 9 mm nodule at LLL. b) 3D reconstrucions showing the pulmonary nodule and segmental bronchus b6. c) 3D reconstruction showing the lung nodule ratio with large fissure and intersegmental fissure. d) The anatomy of the lung segment to be resected is shown in a holographic 3D reconstruction. f) Left S6 segmentectomy surgery.

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THE VALUE OF PREDICTING THE INFILTRATIVE NATURE AND DEGREE OF INFILTRATION OF PULMONARY GROUND-GLASS NODULES BASED ON COMPUTED TOMOGRAPHY (CT) FEATURES AND ENHANCED QUANTITATIVE ANALYSIS

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OBJECTIVES

Pulmonary Ground-Glass Nodules (GGNs) have gained increasing attention due to their possible malignant nature. Accurate assessment of GGNs is crucial in reducing lung cancer mortality. The objective of this study is to summarize the role of chest computed tomography (CT) in predicting the invasiveness and degree of infiltration of GGNs.

METHODS

We enrolled all patients with one or more lung GGNs, who underwent surgical resection between January 2016 and December 2023. GGNs were classified into two groups based on pathological types: precursor glandular lesion (PGL), adenocarcinoma in situ (AIS) and microinvasive adenocarcinoma (MIA) as Group 1; invasive adenocarcinomas (IAC) as Group 2. Quantitative and qualitative data of the nodules were compared, and receiver operating characteristic (ROC) curve analysis was performed for each quantitative parameter.

RESULTS

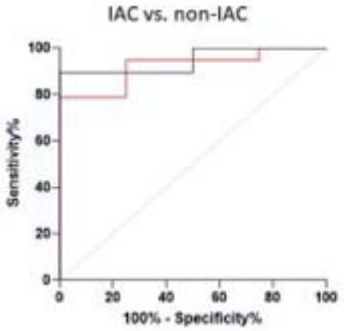
The GGNs of Group 2 appeared to have a higher percentage of solid component and a lower percentage of ground-glass opacity (GGO) compared to Group 1 ($p = 0.03$). The GGN density measured in HU in plain phase and arterial phase was significantly higher in patients from Group 2 ($p < 0.01$). Group 1 was found to be more predominantly represented by the lepidic histological subtype compared to Group 2 ($p = 0.02$). No differences were observed in terms of maximum diameter of the GGNs. Chi-square test showed an association between IAC and mixed GGOs ($p=0.0011$). ROC curve analysis distinguished the two groups according to CT arterial phase cut-off value of –14.5 HU

(sensitivity 89.47% and specificity 75%, p=0.0058) and CT plain phase cut-off value of -105 HU (sensitivity 94.74% and specificity 75%, p=0.0094).

CONCLUSIONS

CT features combined with enhanced scanning and quantitative analysis have important value in predicting the invasiveness of GGNs. The type of pulmonary nodule detected on CT (pure GGN or mixed GGN) is an independent risk factor for GGN invasiveness.

Disclosure: No significant relationships.
Keywords: Ground Glass Opacities, Adenocarcinoma, Radiologic Diagnosis, Invasiveness.



HU arterial phase Group 2 vs Group 1

Area	0.9474
Std. Error	0.04735
95% confidence interval	0.8546 to 1.000
P value	0.0058

HU plain phase Group 2 vs Group 1

Area	0.9211
Std. Error	0.06120
95% confidence interval	0.8011 to 1.000
P value	0.0094

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THORACIC AUTONOMIC NERVOUS SYSTEM SURGERY CURRENT APPLICATIONS. A SURVEY AMONG MEMBERS OF THE EUROPEAN SOCIETY OF THORACIC SURGEONS

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OBJECTIVES

Thoracic autonomic nervous system surgery is mainly adopted for hyperhidrosis/facial blushing whilst cardiac and vascular indications are limited. Literature remains controversial about the exact indications and surgical technique with a lack of homogeneous data being a main limitation. We designed a survey aimed to investigate current habits among members of the European Society of Thoracic Surgeons. To our knowledge, this is the first and unique worldwide survey concerning thoracic autonomic nervous system surgery in literature.

METHODS

A questionnaire comprising 29 questions was available from December 2022 through February 2023 to all members. Topics were grouped into demographic questions, indication and preoperative evaluation, technical questions, complications and follow-up. Categorical variables have been tested using Pearson's x2 test or Fisher's exact test as appropriate for determining whether proportions of data described by two categorical variables were random.

RESULTS

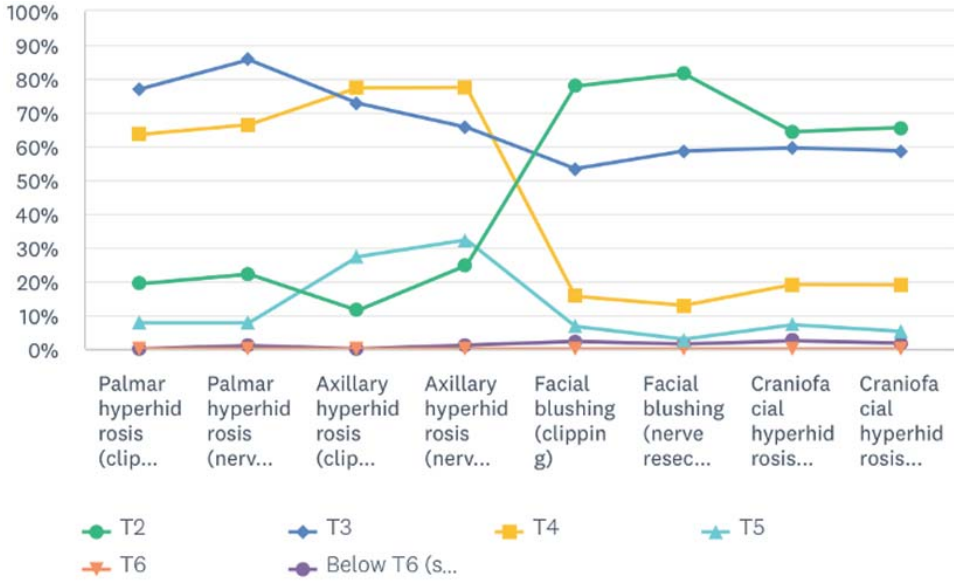
Response rate was 7.3% and 121 out of 123 valid responses were analyzed. Sympathetic surgery was adopted for hyperhidrosis/facial blushing, cardiac and vascular diseases by 99,1%; 29,7%

and 29,7% of responders. Palmar was the most frequent hyperhidrosis condition, followed by axillary, facial blushing and craniofacial hyperhidrosis. Catecholaminergic ventricular tachycardia preceded long-QT-syndrome; among vascular diseases, Raynaud syndrome preceded Buerger's disease. Data analysis showed that members were inclined to prefer nerve cutting over clipping (65,83%, 63,88%% and 58,33% for hyperhidrosis/facial blushing, cardiac and vascular diseases respectively) (table1). The nerve block targeting level preference changed significantly based on each addressed affliction (image1). Seventy-nine (65,29%) of responders experienced severe compensatory sweating in less than 10% of cases. 63 responders (52,06%) accompanied follow-up with a database.

CONCLUSIONS

Current application of sympathetic surgery among ESTS members is based on the available evidence, which however is limited by considerable heterogeneity. A database might contribute to homogenize documentation, surgical technique and follow up and provide a basis for further multi-institutional analyses and prospective trials.

Disclosure: No significant relationships.
Keywords: ESTS, Survey, Thoracic, Autonomic Nervous System, Surgery.



Condition-T level	Clipping %	Nerve cutting %	P value
	Hyperhidrosis/facial blushing		
PH-R2	8.01	18.7	**<0,001**
PH-R3	32.5	71.5	0,526
PH-R4	27.0	55.7	1.000
PH-R5	3.20	6.50	**0,021**
PH-R6	No measures of association computed.		
PH-Below R6	No measures of association computed.		
AH-R2	4.10	18.9	**<0,001**
AH-R3	26.0	48.8	**0,013**
AH-R4	27.8	58.2	0,103
AH-R5	9.7	24.4	**0,001**
AH-R6	No measures of association computed		
AH-BelowR6	No measures of association computed.		
FB-R2	28.4	46.3	**0,009**
FB-R3	19.5	33.3	**<0,001**
FB-R4	5.70	7.30	**<0,001**
FB-R5	2.4	1.6	**<0,001**
FB-R6	No measures of association computed		
FB-Below R6	0.01	0.8	**0,008**
CHF-R2	21.9	30.9	**<0,001**
CHF-R3	20.3	27.6	**<0,001**
CHF-R4	6.50	8.90	**<0,001**
CHF-R5	2.43	2,40	**0,001**
CHF-R6	No measures of association computed.		
CHF-Below R6	0,80	0.80	**0,008**

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THORACOSCOPIC INTERNAL RIB PLATING: THE IMPETUS FOR GROWTH IN SURGICAL MANAGEMENT OF CHEST WALL INJURIES

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OBJECTIVES

Chest trauma is frequently associated with rib fractures, and surgical stabilization of rib fractures (SSRF) with thoracoscopic internal plating has been increasingly used. The objective is to demonstrate effective utilization of thoracoscopic internal plating in expanding a tertiary institution's chest wall injury program with low morbidity and mortality.

METHODS

A review was performed of prospectively collected STS data on 206 patients who underwent SSRF at a tertiary trauma center from 2015-2023. Patients were divided into: SSRF before internal fixation was available prior to 2021 (2015-2021), and those after (2021-2023). Descriptive statistics were used to analyze demographics, injury specifics, operative details, and post-operative courses. Student's t-test and $\chi 2$, were used to analyze differences in gender, chest abbreviated injury scale (AIS), time before OR, ICU LOS, and total LOS, as appropriate.

RESULTS

The volume of SSRF at this institution has grown exponentially with only 61 external SSRF cases before 2021, and 145 SSRF cases after. Patients undergoing SSRF were mostly male, 69%, and most commonly after falls, 42%. Patients who had SSRF prior to internal plating had higher average Chest AIS, 3.5 vs. 3.2 ($p<0.05$) when compared to the more recent group. Before internal plating, patients experienced more days before OR, 5 vs. 3 ($p<0.01$) with longer LOS 19 vs. 11 ($p<0.05$) and ICU LOS, 11 vs. 6 ($p<0.01$). Furthermore, in the recent group, more patients were discharged home, 66% vs. 48% ($p<0.01$) . Overall mortality for the cohort was 0.6% (Table).

CONCLUSIONS

Internal SSRF technology has facilitated significant increase in the volume of expeditious throughput of patients with chest wall injuries. As volume has increased, patients have undergone SSRF sooner after admission, associated with a greater than proportionate reduction in ICU and overall LOS along with low morbidity and mortality.

Disclosure: No significant relationships.
Keywords: Internal Rib Plating, Rib Fractures, Minimally Invasive, Chest Wall Injuries, Thoracoscopy.

	External Plating Only 2015-2021	External + Internal Plating 2021-2023	p-value
N	**61**	**145**	
DEMOGRAPHICS			
Gender			0.6
Male, N, %	44, 72%	99, 68%	
Female, N, %	17, 28%	46, 32%	
Age			0.1
Median, Range	59, 25-87	64, 23-91	
Mechanism of Injury			0.1
Fall, N, %	21, 35%	63, 44%	
MVC, N, %	14, 23%	45, 31%	
MCC, N, %	10, 16%	16, 11%	
Other, N, %	16, 26%	21, 14%	
CHEST WALL INJURY			
Flail Chest Identified			0.01
Radiographic, N, %	40, 66%	52, 35%	
Surgical, N, %	28, 48%	14, 10%	
Chest AIS			
Mean, Range	20, 9-45	18, 3-57	0.04
SURGERY			
Average Days Before OR			0.00001
Mean, Range	5, 0-21	3, 0-16	
Number of Ribs Stabilized			0.000002
Mean, Range	5, 1-14	4, 1-8	
Type of Rib Plate			<0.01
External, N, %	61, 100%	19, 13%	
Internal, N, %		109, 75%	
Both, N, %		17, 12%	
POST-OPERATIVE			
Total LOS (Days)			0.02
Mean, Range	19, 2-61	11, 2-58	
ICU LOS (Days)			0.0006
Mean, Range	11, 1-49	6, 1-49	
Disposition			0.005
Home, N, %	29, 48%	96, 66%	
Facility, N, %	32, 52%	41, 28%	
Mortality, N, %		1, 0.6%	
Against Medical Advice, N, %		1, 0.6%	
30 Day Readmission			0.7
N, %	3, 3%	9, 6%	

Table. Comparison of Demographics, Chest Wall Injury, Surgery, and Post-Operative Data Between 2015-2021 SSRF Patients and 2021-2023 SSRF Patients

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THORACOSCOPIC LOBECTOMY VERSUS SEGMENTECTOMY FOR CLINICAL STAGE I NON-SMALL CELL LUNG CANCER WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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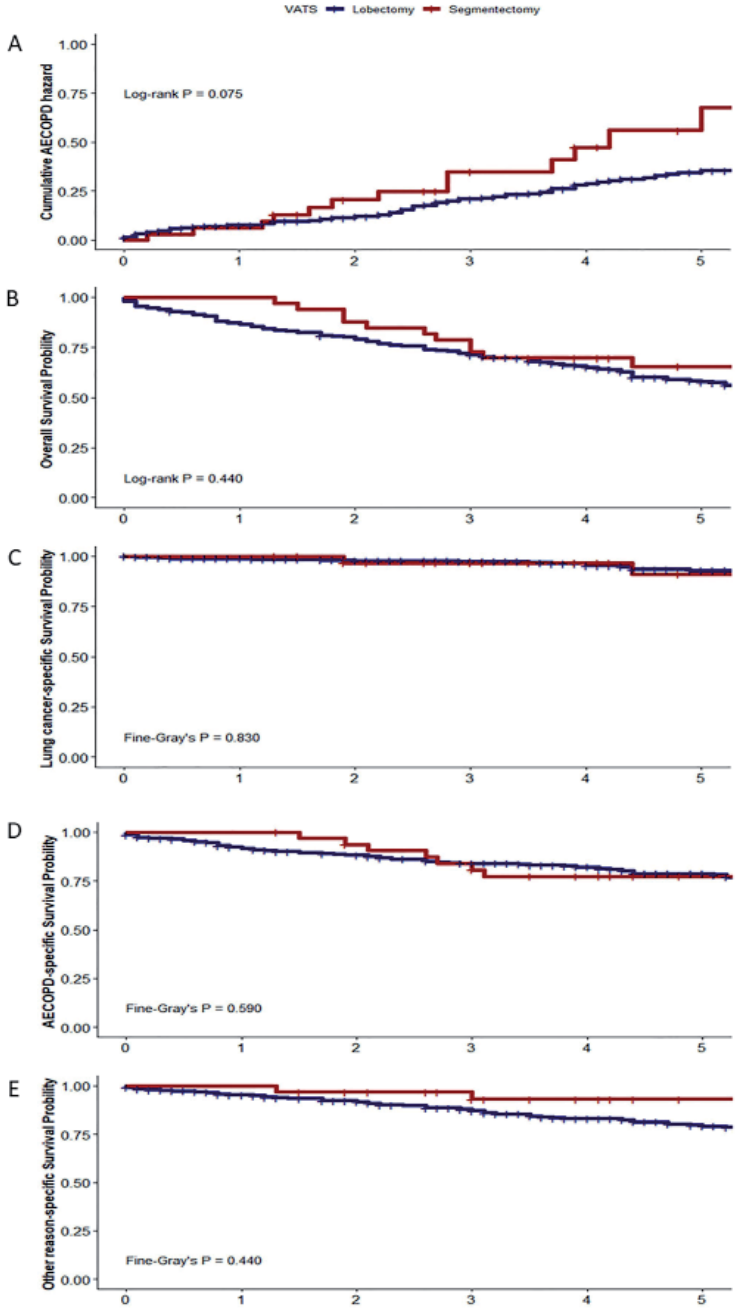
OBJECTIVES
This study aimed to investigate short- and long-term outcomes after thoracoscopic lobectomy (VATS-L) versus segmentectomy (VATS-S) in patients with clinical stage I non-small cell lung cancer (cI NSCLC) and chronic obstructive pulmonary disease (COPD).

METHODS
Data from a prospective database of VATS pulmonary anatomical resections conducted at a high-volume hospital between January 2008 and August 2020 were analyzed. Kaplan-Meier analysis with the log-rank test was used for assessing cumulative risks of acute exacerbations of COPD (CR-AECOPD) and overall survival (OS) and Fine-Gray's test for specific survivals in the competing risk model. Adjusted logistic regression model was employed to assess the impact of VATS-S (vs VATS-L) on prolonged hospitalization and 30-day readmissions, while Cox regression model was used to evaluate the CR-AECOPD and OS.

RESULTS
Out of 3422 patients, 348 had both COPD and cI NSCLC, with 315 undergoing VATS-L and 33 undergoing VATS-S. The median length of stay was 4 days for both. However, 30-day readmissions following VATS-S were higher (36.4% vs. 13.0%, P = .002). The median follow-up period was 4.4 years. The 5-year CR-AECOPD for VATS-S vs VATS-L were (49.3% vs. 29.8%, P = .073), OS (65.6% vs. 58.0%, P = .440), lung cancer-specific survival (91.1% vs. 92.9%, P = .830), AECOPD-specific survival (77.5% vs. 78.9%, P = .590), and other reasons-specific survival (93.2% vs. 79.2%, P = .440), respectively (Figure 1). In adjusted regression models, VATS-S increased the risk of 30-day readmissions (OR 4.09, 95% CI 1.81 to 9.27, P < .001), but did not affect prolonged hospitalization (> 4 days), CR-AECOPD or OS.

CONCLUSIONS
VATS-S for COPD and cI NSCLC resulted in a higher 30-day readmission rate but yielded similar outcomes in terms of LOS, AECOPD incidence, and survival when compared to VATS-L.

Disclosure: No significant relationships.
Keywords: Lobectomy, Segmentectomy, Chronic Obstructive Pulmonary Disease, Non-Small Cell Lung Cancer, Video-Assisted Thorascoscopic Surgery.


VATS
Lobectomy
Segmentectomy
A
Cumulative AECOPD hazard
Log-rank P = 0.075
B
Overall Survival Probility
Log-rank P = 0.440
C
Lung cancer-specific Survival Probility
Fine-Gray's P = 0.830
D
AECOPD-specific Survival Probility
Fine-Gray's P = 0.590
E
Other reason-specific Survival Probility
Fine-Gray's P = 0.440
0.00
0.25
0.50
0.75
1.00
0
1
2
3
4
5

P-329

TOWARDS IN VIVO NANOTHERANOSTICS OF NON-SMALL-CELL LUNG CARCINOMA – IN VITRO DEVELOPMENT AND EVALUATION OF A LUMINESCENT NANOPLATFORM INCLUDING A PRE-TARGETING STRATEGY

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OBJECTIVES

The aim of this study is to identify non-small cell lung cancer (NSCLC) cells in a two-step process by targeting them with antibodies against 4 lung cancer cell surface biomarkers (EPCAM, PD-L1, CD133 and TROP2) and labeling them with luminescent Ag2S nanoparticles (LNPs) that will undergo an in situ bioorthogonal click reaction with the antibodies (Fig.1A).

METHODS

Super-bright Ag2S LNPs with emission in the second near-infrared (NIR) region at 1200 nm were synthesized and functionalized with tetrazine (Tz) (click group). The antibodies were functionalized with trans-cyclooctenes (TCO) (comp_click groups), complementary to the click groups on the surface of the LNPs. Four commercial human lung cancer cell lines (H358, H2228, A549 and H1970) were evaluated for their expression of the 4 biomarkers via PCR, western blot and immunocytochemistry. After evaluation, H358 cells were incubated with comp_click- Abs and click-LNP. NIR fluorescence microscopy was performed to test the targeting and labeling efficiency, by exciting the LNPs with green light and using an InGaAs camera.

RESULTS

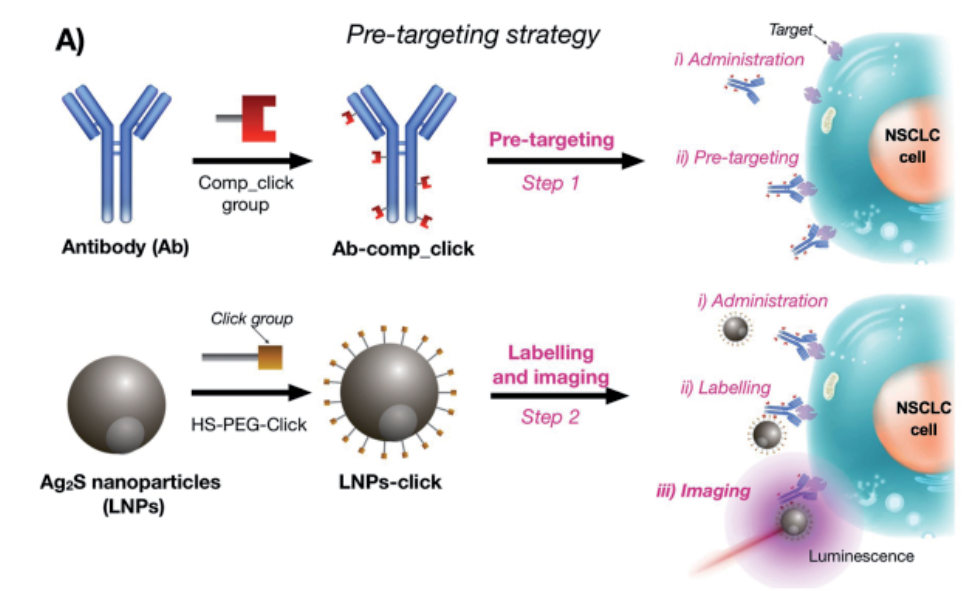
Human lung cancer H358 showed higher expression of the 4 biomarkers. Nanoparticles were successfully biofunctionalized, reactivity in click reactions was confirmed, and satisfactory

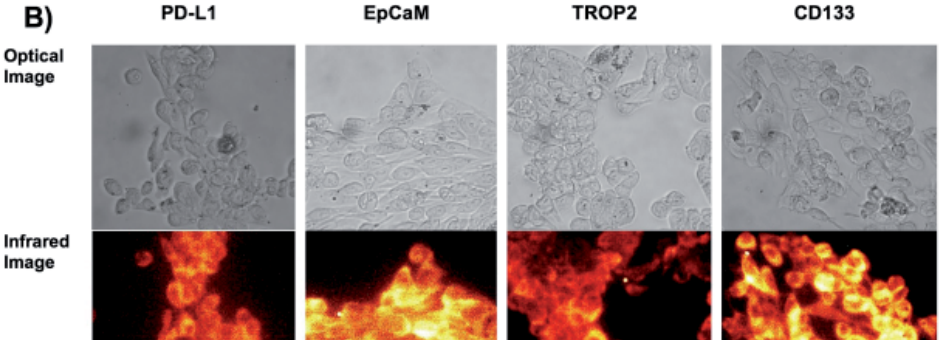
optical properties in the NIR were displayed (bright emission observed via fluorescence spectroscopy). The antibodies were functionalized and their stability and epitope recognition was maintained. As a result, NIR fluorescence microscopy of H358 cells was observed: LNPs targeted the 4 receptors (Fig.1B) at the cell's surfaces, thereby validating the two-step pre-targeting strategy via bioorthogonal chemistry.

CONCLUSIONS

The results of these experiments demonstrate the suitability of this click reaction in situ and in vitro confirming the capacity of the LNPs to act as NIR contrast agent. This pre-targeting strategy among the chosen biomarkers and the LNPs lays the foundation for future detection of NSCLC cells in vivo, offering a novel dual diagnostic and therapeutic approach against NSCLC.

Disclosure: No significant relationships.
Keywords: NSCLC, Nanotheranostics, Nanoparticles, Lung Cancer.


A)
Pre-targeting strategy
Antibody (Ab)
Comp_click group
Ab-comp_click
Pre-targeting
Step 1
Target
i) Administration
ii) Pre-targeting
NSCLC cell
Click group
HS-PEG-Click
Ag2S nanoparticles (LNPs)
LNPs-click
Labelling and imaging
Step 2
i) Administration
ii) Labelling
NSCLC cell
iii) Imaging
Luminescence


B)
PD-L1
EpCaM
TROP2
CD133
Optical Image
Infrared Image

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TRACHEOBRONCHIAL RESECTION AND RECONSTRUCTION: TO WRAP OR NOT TO WRAP THE ANASTOMOSIS?

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[2]*Guangzhou Institute of Respiratory Disease & State Key Laboratory of Respiratory Disease of China, Guangzhou, China*
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[4]*Guangzhou Medical University, Guangzhou, China*

OBJECTIVES
Two opinions in tracheobronchial resection and reconstruction regarding the management of airway anastomosis remain controversial: those who wrap the anastomosis with a surrounding tissue and those who don't. This study was to explore the relationship between the choice of anastomotic wrapping and the anastomotic complications in tracheobronchial surgery.

METHODS
Patients who underwent tracheobronchial surgery were retrospectively analyzed from Jan. 2019 to Dec. 2021. A total of 95 patients were enrolled, including 64 patients who received anastomotic wrapping and 31 patients who did not. Patients' age and comorbidities were quantified by ACCI. According to the length of resection (≥4.0cm) or neoadjuvant therapy, the cases were divided into the complex surgery group and the standard surgery group, and within each group, the cases were further divided into two subgroups, wrapped subgroup and non-wrapped subgroup. The clinical data were collected, including demographic characteristics, occurrences of postoperative complications.

RESULTS
The complex surgery group was divided into the wrapped subgroup (32/42) and the non-wrapped subgroup (10/42), while the standard surgery group was divided into the wrapped subgroup (32/53) and the non-wrapped subgroup (21/53). In the former, the wrapped subgroup has a lower short-term postoperative anastomotic complication rate compared to the non-wrapped subgroup (P=0.003), including anastomotic mild necrosis or stenosis (18.8% vs 20.0%) and anastomotic rupture or fistula (0% vs 40.0%), and a low 30-day mortality rate (0% vs 30%, P=0.01). However, no significant difference was observed in blood loss, operation time, other postoperative complications, long-term anastomotic complications between two subgroups. No statistically significant difference was noted in the standard surgery group.

CONCLUSIONS

Wrapping procedure has a relatively positive effect in minimizing the risk of short-term anastomotic complications in complex tracheobronchial surgery, without affecting the long-term anastomotic complications. Whereas it does not have a necessary role in standard tracheobronchial surgery.

Disclosure: No significant relationships.

Keywords: Tracheobronchial Resection And Reconstruction, Airway Anastomosis, Anastomotic Wrapping.

Characteristics	Complex surgery group (n=42)			Standard surgery group (n=53)		
	Wrapped group (n=32)	Non-wrapped group (n=10)	P value	Wrapped group (n=32)	Non-wrapped group (n=31)	P value
Sex, n (%) Male Female	 22(68.8%) 10(31.2%)	 7(70.0%) 3(30.0%)	0.999	 22(68.8%) 10(31.2%)	 14(66.7%) 7 (33.3%)	0.874
BMI, kg/m^2, mean±SD	22.5 (3.0)	23.3 (4.4)	0.530	23.6 (2.5)	22.3 (2.5)	0.055
Age, y, mean±SD	43.1(16.5)	61.4(8.4)	0.002	45.3(14.1)	43.3(15.1)	0.061
ACCI*, median (IQR)	2.0(2.0-4.0)	4.0(3.0-5.8)	0.129	3.0(2.0-3.0)	2.0(2.0-4.0)	0.253
Cause, n (%) Malignant tumor Benign tumor Exogenous injury	 27 (84.4%) 2 (6.2%) 3 (9.4%)	 9 (90.0%) 1 (10.0%) 0 (0.0%)	0.999	 17 (53.1%) 7 (21.9%) 8 (25.0%)	 14 (66.7%) 3 (14.3%) 4 (19.0%)	0.632
Neoadjuvant therapy, n (%)	9 (28.1%)	3 (30.0%)	0.999	0 (0.0%)	0 (0.0%)	0.999
Lesion location, n (%) Cervical trachea Intrathoracic trachea Carina Main bronchus	 6 (18.8%) 16 (50.0%) 7 (21.9%) 3 (9.4%)	 4 (40.0%) 2 (20.0%) 2 (20.0%) 2 (20.0%)	0.260	 14 (43.8%) 11 (34.3%) 2 (6.3%) 5 (15.6%)	 9 (42.9%) 4 (19.0%) 2 (9.5%) 6 (28.6%)	0.527
Surgical approach, n (%) Open operation Minimally invasive surgery	 17 (53.1%) 15 (46.9%)	 6 (60.0%) 4 (40.0%)	0.999	 16 (50.0%) 16 (50.0%)	 9 (42.9%) 12 (57.1%)	0.610
Length of resection, cm, median (IQR)	4.0(4.0-4.5)	4.0(4.0-4.6)	0.901	3.0(2.0-3.5)	3.0(2.7-3.0)	0.746
Blood loss, ml, median (IQR)	50.0(20.0-100.0)	50.0(21.2-325.0)	0.569	25.0(10.0-50.0)	20.0(10.0-30.0)	0.542
Operation time, min, median (IQR)	295.0 (233.8, 366.2)	237.5 (191.2, 322.5)	0.111	270.0 (230.0-371.3)	230.0 (165.0-240.0)	0.015
Short-term anastomotic complications, n (%) No Mild necrosis or stenosis Rupture or fistula	 26 (81.2%) 6 (18.8%) 0 (0.0%)	 4 (40.0%) 2 (20.0%) 4 (40.0%)	0.003	 28 (87.5%) 4 (12.5%) 0 (0.0%)	 18 (85.7%) 2 (9.5%) 1 (4.8%)	0.624
Other postoperative complications, n (%)	10 (31.2%)	6 (60.0%)	0.142	9 (28.1%)	7 (33.3%)	0.686
Postoperative hospital stays, day, median (IQR)	8.0(6.0-10.2)	14.0(11.0-15.0)	0.034	7.0(5.0-10.5)	7.0(5.0-10.0)	0.847
30-day mortality, n (%)	0 (0.0%)	3 (30.0%)	0.010	0 (0.0%)	0 (0.0%)	0.999

Characteristics	Complex surgery group (n=42)			Standard surgery group (n=53)		
	Wrapped group (n=32)	Non-wrapped group (n=10)	P value	Wrapped group (n=32)	Non-wrapped group (n=31)	P value
Long-term anastomotic complications, n (%)						
No	26(81.2%)	8(80.0%)	0.600	23(71.9%)	13(61.9%)	0.701
Mild stenosis	5(15.6%)	1(10.0%)		6(18.8%)	5(23.8%)	
Tracheomalacia	1(3.1%)	1(10.0%)		3(9.3%)	2 (9.5%)	
Fistula	0 (0%)	0 (0%)		0(0%)	1(4.8%)	
Follow-up duration, month, mean±SD	29.2(11.0)	23.7(17.0)	0.385	23.9(12.1)	30.4(13.0)	0.070

* ACCI: age-adjusted Charlson comorbidity index.

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TRANSABDOMINAL CYSTERNA CHYLI LIGATION IN RECURRENT CHYLOUS LEAK

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OBJECTIVES

Chylothorax can occur due to a variety of reasons. Initial approach is a transthoracic duct ligation using VATS or open technique. We analyze our results of transabdominal cysterna chyli ligation in recurrent chylous leak.

METHODS

Transabdominal ligation of cysterna chyli is performed through an upper midline laparotomy. Gastrohepatic ligament is divided, right crus and median arcuate ligament are identified. Esophagus is retracted superiorly and median arcuate ligament is divided vertically and inferiorly for 2-4 cm. Right crus is retracted to the right side. Descending aorta is identified and dissected away to the left side. Thickness of the cysterna chyli is assessed by palpation and the whole tissue anterior to the vertebral body between aorta and right crus laterally and vertebra posteriorly is mass ligated with pledgeted No.0 silk sutures. No drain is placed.

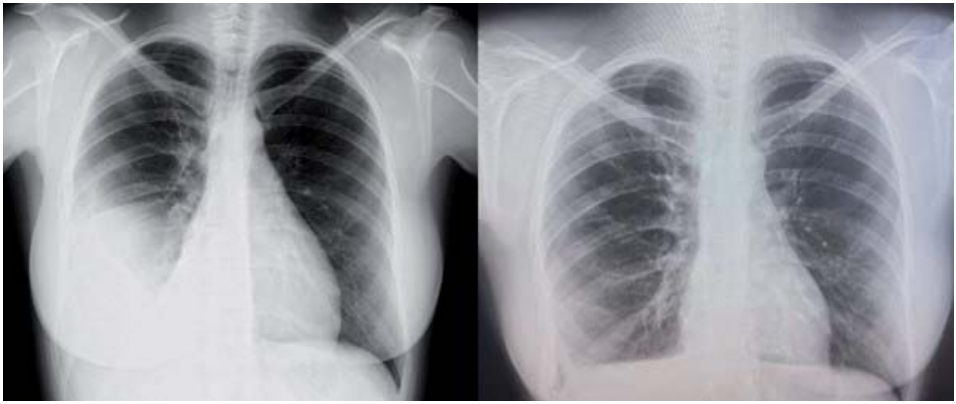
RESULTS

Thirteen patients were operated between 2011-2023. Average age was 39±23 (0.4-90). Causes were idiopathic in 3, post-surgical in 7 (3 esophagectomy, 1 lung resection, 1 mediastinal tumor resection, 1 drainage for mediastinitis and 1 repair of single ventricle) and due to lymphoproliferative diseases in 3. Chylothorax was right-sided in 5, left-sided in 1 and bilateral in 7. Five patients were in an intubated state. Previous transthoracic repair was attempted in 9. Transabdominal ligation was successful with quick resolution of chylous leak in 10 patients (77%) (Figure 1). All intubated patients were extubated following ligation. In two patients with lymphoma, surgery was not successful. In one of the post-esophagectomy patients leak decreased but did not stop. One esophagectomy patient died as a result of ARDS although the leak has stopped. One patient had late recurrence 2 years after surgery which was treated with percutaneous embolization.

CONCLUSIONS

Transabdominal ligation is effective in recurrent chylous leak. Rarity of the situation makes it difficult for thoracic surgeons to anatomically orientate.

Disclosure: No significant relationships.
Keywords: Chylothorax, Transabdominal Ligation, Cisterna Chyli.



P-332

TRANS-CONTINENTAL ANALYSIS OF REPRESENTATION OF WOMEN IN THORACIC SURGERY: CHALLENGES PERMEATE OUR GLOBAL COMMUNITY

Rajika Jindani[1], Debora Brascia[2], Javeria Tariq[3], Justin Olivera[1], Albert Dweck[1], Amanda Ghanie[1], Jorge Humberto Rodriguez-Quintero[1], Mara Antonoff[4], Brendon Stiles[1], Cecilia Pompili[5]
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[2]*University of Bari, Bari, Italy*
[3]*University of Leeds, Leeds, United Kingdom*
[4]*University of Texas MD Anderson Cancer Center, Houston, United States*
[5]*St Bartholomew's Hospital, London, United Kingdom*

OBJECTIVES

The underrepresentation of women in thoracic surgery has been well described worldwide. Importantly, women can serve as role models for trainees and advance their own careers through academic appointments, leadership positions, and involvement in thoracic societies. Geographic variations in progress have not been elucidated. We aimed to characterize differences between representation of women in thoracic surgery between the United States (US) and Europe.

METHODS

A cross-sectional study was conducted using publicly available data for hospitals with thoracic-track training programs in the US and Europe updated to January 2024. Membership data for national/international societies were obtained directly from respective organizations. Comparisons were made and chi-squared analyses performed.

RESULTS

Among 30 US institutions with dedicated general thoracic surgery training tracks, women comprised 18% (80/444) of academic faculty. In terms of leadership, 26.7% (8/30) of institutions had women as Thoracic Surgery Program Directors, 16.7% (5/30) as Thoracic Surgery Chief, and 15.4% (4/26) as Surgery Chair. These results were compared with those of 245 thoracic surgery centers in 13 European countries, where women comprised 9.3% (10/107) of academic faculty. Of programs with available data, 5.4% (8/148) had women as Thoracic Surgery Program Directors and 7.3% (18/245) as Thoracic Surgery Unit Heads. Regarding societal membership, women were well-represented as trainee members (US, 39.2% vs. Europe, 46.1%; p=0.367), but comprised a lower proportion of active/senior members (US, 12.9% vs. Europe, 19.2%; p=0.006). The European Society of Thoracic Surgeons had higher proportions of women members compared to the General Thoracic Surgical Club (Figure 1).

CONCLUSIONS

We identified universal disparities in the representation of women in faculty appointments, leadership positions, and membership in professional societies. Efforts to address these imbalances may benefit from shared experiences and efforts, ultimately aiding resident recruitment and career advancement for women thoracic surgeons, while fostering diversity, equity, and inclusion on a global scale.

Disclosure: No significant relationships.
Keywords: Gender Disparities, Women Representation, Academic Appointments, Leadership Positions, Professional Thoracic Societies.

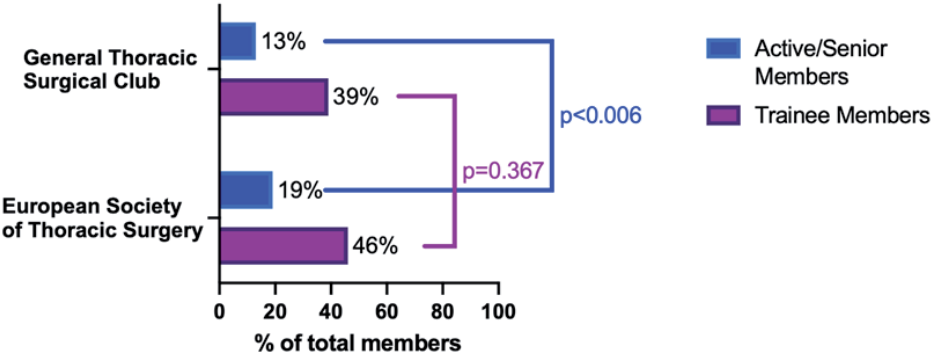

Figure 1: Representation of women in national/international thoracic societies based on membership level in 2023 (with p-values from chi-square analyses).

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TRAUMATIC HEMOPNEUMOTHORAX: EPIDEMIOLOGICAL PROFILE AND MANAGEMENT OVERVIEW

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[1]*Thoracic and Cardiovascular Surgery Department - Habib BOURGUIBA's University Hospital, Sfax, Tunisia*
[2]*Surgery Department, Gabes University Hospital, Gabes, Tunisia*
[3]*Thoracic and Cardiovascular Surgery Department - Habib Bourguiba's University Hospital, Sfax, Tunisia*
[4]*General Surgery Department - Habib Bourguiba's University Hospital, Medenine, Tunisia*

OBJECTIVES
Thoracic traumas, ranking second in trauma-related mortality after cranial traumas, often involve HemoPneumothorax (HPT), necessitating diverse management approaches. This study aims to characterize the epidemiology and etiology of traumatic HPT, providing a detailed overview of its management.

METHODS
A retrospective, descriptive study conducted on patients hospitalized for traumatic HPT in the Thoracic and Cardiovascular Surgery Department at Habib BOURGUIBA's Hopsital between 2011 and 2023.

RESULTS
A total of 236 patients were included, with an average age of 43 years (8-91 years) and a sex ratio of 5.94.Causes included road traffic accidents (57.6%), assault (19.5%), domestic accidents (15.3%), occupational accidents (6.8%), and suicide attempts (0.8%). Trauma was closed in 80.9% and open in 19.1%. Polytrauma occurred in 54.7%, with 61.4% of patients initially admitted to the Intensive Care Unit (ICU).A conservative approach was chosen in 63.1%, utilizing strict rest and oxygen therapy. Chest Tube placement was totally needed in 56.4%, within 39.1% of the patients progressing to drainage due to conservative treatment's failure. Average drainage duration was 4 days (1 – 25 days). Surgery was indicated in 18 cases (7.6%): urgently in 2.6% due to active intrathoracic bleeding, and subsequently in 5% due to a persistent hemothorax or drainage complications. Postoperative complications occurred in 55.6%, mainly infectious. Overall mortality was 2.1%, and HPT-related mortality was 0.4%. The average hospitalization duration was 7 days (1-47 days).

CONCLUSIONS
Traumatic HPT is prevalent in thoracic trauma, requiring varied management based on patient condition, injury severity, and accompanying injuries. A conservative approach is judicious, minimizing iatrogenic complications and reducing hospitalization duration.

Disclosure: No significant relationships.
Keywords: Hemothorax, Pneumothorax, Trauma, Chest Tube.

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TREATMENT OF MALIGNANT TRACHEOBRONCHIAL STENOSIS WITH SELF EXPANDIBLE Y STENT: A RETROSPECTIVE MULTICENTER STUDY

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OBJECTIVES

Central airway obstruction (CAO) caused by malignant tumors could require a combined and prompt treatment. The aim is the recanalisation and the stabilization of the airways as palliation. The use of endobronchial ablative therapies combined with stent placement results in immediate relief of dyspnea. We report our experience in the management of malignant CAO by the placement of Y shaped self-expanding covered metallic tracheal stents.

METHODS

This is a retrospective study on patients who underwent placement of Y shaped stents over 10 years in two different centers in Italy and Great Britain. Outcomes evaluated are: intraoperative mortality rate, stent dislocation rate, procedure time, palliation of dyspnea, post operative complications (need for intensive care, pneumothorax, cardiac issues), mean length of hospitalization after the procedure.

RESULTS

Twenty six patients (50% male) with a mean age of 66.7 years underwent Y stent placement from 2014 to 2024. The indication for stent placement was airway stenosis due to a malignant tumor (pulmonary or oesophageal) with severe dyspnoea at admission in 25 cases and to tracheo-oesophageal fistula in 1 case.

In our study we observed: no cases of intraoperative death, no stent dislocation. The mean procedure time was 41 minutes.

The mean value of dyspnoea on the Borg scale dropped from 7,23 to 1,74 ($p<0.05$). After the procedure 2 patients (7.7%) required intensive care, 2 patients (7.7%) had pneumothorax requiring chest drain positioning, 1 (3.8%) patient suffered cardiac arrest and 1 patient (3.8%) developed atrial fibrillation. The mean postoperative hospital stay was 3,89 days.

CONCLUSIONS

Placement of the Y shaped self-expanding covered metallic tracheal stents is a safe procedure. It provides excellent palliation of airway obstruction or airway fistulization near the tracheal

carina with low complication rate. It demands a high level of technical expertise and a close cooperation with the anesthetist.

Disclosure: No significant relationships.
Keywords: Central Airway Obstruction, Tracheal Stent, Tracheal Stenosis, Lung Cancer, Palliative Therapy.

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TUMOR DEPOSITS IN THE IMPACT OF ESOPHAGEAL SQUAMOUS CELL CARCINOMA RECURRENCE AND REDUCED SURVIVAL

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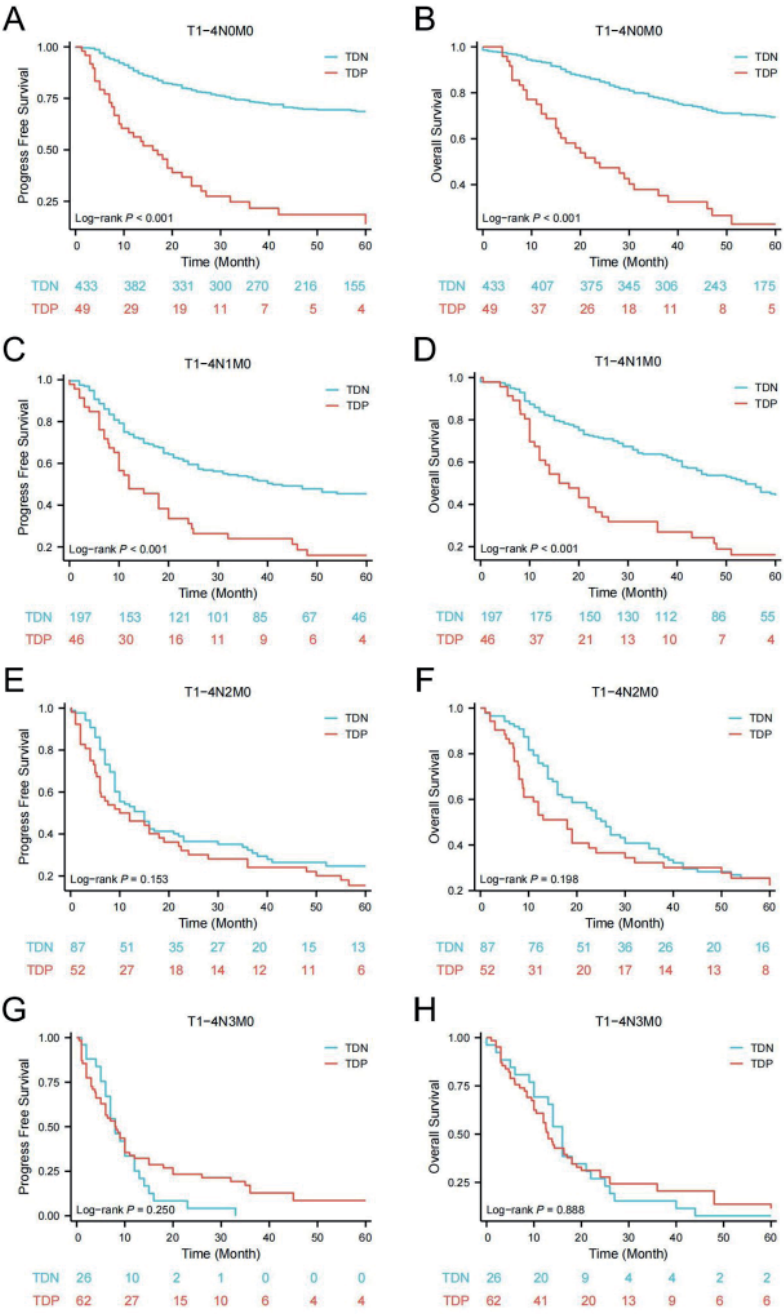
OBJECTIVES
Tumor deposit (TD) is a poor prognosis factor in esophageal squamous cell carcinoma (ESCC). However, the impact of TDs on the recurrence of ESCC remains unclear. This research aimed to explore the role of TDs on the recurrence of ESCC in different N stages.

METHODS
Data from the two large-scale hospitals for ESCC patients who underwent R0 esophagectomy for T1-4N0-3M0 stage from January 2008 to January 2019. A total of 952 patients are divided into four groups according to different N stages. Progress-free survival (PFS) and overall survival (OS) were analyzed to compare patients with TDs positive patients to TDs negative patients. The subgroup analyses were conducted according to the status of adjuvant chemotherapy and recurrence site. Furthermore, using the Cox regression model to evaluate the prognostic value of TDs.

RESULTS
In the T1-4N0M0 and T1-4N1M0 stage group, the 5-year PFS rate and 5-year OS for patients with TD positive group are different significantly between the TDs negative group and TD positive group ($P<0.001$). For TDs-positive patients, the OS for patients with adjuvant chemotherapy is significantly higher than patients without adjuvant chemotherapy ($P=0.013$). In addition, the TDs-positive patients have higher local recurrence ($P<0.001$) and distant recurrence rate ($P<0.001$).

CONCLUSIONS
Tumor deposit is a risk factor of recurrence in ESCC and it plays an important role in the discussion of ESCC treatment.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma, Tumor Deposit, Recurrence, Prognosis.


A
T1−4N0M0
Progress Free Survival
Log−rank P < 0.001
Time (Month)
TDN 433 382 331 300 270 216 155
TDP 49 29 19 11 7 5 4
B
T1−4N0M0
Overall Survival
Log−rank P < 0.001
Time (Month)
TDN 433 407 375 345 306 243 175
TDP 49 37 26 18 11 8 5
C
T1−4N1M0
Progress Free Survival
Log−rank P < 0.001
Time (Month)
TDN 197 153 121 101 85 67 46
TDP 46 30 16 11 9 6 4
D
T1−4N1M0
Overall Survival
Log−rank P < 0.001
Time (Month)
TDN 197 175 150 130 112 86 55
TDP 46 37 21 13 10 7 4
E
T1−4N2M0
Progress Free Survival
Log−rank P = 0.153
Time (Month)
TDN 87 51 35 27 20 15 13
TDP 52 27 18 14 12 11 6
F
T1−4N2M0
Overall Survival
Log−rank P = 0.198
Time (Month)
TDN 87 76 51 36 26 20 16
TDP 52 31 20 17 14 13 8
G
T1−4N3M0
Progress Free Survival
Log−rank P = 0.250
Time (Month)
TDN 26 10 2 1 0 0 0
TDP 62 27 15 10 6 4 4
H
T1−4N3M0
Overall Survival
Log−rank P = 0.888
Time (Month)
TDN 26 20 9 4 4 2 2
TDP 62 41 20 13 9 6 6
TDN
TDP

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TUMOUR DIMENSION IN EARLY-STAGE NON SMALL CELL LUNG CANCER (NSCLC) IS A PROGNOSTIC FACTOR IN SINGLE SEGMENTECTOMIES BUT NOT IN MULTIPLE SEGMENTECTOMIES: A SINGLE-CENTER ANALYSIS

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OBJECTIVES
Segmentectomy is recently accepted as valid anatomical resection in early stages non small cell lung cancer, even if may include different segments number and combinations.
Aim of this study is to analyse prognostic factors in patients underwent segmentectomy with particular attention to segment numbers.

METHODS
Characteristics of patients who underwent uniportal-VATS segmentectomy from 1/01/2017 to31/12/2022 were reviewed and retrospectively analysed. Patients with nodal involvement and/or distant metastases, tumours>4cm, receiving neoadjuvant treatment and underwent completion lobectomy were excluded. Operatory and pathological report were reviewed to collect data on surgical characteristics and pathology.
Segmentectomies were categorized according to number of resected segments as single/multiple. Clinico-pathological characteristics, number of segments and nodal parameters were associate to Overall survival(OS) using Kaplan-Meier curves.The log-rank test was used to assess differences between subgroups.A multivariable model was built using Cox-regression analysis including variable with p-value<0.10) at univariable analysis

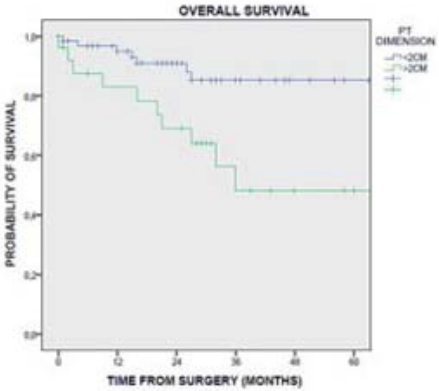
RESULTS
The final analysis was conducted on 95 patients that met the inclusion criteria(figure1). Multiple segmentectomies were performed in 47(49.4%)cases, consisting in the major part of left S1-S2-S3(24.2%) and S4-S5(14.7%).
At univariable analysis(figure1), tumour dimension≤2cm(p=0.006,HR:0.260;95%CI0.099-0.686) resulted significantly correlated to OS: patients with pT≤2cm presented a 5YOS of 85.3%vs48.3%of patients with pT>2cm(figure1).Multivariable confirmed tumour dimension≤2cm as independent prognostic factor(p=0.004,HR:0.204;95%CI0.069-0.607).
Considering the tumour dimension according to number of resected segments, patients underwent single segmentectomy presented a significant better survival in pT≤2cm:5YOS 91.7%vs41.3% in pT>2cm(p=0.001). Conversely, no significant differences in OS were present in multiple segmentectomy:5YOS 78.9%vs77.1%(p=0.700). Similarly,pT≤2cm correlated with OS in complex segmentectomy(p=0.010) but not in simple segmentectomy(p=0.098).

CONCLUSIONS

Our study confirms the distinct prognosis associated with tumour dimensions in patients who underwent uniportal-VATS segmentectomy. We confirmed the tumour dimension cut-off of 2 cm as a robust prognosticator in single and complex segmentectomies. However, no significant differences in survival were observed in multiple and simple segmentectomies, implying that tumours larger than 2cm may necessitate extended resections.

Disclosure: No significant relationships.
Keywords: Segmentectomy, NSCLC, Surgery, Lymph Nodes.

Variable		Number (%)	p-value
Sex	Female	64 (67.3)	0.123
	Male	30 (32.7)	
Age	Mean (SD)	69.2 (9.6)	**0.011**
Smoke	NO	25 (26.3)	0.775
	YES	70(73.7)	
COPD	NO	21 (22.1)	0.304
	YES	74(77.9)	
NUMBER OF SEGMENTS	Single	49 (51.5)	0.831
	Multiple	46 (48.5)	
SEGMENTECTOMY	Simple	58(61.0)	0.653
	Complex	37(39.0)	
HYSTOLOGY	Adenocarcinoma	81 (85.3)	0.882
	Squamous cell	9(9.4)	
	Other	5 (5.3)	
PT	1A	28 (29.4)	0.085
	1B	47 (49.5)	
	1C	15 (15.8)	
	2A	5 (5.3)	
PT dimension	≤2 cm	68 (71.6)	**0.006**
	> 2 cm	27 (28.4)	
Margin Distance	< 1 cm	14 (14.7)	0.072
	1-3 cm	21 (22.1)	
	> 3 cm	60 (63.2)	
Stations Removed	≤2	61 (64.2)	0.837
	3 or more	34 (35.8)	
Lymphnodes Removed	< 10	77 (81.0)	0.211
	≥10	18 (19.0)	
Lymphnodes Removed	Mean (SD)	2.9 (2.4)	0.238
N1 Removed Lymphnodes	1	76 (80.0)	0.128
	≥2	19 (20.0)	
N2 Removed Lymphnodes	≤3	61 (64.2)	0.651
	>3	34 (35.8)	
Pleural Invasion	NO	92 (96.8)	0.384
	YES	3 (3.2)	



5YOS: 85.3% in pT≤2cm vs 48.3% in pT>2cm
P= 0,003

P-337

TUMOUR SIZE MATTERS! CHEST WALL RESECTION AND RECONSTRUCTION FOR PRIMARY CHEST WALL SARCOMAS: AN ANALYSIS OF SURVIVAL, PREDICTORS OF OUTCOMES AND LONG-TERM FUNCTIONAL STATUS

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OBJECTIVES

We aimed to analyze survival, predictors of outcome and the long-term functional status of patients with a diagnosis of chest wall sarcoma undergoing chest wall resection and reconstruction.

METHODS

We conducted a retrospective analysis of a prospectively maintained database of all patients who underwent chest wall resection and reconstruction for primary and secondary chest wall sarcomas over a 14-year period (2008-2023). The primary outcome measure was overall survival and univariate and multivariate analyses were employed to determine the risk factors for poor survival.

RESULTS

One hundred and thirty-eight patients were included. Table 1 shows the pre-operative characteristics of our cohort. The median number of ribs removed was 3 (1-4). Other structures removed included part of sternum, clavicle, spine, and intrathoracic structures (diaphragm, lung, pericardium). The most common material for reconstruction was synthetic mesh (77.7%) with or without(82.2%) metalwork fixation. Most patients had a pedicled flap (78.8 %) with latissimus dorsi and pectoralis major being the most used. Ninety-six percent had an R0 resection (n=131) and 75.1% had no post-operative complications up to 30 days post procedure; median length of hospital stay was 7 days. The recurrence rate was 29%. Median overall and disease-free survival was 1631 and 1331 days respectively. For those alive, at long-term follow-up, 80% had an MRC of 0 and Karnofsky index >80%. Univariate analysis identified that pre-operative neoadjuvant treatment, larger tumour size, non-chondrosarcomatous pathology,

adjuvant treatment, R1 resection and need for further surgery as significant predictive factors of recurrence. Advanced age, low BMI (<25), low pre-operative albumin were significant predictive factors for post-operative death.

CONCLUSIONS

Careful patient selection and multi-disciplinary decision-making is crucial. Patients should be optimised, and surgical treatment should be focused on en-bloc R0 resection in functionally robust patients. For those alive, the functional status at long term follow-up is good.

Disclosure: No significant relationships.
Keywords: Chest Wall, Sarcoma, Adults, Chest Wall Resection, Chest Wall Reconstruction.

Characteristic	N=138
Age (years)*	53 (34-68)
Male sex	75
BMI**	26.6 ± 5.1
Pre-operative MRC 0 1 ≥2	 39 82 17
History of cancer	25
History of chest wall radiotherapy	13
Neoadjuvant treatment	30
Histological subtype Chondrosarcoma Ewing's sarcoma Other types	 66 20 52
Tumour size(mm)*	74

*Median (IQR)
**Mean ± Standard Deviation

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TWO VERSUS THREE TO FOUR CYCLES OF NEOADJUVANT IMMUNOCHEMOTHERAPY FOR LOCALLY ADVANCED ESOPHAGEAL SQUAMOUS CELL CARCINOMA IN REAL- WORLD PRACTICE

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OBJECTIVES
There is currently no consensus on whether intensive courses of neoadjuvant immunochemotherapy are better than two courses for esophageal squamous cell carcinoma (ESCC). In this study, we explore the efficacy and safety of three to four courses of neoadjuvant immunochemotherapy in locally advanced ESCC.

METHODS
This retrospective study consecutively included all locally advanced ESCC patients who received preoperative immunochemotherapy (immunotherapy regimen mainly included camrelizumab 200 mg) at the Department of Thoracic Surgery, the First Affiliated Hospital, Zhejiang University School of Medicine from 2019 to 2021. The primary endpoints were disease-free survival (DFS) and overall survival (OS), while the secondary endpoints were objective response rate (ORR), adverse events (AEs) and pathological response.

RESULTS
A total of 142 patients were included in our study and divided into two groups according to neoadjuvant treatment courses: 2 cycles group (n=65) and 3-4 cycles group (n=77). The rate of T downstaging in the 3-4 cycles group was significantly higher than that in the 2 cycles group (79.2% vs 61.5%, P=0.021). The rate of MPR in the 3-4 cycles group and 2 cycles group was 32.7% and 22.8% (P=0.248), respectively. However, the incidence of grade 3-4 AEs in the 3-4 cycles was significantly higher than that in the 2 cycles group (36.4% vs 18.5%, P=0.018). The median DFS in the 3-4 cycles group was 30.8 months (95% CI, not reached to not reached) and not reached in the 2 cycles group (P=0.018). The median OS of the 2 cycles group was not achieved (P=0.045), with the 3-4 cycles group 34.9 months (95% CI, 20.9 to 48.9).

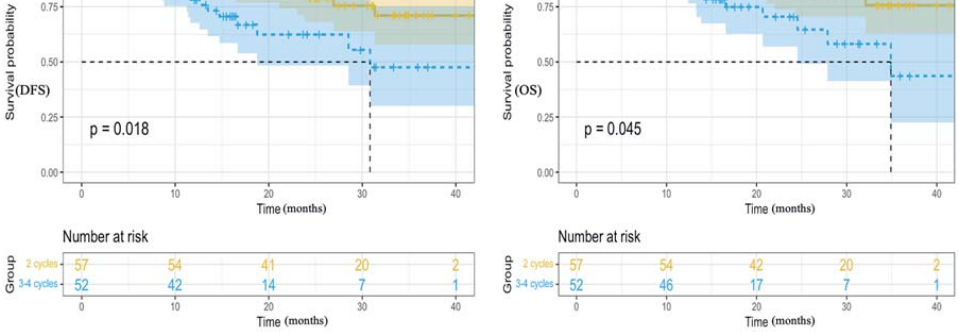
CONCLUSIONS
Intensive courses of neoadjuvant immunochemotherapy may not better than two courses of neoadjuvant immunochemotherapy for locally advanced ESCC. Although three to four cycles of neoadjuvant immunochemotherapy increased tumor regression, it also increased toxicities and was not associated with improved survival outcomes.

Disclosure: No significant relationships.
Keywords: Esophageal Squamous Cell Carcinoma (ESCC); Locally Advanced; Neoadjuvant Immunochemotherapy; Treatment Cycles; Real- World Practice.

Table 2. AEs of neoadjuvant immunochemotherapy in the ITT population (n=142)

Event	Any Grade				Grade 3 or 4			
	Total, n=142	2 cycles, n=65	3-4 cycles, n=77	P-value	Total, n=142	2 cycles, n=65	3-4 cycles, n=77	*P*-value
Any AEs	137 (96.5)	61 (93.8)	76 (98.7)	0.118	40 (28.2)	12 (18.5)	28 (36.4)	0.018
Hematologic								
leukopenia	26 (18.3)	11 (16.9)	15 (19.5)	0.695	5 (3.5)	3 (4.6)	2 (2.6)	0.660
Agranulocytosis	26 (18.3)	11 (16.9)	15 (19.5)	0.695	5 (3.5)	3 (4.6)	2 (2.6)	0.660
Anemia	110 (77.5)	45 (69.2)	65 (84.4)	**0.031**	30 (21.1)	8 (12.3)	22 (28.6)	**0.018**
Thrombocytopenia	30 (21.1)	9 (13.8)	21 (27.3)	0.051	2 (1.4)	1 (1.5)	1 (1.3)	1.000
Gastrointestinal								
Nausea	34 (23.9)	15 (23.1)	19 (24.7)	0.824	0 (0.0)	0 (0.0)	0 (0.0)	NA
Emesis	27 (19.0)	12 (18.5)	15 (19.5)	0.877	0 (0.0)	0 (0.0)	0 (0.0)	NA
Diarrhea	20 (14.1)	8 (12.3)	12 (15.6)	0.576	0 (0.0)	0 (0.0)	0 (0.0)	NA
Constipation	27 (19.0)	9 (13.8)	18 (23.4)	0.149	0 (0.0)	0 (0.0)	0 (0.0)	NA
Hepatic injury	34 (23.9)	12 (18.5)	22 (28.6)	0.160	6 (4.2)	2 (3.1)	4 (5.2)	0.688
Renal injury	31 (21.8)	12 (18.5)	19 (24.7)	0.372	0 (0.0)	0 (0.0)	0 (0.0)	NA
Skin reaction	72 (50.7)	34 (52.3)	38 (49.4)	0.725	5 (3.5)	1 (1.5)	4 (5.2)	0.375
Hypothyroidism	1 (0.7)	1 (1.5)	0 (0.0)	0.458	0 (0.0)	0 (0.0)	0 (0.0)	NA
Coagulation disorders	1 (0.7)	1 (1.5)	0 (0.0)	0.458	0 (0.0)	0 (0.0)	0 (0.0)	NA
Esophageal fistula	1 (0.7)	1 (1.5)	0 (0.0)	0.458	0 (0.0)	0 (0.0)	0 (0.0)	NA

Abbreviations: ITT, intention-to-treat; AEs, adverse events.



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TYPE OF SEGMENTECTOMY DOES NOT CORRELATE WITH COMPLICATIONS BUT WITH LYMPHADENECTOMY: A SINGLE CENTRE ANALYSIS

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OBJECTIVES

The indication to segmentectomy in NSCLC are increasing, with different possible segments combinations, including different extension of parenchymal, vessels and bronchial resection, that may influence the post-operative and pathological results. Aim of this study is to compare different kind of segmentectomy in terms of complication rate and pathological results.

METHODS

Characteristics of patients who underwent segmentectomy from 1/01/2013 to 31/12/2022 were reviewed and retrospectively analyzed. Patients with clinical nodal involvement and/or distant metastases, receiving neoadjuvant treatment and underwent completion lobectomy were excluded. Operatory and pathological report were reviewed to collect data on surgical characteristics, complication rate and lymphadenectomy.
Segmentectomies were categorized according to number of resected segments as single/multiple, and according to surgical resection as simple/complex (requiring more than one intersegmental plan resection).
Clinical and pathological characteristics, complications occurrence, kind of complications and nodal parameters were associate to segmentectomy using The Pearson's$\chi 2$ or the Fisher's exact test. The Mann−Whitney U and t-tests were used to compare quantitative variables.

RESULTS

The final analysis was conducted on 127 patients that met the inclusion criteria (table1). 96 (75.5%) were performed in Uniportal-VATS. Multiple and complex segmentectomy were performed in 63 (49.6%) and 40 (37.3%) cases, respectively.
Complications occurred in 33(26%) patients, with prolonged air leak(PAL) in 10, haemorrhagic in 4, lung failure in 5,atrial fibrillation in 7, fever and other complications in 7 cases, respectively. No differences were found comparing complex vs simple or multiple vs single segmentectomy in terms of all complications and regarding PAL, respiratory failure and ICU need, even if simple segmentectomy presented an higher rate of haemorrhagic complications: 4 cases vs0 in complex (p=0.051).
Patients underwent single segmentectomy presented a significantly higher number of total resected (p=0.047), N2 resected nodes (p=0.012)and a closer margin distance (p=0.012) compared to multiple.

Patients underwent complex segmentectomy presented a significantly higher number of N2 resected nodes(p=0-020)compared to simple.

CONCLUSIONS

Type of segmentectomy is not correlated with complications, but may present significantly differences in terms of margin distance and resected lymphnodes.

Disclosure: No significant relationships.

Keywords: Segmentectomy, NSCLC, Surgery, Lymph Nodes.

VARIABLE	SIMPLE SEGMENTECTOMY Number(%) or mean	COMPLEX SEGMENTECTOMY Number(%) or mean	UNIVARIABLE P VALUE	SINGLE SEGMENTECTOMY Number(%) or mean	MULTIPLE SEGMENTECTOMY Number(%) or mean	UNIVARIABLE P VALUE
SEGMENTS INCLUDED	S6 right/left S1-S2-S3 left S4-S5 left	S1 right/left S2 right/left S3 right/left S1-S2 right/left S1-S3 left S6-S7 left S7 right S7-S8-S9 right S8-S9 left S9-S10 left	-	S1 right/left S2 right/left S3 right/left S6 right/left S7 right	S1-S2-S3 left S4-S5 left S1-S2 right/left S1-S3 left S6-S7 left S7-S8-S9 right S8-S9 left S9-S10 left	-
PATIENTS NUMBER	80	47		64	63	
COMPLICATION						
yes	18(22.5)	15(31.9)	0.243	19(29.6)	14(22.2)	0.337
no	62(77.5)	32(68.1)		45(70.4)	49(67.8)	
PROLONGED AIR LEAK						
Yes	5(6.2)	5(10.6)	0.730	7(10.9)	3(4.7)	0.341
no	75(93.8)	42(89.4)		57(89.1)	60(95.3)	
HAEMORRHAGIC COMPLICATION						
Yes	4 (5.0)	0(0)	**0.51**	2(3.1)	2(3.2)	0.774
no	76(95.0)	47(100)		62(96.9)	61 (96.8)	
ICU						
yes	7(8.7)	5(11.9)	0.725	9(14.0)	3(4.7)	0.073
no	73(92.3)	42(88.1)		55(86.0)	60(95.3)	

VARIABLE	SIMPLE SEGMENTECTOMY Number(%) or mean	COMPLEX SEGMENTECTOMY Number(%) or mean	UNIVARIABLE P VALUE	SINGLE SEGMENTECTOMY Number(%) or mean	MULTIPLE SEGMENTECTOMY Number(%) or mean	UNIVARIABLE P VALUE
RESPIRATORY FAILURE						
Yes	4 (5.0)	1(2.1)	0.215	3(4.6)	2(3.2)	0.905
no	76(95.0)	46(97.9)		61(95.4)	61(96.8)	
HOSPITAL STAY (days)	4.5±1.9	4.9±2.2	0.33	4.8±2.1	4.56±1.9	0.486
pT						
1a	20 (25.0)	20 (42.5)		22(34.4)	18(28.6)	
1b	40(50.0)	14(29.8)	0.114	26(40.7)	28(44.5)	0.652
1c	15(18.8)	9(19.2)		13(20.3)	11(17.4)	
2	5(6.2)	4(8.5)		3(4.6)	6(9.5)	
TUMOR DIMENSION(CM)	1.65±0.7	1.55±0.9	0.55	1.57±0.8	1.66±0.9	0.546
MARGIN DISTANCE(CM)	7.3±5.4	6.9±5.7	0.75	5.9±5.5	8.4±5.2	**0.012**
RESECTED N STATIONS	1.9±1.2	2.1±1.3	0.36	2.1±1.3	2.0±1.2	0.632
RESECTED N1 LYMPHNODES	1.32±2.6	3.03±1.8	0.186	1.7±2.3	1.6±2.4	0.932
RESECTED N2 LYMPHNODES	3.0±3.6	4.8±5.0	**0.020**	4.6±4.8	2.7±3.4	**0.012**
TOTAL RESECTED LYMPHNODES	5.0±4.6	6.1±5.6	0.207	6.3±5.5	4.5±4.3	**0.047**

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ULTRASOUND AND THREE DIMENSIONAL (3D) IMAGE RECONSTRUCTION ANGIO-COMPUTED TOMOGRAPHY (CT) FOR HYBRID SURGICAL TRACHEOSTOMY IN PATIENT WITH ABNORMAL NECK VASCULARIZATION

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OBJECTIVES

Percutaneous Dilatational Tracheostomy (PDT) is a common and safe ICU procedure. However, neck anatomy variations can cause bleeding. Pre-procedural US and echography exams should be conducted to detect any abnormalities in neck structures. A 3D image reconstruction angio-CT study of the epiaortic vessels should also be conducted for precise planning of actions. To prevent fatal bleeding during PDT, we perform pre-procedural US and CT scans with 3D neck reconstruction.

CASE DESCRIPTION

A 66-year-old male patient presented with multiple injuries including a right temporal fracture, bilateral temporal contusions, a left subdural hematoma at the skull level, a twelfth rib fracture, and a somatic limitation of L4, as well as right otorrhagia and a Glasgow Coma Scale (GCS) score of 5. After stabilization and intubation, he required prolonged ventilation support and a tracheostomy to proceed with weaning. However, a routine bedside preprocedural ultrasound screening revealed an abnormal paratracheal venous vessel. A diagnostic angio-CT scan showed an abnormal left external jugular vein path. The vein passed in front of the tracheal axis and reached a maximum diameter of 1 cm at the level of the jugular dimple (Figure 1). Based on this finding, a tracheostomy surgery using a hybrid technique was scheduled.

CONCLUSIONS

Ultrasound is vital for safe tracheostomy procedures. It helps study vascular anatomy and perform 3D angio-CT evaluation. Second-level imaging is useful in identifying the origin of vascular structures, especially for managing arteries. Although US scanning cannot provide a complete anatomical picture of the neck and epiaortic vascular structures, it is sensitive enough to examine the tracheostomy site. A multidisciplinary approach, which involves feedback from consultants and other staff members, is necessary to shift from PDT to surgical or mixed tracheostomy techniques. A clear plan of action should be structured, and internal procedures should be implemented for patient safety.

Disclosure: No significant relationships.
Keywords: Surgical Tracheostomy; Ciaglia Blue Rhino Tracheostomy; Three-Dimensional Angio-CT.

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UNDERSTANDING THE COMPLEXITY OF CONCURRENT CANCERS IN LUNG CANCER PATIENTS: A FOCUS ON ATLANTIC CANADA

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OBJECTIVES
Lung cancer is the most prevalent cancer in Canada, with an estimated 31,000 new cases projected for 2023. Particularly noteworthy are the Atlantic provinces, where age-standardized incidence rates of lung cancer are the highest in the country. Reasons behind these heightened rates in Atlantic Canada remains elusive. Furthermore, there is an observed phenomenon where lung cancer often reveals an intricate landscape of multiple malignancies, presenting challenges in diagnosis and treatment. This study delves into the prevalence of multiple primary cancers among individuals diagnosed with lung cancer in Atlantic Canada.

METHODS
1151 patients were referred to thoracic surgery between 2019-2022 with a new diagnosis of lung cancer. Through a retrospective chart review we characterized the number of patients with multiple primary cancers. The diagnosis of "primary cancer" was determined based off of the pathology report.

RESULTS
Within our Atlantic Canada cohort, 43.36% of patients have multiple primary cancers. 1874 cancers were identified, with 1440 stemming from lung origin. 60% of our cohort was female. 31.28% were self-reported current smokers, 50.3% were ex-smokers, and 18.42% never smokers. The average age and BMI at first diagnosis were 67 and 27.65, respectively. 39.18% of our study participants lived in an urban region (>100,000 people), 10.17% in a semi-urban region (~98,000 people) and 50.65% in rural regions (<55,000 people). The average yearly household income reported ranged from $56,800-81,000.

CONCLUSIONS
We have identified patients with multiple primary cancers of different tissue origin, presenting at a rate that is four times greater than previously described. By bridging the gap between clinical observations and robust research methodologies, we are poised to investigate further whether genetic predisposition, environmental exposure, or socioeconomic factors could underly the high statistics. Ultimately, this work will offer unique strategies to optimize lung cancer screening criteria and management strategies for lung cancer in this region.

Disclosure: No significant relationships.
Keywords: Lung Cancer, Multiple Primaries, Screening.

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UNIPORTAL VERSUS MULTIPORTAL VIDEO-ASSISTED THORACOSCOPIC SURGERY FOR ANATOMICAL LUNG RESECTIONS: SURGICAL AND SURVIVAL OUTCOMES FROM A LARGE COHORT OF A NON-UNIVERSITY DUTCH TEACHING HOSPITAL

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OBJECTIVES

Current evidence on uniportal versus multiportal video-assisted thoracoscopic surgery (VATS) for anatomical lung resections is predominantly based on studies performed in non-European high-volume centers. Therefore, this study aims to provide real-world data on surgical outcomes and survival between uniportal and multiportal VATS anatomical lung resections based on a large retrospective cohort from a non-university Dutch teaching hospital.

METHODS

Patient records were included of VATS anatomical resections performed in our hospital between January 2010 and December 2021. Procedures were divided into two groups based on surgical approach; uniportal and multiportal VATS. Patients were excluded if the procedure was discontinued (e.g., irresectability) or patients returned to their referring hospital for follow-up within 30 postoperative days. Primary outcomes included major complications, drainage duration, and length of hospital stay. Secondary outcomes encompassed 2-year disease-free, overall, and lung cancer-specific survival, and were assessed using Kaplan-Meier analyses for patients who had undergone an anatomical lung resection for primary NSCLC without adjuvant therapy (i.e., pathologically-confirmed TNM-stage I). Uni- and multivariable regression analyses were performed on the aforementioned outcomes to adjust for any imbalanced covariates and surgery year, to assess the surgical approach's potential impact.

RESULTS

Nine hundred-and-two procedures were included, of which 502 were performed through uniportal VATS. Although baseline characteristics were significantly different for the ECOG performance status, VO2 max, ASA score, pulmonary comorbidities, previous thoracic surgery, clinical TNM-stage, procedure type, and year of surgery, the multivariable analyses did not confirm any significant confounders. Uniportal VATS was associated with shorter drainage duration (2 versus 3 days, $p<0.001$), and higher lung cancer-specific survival (93% versus 83%, $p=0.024$) as compared to multiportal VATS.

CONCLUSIONS

Surgical and survival outcomes of anatomical lung resections using uniportal VATS were similar to or better than those achieved using multiportal VATS based on evidence from a non-university Dutch teaching hospital.

Disclosure: No significant relationships.
Keywords: Uniportal Video-Assisted Thoracoscopic Surgery, Video-Assisted Thoracoscopic Surgery, Lung Cancer, Non-Small Cell Lung Cancer, The Netherlands.

P-343

USE OF PREDICTIVE TOTAL LUNG CAPACITY DONOR-RECIPIENT RATIO AS A MARKER FOR DONOR-RECIPIENT SIZE MATCHING IN RESTRICTIVE INTERSTITIAL LUNG DISEASE PATIENTS SUBMITTED TO DOUBLE-LUNG TRANSPLANT

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OBJECTIVES

Lung size matching is crucial for Lung Transplant (LT) outcomes. Different strategies have been described to find the perfect size matching in LT. Our goal is to show the relationship between pTLC D/R (donor/recipient) ratio and LT outcomes in restrictive patients: overall survival (OS); need for ECMO support, FEV1 and FVC 6 months after LT, surgical complications, and mortality.

METHODS

Single-center retrospective study, from 01/2017 to 09/2023. We included all patients with restrictive Interstitial Lung Disease (ILD) who had a double-lung transplant (DLTx). Patients who needed lung resection were excluded from the analysis. We evaluated the post-DLTx outcomes based on the pTLC D/R ratio. A D/R mismatch was considered if the pTLC D/R ratio was outside the defined range (0.75–1.25).

RESULTS

58 patients with restrictive ILD underwent DLTx. 12 were excluded for requiring lung resection. The remaining 46 patients had a mean age of 52.8 (±8.9), a median pTLC of 6.3 L (IQR: 4.8–7.8), 28 (60.9%) had FVC<50. 30 (65.2%) were males and 16 (34.8%) females.
Donors included 30 females (65,2%) and 16 males (34.8%), with a median pTLC of 5.1 L (IQR: 4.8–5.7). Median pTLC D/R ratio was 0.88 (IQR: 0.74–0.98). 12 patients had a lung size mismatch.
The sample was divided between matched and mismatched patients.
Preoperative parameters (age, gender, pTLC, FVC and prevalence of FVC<50%) displayed no statistically significant differences between matched and mismatched patients.
Regarding postoperative parameters: need for ECMO support, 30-day mortality and surgical

complications were higher in the mismatched patient group. However, these differences were not statistically significant. Average survival time was higher in the size-matched patient group, but this difference was also not statistically significant.

CONCLUSIONS

We believe our study was hampered by a low sample size, although results appeared favorable for the size-matched group. Larger studies are recommended for statistical power.

Disclosure: No significant relationships.
Keywords: Predictive Total Lung Capacity, Calculated Total Lung Capacity, Donor-Recipient Ratio, Restrictive Lung Disease, Double-Lung Transplant.

P-344

USING DEEP LEARNING MODELS FOR PREDICTION OF PROLONGED HOSPITAL STAY AFTER NON-SMALL CELL LUNG CARCINOMA SURGERY

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OBJECTIVES

Five days or longer hospitalization after NSCLC surgery may be defined as extended hospital stay.This situation is important in terms of infection, complications, cost, and bed turnover rate.In our study, we aimed to predict hospital stay longer than 5 days with high accuracy and success by using artificial intelligence models.

METHODS

The data of 953 patients who were operated on for NSCLC in our clinic between January 2001 and 2023 were recorded retrospectively.Clinical, laboratory, respiratory, tumor radiological and surgical features were included as input data in the study.The outcome data was the duration of hospital stay.Deep learning was performed with the FCNN algorithm and K-Layer Cross Validation method.The success of the model was evaluated by specificity, sensitivity, negative predictive value, positive predictive value, accuracy, F1 score and AUC on the ROC curve.

RESULTS

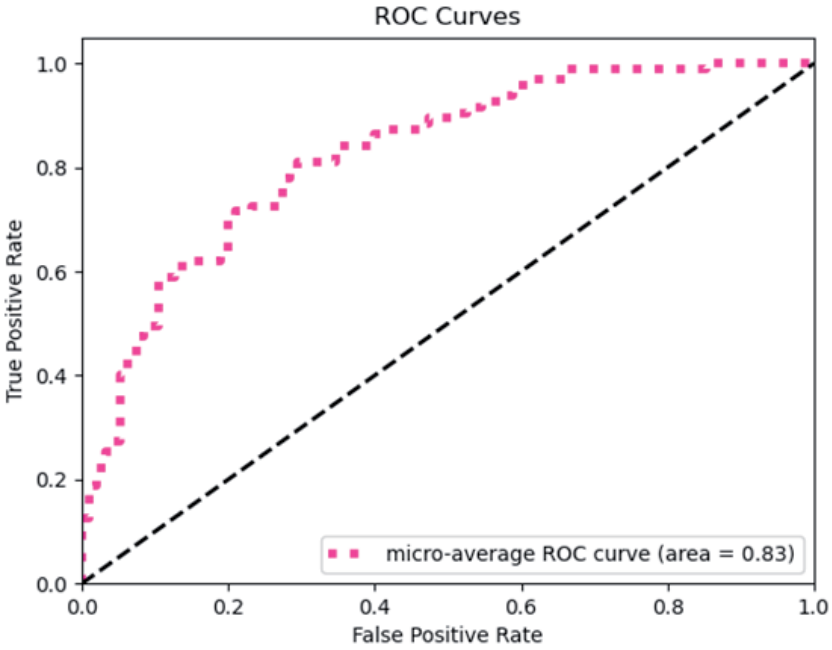
The training sensitivity value of the algorithm was 86.0%, the training positive predictive value was 78.3%, and the training accuracy value was 77.5%.The training F1 1 score of the algorithm was 83.9%, the training F1 0 value was 62.5%, and the training F1 average score was 73.2%.The test sensitivity value of the algorithm was 83.1%, the test positive predictive value was 78.3%, and the test accuracy value was 72.6%.The test F1 1 score was 53.6%, the test F1 0 score was 80.6%, and the test F1 average score was 67.1% (Table 1).In the ROC analysis performed for the test evaluation of the model, the AUC was 83.0% (Figure 1).

CONCLUSIONS

The increasing use of artificial intelligence in medicine helps physicians.In our study, the number of days of prolonged hospital stay longer than 5 days was predicted with high accuracy and success.This will have potential effect on optimizing the potential risks.More successful results will be achieved by increasing the number of patients and incorporating additional clinical and behavioral methods into training.

Disclosure: No significant relationships.
Keywords: Artificial Intelligence, Prolonged Hospital Stay, Non-Small Cell Lung Cancer.

	Train	Test
Specificity	50.0 %	50.0 %
Recall (Sensitivity)	86.0 %	83.1 %
Negative Predictive Value	66.3 %	57.7 %
Positive Predictive Value (Precision)	78.3 %	78.3 %
Accuracy	77.5 %	72.6 %
F1 1 Score	83.9 %	53.6 %
F1 0 Score	62.5 %	80.6 %
F1 Average Score	73.2 %	67.1 %



P-345

VARIABILITY IN THE SURGICAL MANAGEMENT OF PRIMARY SPONTANEOUS PNEUMOTHORAX. GEMENEP COHORT STUDY

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OBJECTIVES

The aim of our study is present the Spanish Multicentre Group for Study of Primary Spontaneous Pneumothorax (GEMENEP) cohort and study the variability of management in patients undergoing surgery for primary spontaneous pneumothorax (PSP).

METHODS

Prospective multicentre study GEMENEP cohort comprising patients from 34 national centres (c). Patients were included from February 2022-February 2023. Inclusion criteria were patients between 16 and 40 years of age who underwent PSP surgery. Exclusion criteria were history of respiratory pathology (except asthma), history of surgery on the operated hemithorax and those who did not complete follow-up.

The calculated sample size for the cohort was estimated to assess recurrence, estimating recurrence to be up to 10% with an absolute precision of 4% at a 95% confidence level and a design effect of 1, with 239 patients required.

In a descriptive analysis, continuous variables were expressed as mean and standard deviation or median and interquartile range, and qualitative or categorical variables as frequency and percentage. The statistical programme used was R.

RESULTS

The cohort consisted of 458 patients (p), 385p male (84%). 339p (74%) had at least one previous episode of PSP. All patients underwent videothoracoscopic surgery. Pleurodesis was performed in 437p (95%). Prolonged air leak rate (>5 days) was 5.3% (24p). The postoperative complication rate was 4.6% (21p), the most frequent complication being haemothorax (42%, 9 out of 21p). The median hospital stay was 2 days (RI 2-3).

Therapeutic management was compared between centres: 13c (38.2%) performed in 100% of patients only mechanical abrasion pleurodesis; 6c (17.6%) performed in 100% of cases chemical pleurodesis with talc; 15c (44.1%) performed different types of pleurodesis among patients.

CONCLUSIONS

Despite the national guidelines for the surgical management of PSP, there seems to be no consensus in the approach to this condition, among hospitals and also between professionals in the same department.

Disclosure: No significant relationships.
Keywords: Pneumothorax, Surgical

P-346

VIDEO ASSISTED THORACOSCOPIC RESECTION (VATS) IS FEASIBLE IN SELECTED CASES OF LOCALLY ADVANCED STAGE IIIA/IIIB/IIIC NSCLC AFTER NEOADJUVANT CHEMOIMMUNOTHERAPY – A SINGLE CENTER EXPERIENCE

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OBJECTIVES
The importance of immune checkpoint inhibitors (ICI) in the preoperative therapy of locally advanced non-small cell lung cancer (NSCLC) is gradually growing. We aimed to investigate the value of minimally invasive video-assisted thoracoscopic resections (VATS) in this setting.

METHODS
Patients who received neoadjuvant chemo-immunotherapy for initially stage IIIA/IIIB/IIIC NSCLC (with squamous or non-squamous etiology) between March 2022 and June 2023 followed by surgical resection were analyzed in this retrospective real-world observational cohort study. VATS or thoracotomy was chosen according to the preference of the surgeon and intraoperative findings.

RESULTS
A total of 39 patients (initial stage: IIIA, n=19; IIIB, n=17; IIIC, n=3) were included. All patients according to the Response Evaluation Criteria in solid Tumors (RECIST) with partial (84.6% of patients) or complete response (15.4% of patients) after radiological assessment underwent surgical resection (VATS, n=15 (39%); thoracotomy, n=24 (61%)) without delay. Lobectomy was performed in 30 patients (77%), pneumonectomy in 4 patients (10%), sleeve-lobectomy 1 patient (3%) and sublobar resection 4 patients (10%). Pathologic work-up revealed that 15 (38%) patients achieved pathological complete response (pCR), 23 major pathological response and 1 minor pathological response. R0 resection was achieved in 95% and R1 resection in two patients (5%, both in the thoracotomy group). No major adverse events occurred intraoperatively, but one Clavien-Dindo grade 4 complication occurred in the early postoperative period (thoracotomy group). We observed no in-hospital mortality, and all patients remained alive and free from disease up to January 2024. There were no statistical significant differences between VATS and thoracotomy regarding OR time, blood loss, complications or R0-resection rates.

CONCLUSIONS

In selected cases of locally advanced stage III NSCLC, neoadjuvant chemo-immunotherapy can lead to encouraging pathological response rates and moreover, this disease can be considered feasible for minimally invasive VATS resection with excellent outcome in experienced centers.

Keywords: Neoadjuvant Chemotherapy, Pembrolizumab, VATS, Surgery.

P-347

WEDGE RESECTION VERSUS (VS) SEGMENTECTOMY IN SMALL PERIPHERAL NON-SMALL-CELL LUNG CANCER: IS THE CONSOLIDATION TUMOR RATIO USEFUL FOR INDICATION?

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OBJECTIVES

The CALGB140503 and JCOG0802 trials showed that sublobar resection was not inferior to lobar resection for small-sized peripheral non-small-cell lung cancers (NSCLCs) with respect to the survival. However, whether wedge resection or segmentectomy is better remains unclear. Recent studies have shown that the presence of a GGO component leads to better outcomes, and the consolidation tumor ratio (CTR) is widely used to predict tumor aggressiveness. To clarify the feasibility of both types of limited surgery, we compared wedge resection and segmentectomy in peripheral stage IA NSCLC based on a CTR of <1.0 or 1.0.

METHODS

From 2010 to 2022, 244 patients with stage IA peripheral NSCLCs who underwent sublobar resection at our institution were reviewed retrospectively. According to high-resolution computed tomography, the tumors were classified into two groups: part-solid (CTR<1.0) and solid (CTR=1.0). Long-term outcomes, such as the recurrence rates, disease-specific survival (DSS), and overall survival (OS), were compared between wedge resection and segmentectomy. Wedge resection is generally performed over segmentectomy in patients with an increased risk based on comorbidities.

RESULTS

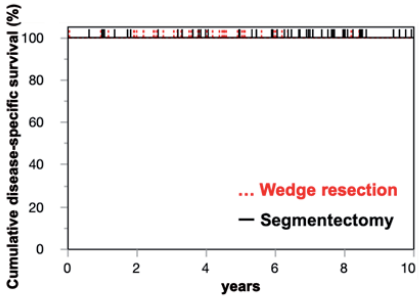
Of the 244 patients, 105 were classified into the part-solid group (median CTR: 0.53) and 139 into the solid group. In the part-solid group, wedge resection was not inferior to segmentectomy concerning the recurrence rates (0% vs. 3.3%), DSS, and OS (Figure A). In the solid group, segmentectomy was significantly superior to wedge resection concerning the recurrence rates (31% vs. 6%), DSS, and OS (Figure B). Even subcentimeter tumors showed high recurrence rates after wedge resection in the solid group (28% vs. 0%).

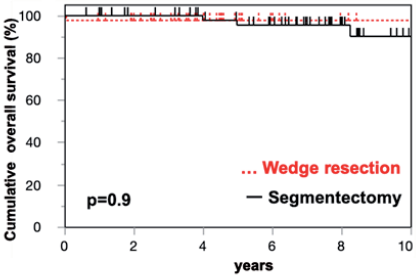
CONCLUSIONS

For stage IA peripheral NSCLC treated with sublobar resection, CTR<1.0 cases showed a better prognosis than CTR=1.0 cases. Wedge resection was not inferior to segmentectomy for tumors with a CTR<1.0, although segmentectomy was preferable to wedge resection for tumors with a CTR=1.0.

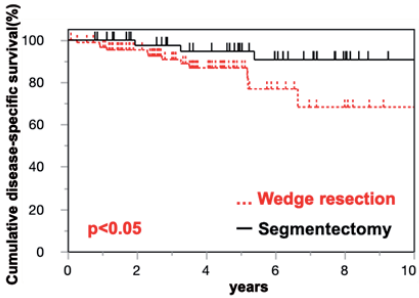
Disclosure: No significant relationships.
Keywords: Sublobar Resection, Wedge Resection, Segmentectomy, Stage IA, Consolidation Tumor Ratio.

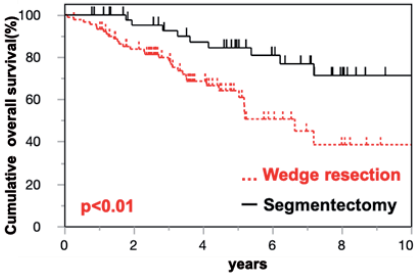
A. CTR<1.0





B. CTR=1.0





P-348

WHICH PATIENTS WITH PARIETAL PLEURA INVASION (PL3) IN SURGICALLY RESECTED NON-SMALL-CELL LUNG CANCER HAVE A WORSE PROGNOSIS? A MULTI-CENTER STUDY

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OBJECTIVES

The parietal pleura is the structure that is most commonly invaded by peripheral lung cancer. However, the importance of the depth of parietal pleura invasion and the surgical procedure that should be applied is still controversial. The present study investigated the prognostic factors in patients with lung cancer who had parietal pleura invasion (PL3).

METHODS

Between 2009 and 2021, 250 patients who underwent complete resection for lung cancer in two different centers with pathological PL3 were retrospectively analyzed. Cox proportional hazards model was used to examine independent prognostic factors, and hazard ratio (HR) and 95% confidence interval (CI) were calculated for each variable.

RESULTS

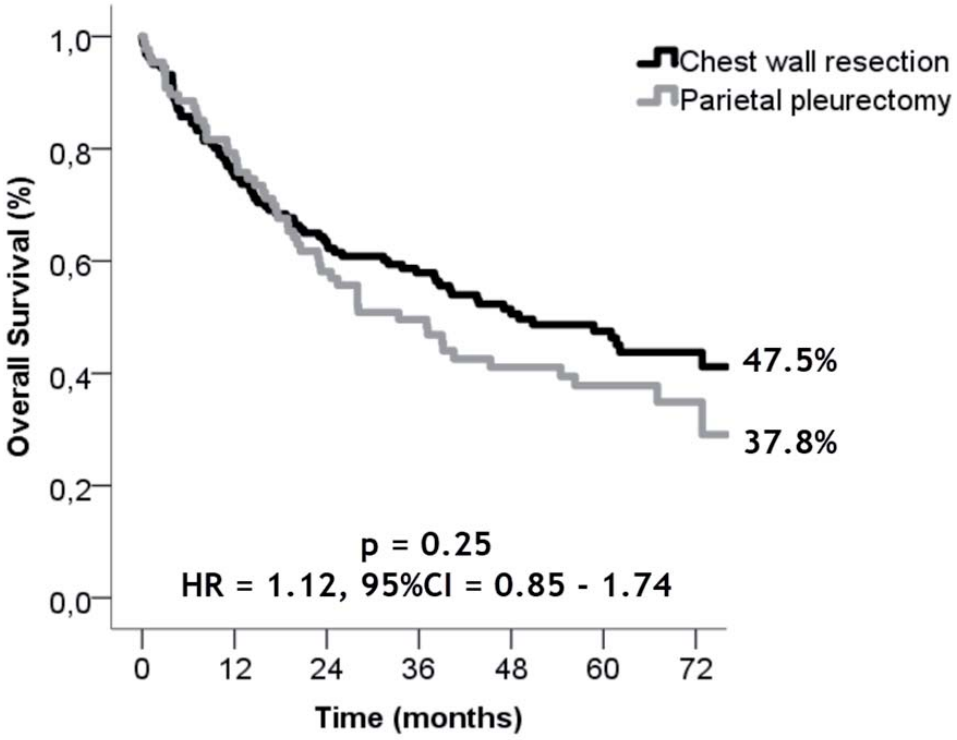
The 30-day mortality rate after surgery was 5.2%, while the complication rate was 43.6%. pN0 was in 70.8% (n=177) of the patients, pN1 in 14% and pN2 in 15.2%. Overall 5-year survival rate was 43.9% (median survival 40.5 months). The 5-year survival was not different between pN0 and pN1 (48.9% vs. 44.3%, respectively, p=0.789), although pN2 patients had statistically worse survival than pN0/1 patients (16.6% vs. 48.3%, p<0.001). Chest wall resection with lung parenchyma was performed in 163 patients (65.2%), while 87 patients (34.8%) underwent parietal pleurectomy. Median survival time in patients who underwent chest wall resection was better than those who underwent parietal pleurectomy (median survival 49 months versus 33 months), although this difference was not statistically significant (p=0.254) (Figure 1). Multivariate analysis showed that age (p=0.004, for each year, HR=1.03, 95%CI=1.01-1.06), pneumonectomy (p=0.03, HR=1.64, 95%CI= 1.03-2.61), presence of pN2 (p=0.006, HR=1.41, 95%CI=1.10-1.81), development of complications (p=0.001, HR=1.81, 95%CI=1.27-2.56) and the lack of adjuvant treatment (p=0.02, HR=1.61, 95%CI=1.07-2.42) were independent risk factors for survival.

CONCLUSIONS

In parietal pleura invasion, advanced age, mediastinal lymph node metastasis, pneumonectomy, development of postoperative complications, and lack of postoperative oncological treatment negatively affect the prognosis in lung cancer patients.

Disclosure: No significant relationships.
Keywords: Non-Small Cell Lung Cancer, Parietal Pleura, Invasion, Prognosis.

Variables	Hazard ratio	95%CI	p value
Age (per age)	1.03	1.01-1.06	**0.004**
Sex	1.05	0.31-3.52	0.929
Hystological type			
Squamous (ref)	1	1	0.832
Adeno	0.968	0.71-1.30	
Operation type			
Lbc (ref)	1	1	**0.03**
Pnmc	1.64	1.03-2.61	
N status			
N0 (ref)	1	1	
N1	1.13	0.65-1.97	0.657
N2	1.41	1.10-1.81	**0.006**
Tumor size (per cm)	1.06	0.93-1.22	0.341
Invaded type			0.585
PPleura (ref)	1	1	
CWI	0.94	0.77-1.15	
Adjuvant treament			
Yes (ref)	1	1	**0.02**
No	1.61	1.07-2.42	
The presence of complication	1.81	1.27-2.56	0.001


Chest wall resection
Parietal pleurectomy
Overall Survival (%)
1,0
0,8
0,6
0,4
0,2
0,0
47.5%
37.8%
p = 0.25
HR = 1.12, 95%CI = 0.85 - 1.74
0
12
24
36
48
60
72
Time (months)

P-349

ANALYSIS OF THE CLINICOPATHOLOGICAL CHARACTERISTICS, GENETIC PHENOTYPES, AND PROGNOSTIC OF PRIMARY PULMONARY AND BRONCHIAL ADENOID CYSTIC CARCINOMA

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OBJECTIVES
Primary pulmonary and bronchial adenoid cystic carcinoma (PACC) is a rare low-grade malignant tumor of lung. However, the relationship between its clinical features, prognosis, and genetic phenotype has not been fully described.

METHODS
PACC patient information was collected from the Surveillance, Epidemiology, and End Results (SEER) database, the Cancer Genome Atlas (TCGA) database, and Zhongshan Hospital, Fudan University (FDZSH). Overall survival (OS) was evaluated with the Kaplan-Meier method. Univariate and multivariate analysis through Cox proportional hazard regression identified risk factors that predicted OS. The limma and matfools packages from R were used to compare the differential genes and mutations between PACC and LUAD, respectively.

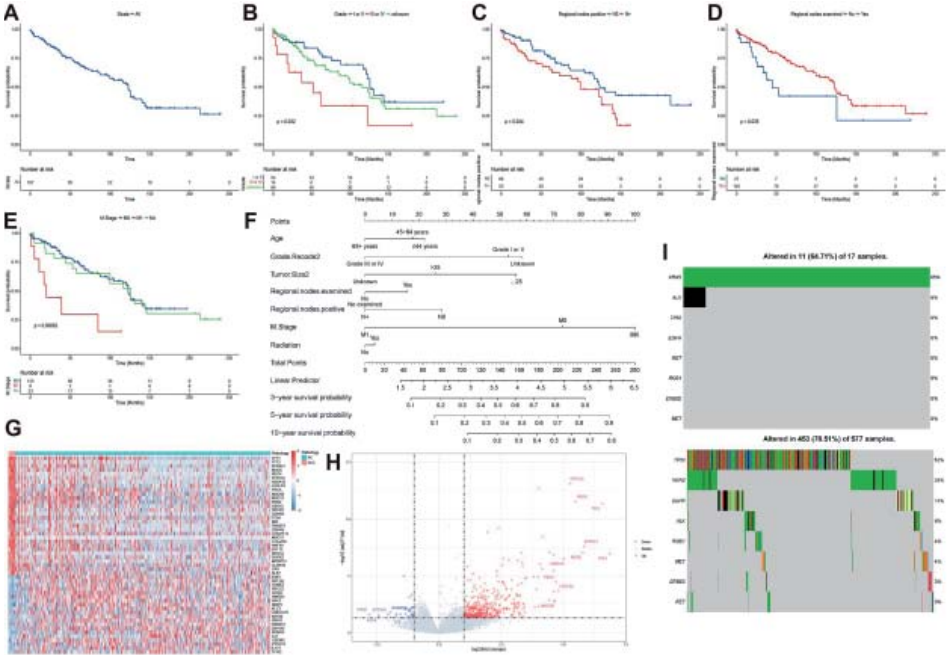
RESULTS
293 patients, 14 patients, and 12 patients with PACC were identified from the SEER, TCGA, and FDZSH databases, respectively. The 3-year, 5-year, and 10-year OS of the PACC patients was 91.7%, 88.6%, and 85.0%, respectively, and 95.8%, 93.9%, and 93.3% for patients undergoing surgery. Pathological grade, laterality, M stage, and treatment methods were independent prognostic factors for the OS of all PACC patients. Race, pathological grade, M stage, regional node exam, and regional node positive were independent prognostic factors for the OS of patients who underwent surgery. The gene map of PACC and LUAD has large differences. Common mutations in lung cancer are almost undetectable in PACC patients, whereas the mutations in the NOTCH pathway were more common. TMB and PD-1/PD-L1 expression were also lower in PACC.

CONCLUSIONS
Our study analyzed the main factors that influence the prognosis of patients with PACC, and discovered the unique genetic phenotype of PACC.

Disclosure: No significant relationships.
Keywords: Primary Pulmonary And Bronchial Adenoid Cystic Carcinoma, Clinicopathological Characteristics, Genetic Phenotypes.

	Univariate analysis		Multivariate analysis	
Independent variables	**HR (95% CI)**	**P value**	**HR (95% CI)**	**P value**
Age (y) :				
≤44y		Reference		
45-64 y	0.95 (0.48 - 1.89)	0.884		
65+ y	1.72 (0.86 - 3.44)	0.125		
Sex:				
Female		Reference		
Male	1.06 (0.67 - 1.68)	0.806		
Race:				
Asian or Pacific Islander		Reference		Reference
Black	0.54 (0.2 - 1.46)	0.226	1.05 (0.35 - 3.16)	0.935
White	0.33 (0.16 - 0.68)	0.003	0.41(0.17 - 0.95)	0.037
Primary Site:				
Main bronchus		Reference		
Upper lobe, lung	2.02(0.81 - 5.01)	0.131		
Middle lobe, lung	1.16 (0.65 - 2.06)	0.616		
Lower lobe, lung	0.52 (0.12 - 2.20)	0.374		
Lung, NOS	0.72 (0.39 - 1.34)	0.303		
Laterality:				
Right		Reference		
Left	0.63 (0.40 - 1.01)	0.054		
Unknown	1.00 (0.14 - 7.35)	0.999		
Grade:				
Grade I or II		Reference		Reference
Grade III or IV	2.79 (1.27 - 6.16)	0.011	3.49 (1.50 - 8.13)	0.004
Unknown	1.33 (0.78 - 2.26)	0.294	0.98 (0.53 - 1.81)	0.953
Tumor Size				
≤25mm		Reference		Reference
>25mm	1.64 (0.87 - 3.08)	0.127	1.20 (0.61 - 2.39)	0.595
T Stage:				
T1		Reference		
T2	1.68 (0.82 - 3.43)	0.158		
T3	2.08 (0.82 - 5.33)	0.125		
T4	3.13 (1.44 - 6.83)	0.004		
Tx	1.90 (0.92 - 3.92)	0.084	0	
N Stage:				
N0		Reference		
N1	1.23 (0.66 - 2.30)	0.506		
N2	1.91 (0.92 - 3.99)	0.084		
N3	7.57 (1.01 - 56.8)	0.049		
Nx	1.83 (0.98 - 3.42)	0.059		

	Univariate analysis		Multivariate analysis	
Independent variables	**HR (95% CI)**	**P value**	**HR (95% CI)**	**P value**
M Stage:				
M0		Reference		Reference
M1	4.28 (1.91 - 9.57)	<0.001	4.95 (1.99 - 12.3)	<0.001
Mx	1.09 (0.62 - 1.94)	0.759	0.43 (0.13 - 1.41)	0.164
Stage:				
I		Reference		
II	0.91 (0.44 - 1.88)	0.808		
III	1.66 (0.84 - 3.25)	0.142		
IV	4.98 (2.04 - 12.15)	<0.001		
Radiation:				
None/Unknown		Reference		
Yes	1.17 (0.72 - 1.92)	0.526		
Chemotherapy:				
No/Unknown		Reference		
Yes	2.22 (1.23 – 4.00)	0.008		
Therapy:				
Surgery		Reference		Reference
Surgery combined Radiation or Chemotherapy	1.68 (1.05 - 2.69)	0.030	1.35 (0.79 - 2.31)	0.273
Regional nodes examined:				
No		Reference		Reference
Yes	0.53 (0.3 - 0.96)	0.036	0.1 (0.03 - 0.33)	<0.001
Regional nodes positive:				
N0		Reference		Reference
N+	1.69 (1.03 - 2.78)	0.038	2.27 (1.34 - 3.86)	0.002
No examined	1.46 (0.67 - 3.18)	0.338	0.16 (0.04 - 0.64)	0.009


A
B
C
D
E
F
G
H
I
Points
Age
Grade/Recode2
Tumor Size2
Regional nodes examined
Regional nodes positive
M Stage
Radiation
Total Points
Linear Predictor
3-year survival probability
5-year survival probability
10-year survival probability

P-350

PRELIMINARY STUDY COMPARING SURGEON-PERCEIVED MUSCLE EXERCISE DURING ROBOT ASSISTED VERSUS UNASSISTED UNIPORTAL THORACOSCOPIC SURGERY

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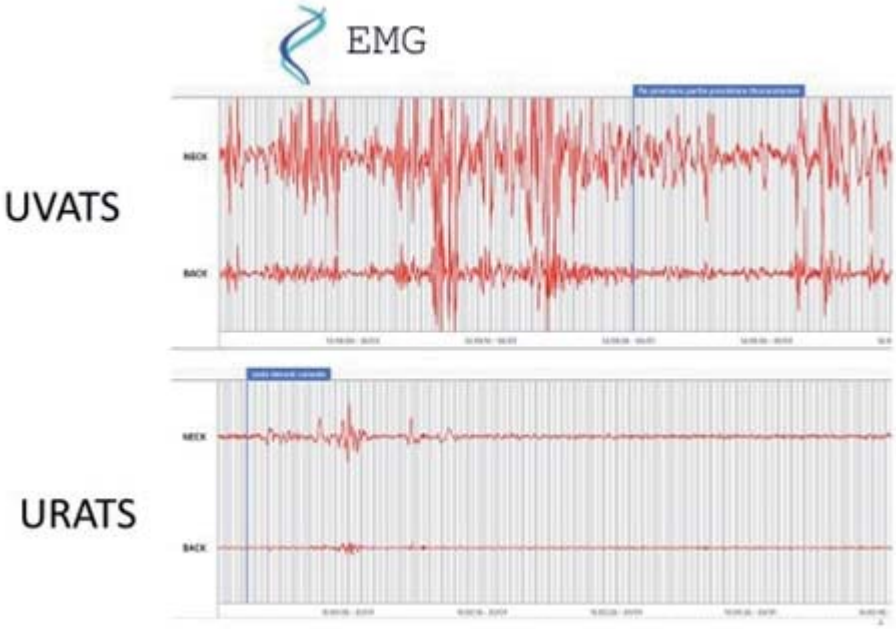
OBJECTIVES
Surgeons are among the most at risk of work-related musculoskeletal health decline because of the physical demands of surgery. Minimally invasive surgery offers excellent benefits to patients but the impact of robot-assited thoracoscopic surgery on surgeon well-being is less well understood. The aim of this study was to compare the musculoskeletal demands of robot-assisted versus unsassisted thoracoscopic surgery.

METHODS
One thoracic surgeon performed two uniportal mediastinal cysts resections. Consent was obtained from all patients. The procedure were divided into two stages: a uniportal robot-assisted Thoracic Surgery (URATS) stage with the Versius (CMRsurgical, UK) platform and an unassisted uniportal Videoassisted Thoracic surgery (UVATS) stage. During the surgical procedures, muscular demands were assessed by bipolar surface electromyograms (Neuronaute, Bioserinity, France) of the descendent trapezius and deltoid muscles.

RESULTS
Muscular demands of trapezius and deltoid muscles were lower in intensity and duration with URATS. The perceived workload was lower in the physical demands dimension (Figure 1).

CONCLUSIONS
Robot-assisted Thoracic Surgery appears to have less negative musculoskeletal impact on surgeons compared to Unsassisted Thoracoscopic surgery.
Further research is required to investigate the effect of procedure times on fatigue

Disclosure: No significant relationships.
Keywords: RATS, VATS, Musculo-Skeletal Fatigue.


EMG
UVATS
NECK
BACK
URATS
NECK
BACK

P-351

DOES SURGICAL MARGIN AFFECT RECURRENCE AND SURVIVAL AFTER PULMONARY SEGMENTECTOMY FOR CT1 LUNG CANCER?

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OBJECTIVES
During segmentectomy for early stage non-small cell lung cancer (NSCLC), the recommended distance between the tumour and the intersegmental plane is at least 1 cm and the recommended ratio between tumour and surgical margin margin (M/T) of at least 1. The aim of the study is to evaluate the association between surgical margin and the risk of recurrence and overall survival after pulmonary segmentectomy.

METHODS
Single centre study of consecutive patients undergoing pulmonary segmentectomy for cT1N0M0 NSCLC from January 2017 to December 2022.

RESULTS
In total, 291 patients (median age: 69 years) underwent segmentectomy for cT1a (n=65), cT1b (n=152) and cT1c (n=74) cN0 NSCLC. Surgical approach was performed by Video-Assisted Thoracic Surgery in 99% and conversion thoracotomy was necessary in 2.4%. Single segmentectomy was performed in 183 patients (63%).The median number of dissected lymph nodes was 7 (IQR 4-12). The median size of tumour was 15 mm (IQR 11-20). The median surgical margin was 13mm (IQR 7-22) and 32% of patients had surgical margin of less than 10mm with only one patient with R1 resection. M/T ratio >1 was achieved in 49%. Nodal upstaging was found in 14 patients (5%). During the follow-up, 63 patients (21%) were lost and removed from analyses. Local recurrence was observed in only 3 patients (1%) and distant in 19 patients (8%). Recurrence free survival was significantly associated with PET FDG uptake > 3 (HR:4.89), pleural invasion (HR: 3.02) and nodal upstaging (HR: 3.79). However, surgical margin <10 mm or ratio < 1 were not correlated with increased recurrence (HR: 0.78; p=0.624) (HR: 0.69; p = 0.404) or poorer survival (HR: 1.14; p=0.806) (HR: 1.73; p= 0.309), respectively.

CONCLUSIONS
Our preliminary data shows that local recurrence is infrequent after pulmonary segmentectomy for cT1N0 NSCLC even after limited surgical margin.

Disclosure: No significant relationships.
Keywords: Segmentectomy, Recurrence, Survival.

P-352

FEASIBILITY AND EARLY OUTCOMES OF THORACOSCOPIC SUBSEGMENTECTOMY FOR PRIMARY LUNG CANCER

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OBJECTIVES
Subsegmentectomy is one of sublobar resection which is much more technically demanding than wedge resection or simple segmentectomy. This study was performed to investigate the safety and roles of thoracoscopic subsegmentectomy by comparing simple segmentectomy or lobectomy for primary lung cancer.

METHODS
All consecutive patients undergoing VATS anatomical lung resection between Jan 2019 and Dec 2022 for primary lung cancer were included. Propensity score matching analysis using age, sex, history of smoking and lung function was performed to compare perioperative outcomes and the change of pulmonary function between subsegmentectomy, simple segmentectomy (segmentectomy group) and lobectomy. Subsegmentectomy was classified as follows: monosubsegmentectomy (n=5), combined subsegmentectomy (n=18), and with segmentectomy (n=59).

RESULTS
The perioperative outcomes and the comparison between groups were summarized in Table 1. There were no statistical differences in terms of age, sex, smoking history, and preoperative lung function between groups. Although the operation time was not different between groups, postoperative complication rates were significantly lower in segmentectomy group compared with lobectomy group. In addition, duration of chest tube and hospitalization were significantly shorter in segmentectomy group than lobectomy group. The lung function was more preserved in segmentectomy group compared with lobectomy group in postoperative 2, 6 and 12 months. There were no significant differences in terms of operation time, complications rates, duration of hospital stay and the change of lung function between subsegmentectomy and simple segmentectomy.

CONCLUSIONS
Thoracoscopic subsegmentectomy for small sized primary lung cancer was feasible and safely performed without increased operation time, postoperative complication rates or duration of hospital stay compared to simple segmentectomy or lobectomy. In addition, the preservation of lung function in subsegmentectomy group was similar in segmentectomy group and was better than lobectomy group.

Disclosure: No significant relationships.
Keywords: Subsegmentectomy, Lung Cancer, VATS.

Variables	Lobectomy (189)	Single segmentectomy (114)	Subsegmentectomy (82)	p-value
Age (years)	63.59 (40-80)	63.37 (41-83)	63.04 (39-84)	0.887
Sex				
Male/Female	100/96	55/59	38/44	0.923
Smoking Hx.				0.826
Never	123 (62.8)	73 (64.0)	49 (59.8)	
Former	43 (21.9)	28 (24.6)	25 (30.5)	
Current	30 (15.3)	13 (11.4)	8 (9.8)	
Comorbidity	2.88 (2-8)	2.96 (2-8)	2.95 (2-6)	0.824
Preop PFT				
FEV1 (%)	93.02 (38-138)	91.11 (50-147)	94.91 (51-129)	0.265
DLCO (%)	94.93 (55-141)	93.82 (29-132)	94.90 (60-129)	0.828
CT findings				
Tumor size (mm)	2.05 (0.7-3.0)	1.65 (0.5-3.0)	1.66 (0.8-3.0)	< 0.01
Tumor characteristics				< 0.01
Solid	59 (30.1)	29 (25.4)	11 (13.4)	
Partially solid	132 (67.3)	61 (53.5)	47 (57.3)	
Pure GGO	5 (2.6)	24 (21.1)	24 (29.3)	
Postoperative outcomes				
Operation time (min)	108.19 (55-308)	106.82 (58-344)	100.76 (60-306)	0.250
Anesthesia time (min)	156.25 (90-370)	153.25 (105-405)	146.04 (90-365)	0.121
Bleeding volume (ml)	48.19 (0-300)	32.81 (0-200)	23.48 (0-100)	< 0.01
Chest tube duration (days)	4.14 (1-61)	2.30 (1-15)	2.07 (1-10)	< 0.01
Postop hospital stay (days)	5.28 (2-62)	3.50 (2-16)	3.37 (2-11)	< 0.01
Complication	39 (20.6)	5 (4.4)	3 (3.7)	< 0.01
Prolonged airleakage	21 (11.1)	4 (3.5)	3 (3.7)	
Other	18 (9.5)	1 (0.9)	0 (0)	
Recurrence	16 (8.4)	2 (1.8)	0 (0.0)	< 0.01
FU time (month)	35.3 (0.4-55.0)	26.5 (4.1-55.2)	24.6 (7.1-53.8)	< 0.01
Preop PFT				
PEV1 (%)	93.02 (38-138)	91.11 (50-147)	94.91 (51-129)	0.230
DLCO (%)	94.93 (55-141)	93.82 (29-132)	94.90 (60-129)	0.842
Postop 2month PFT				
PEV1 (%)	80.69 (40-125)	82.57 (40-120)	87.32 (51-119)	< 0.01
DLCO (%)	86.06 (48-116)	87.87 (45-121)	88.13 (60-132)	0.374
Postop 6month PFT				
PEV1 (%)	82.96 (41-135)	85.22 (43-121)	89.01 (50-117)	< 0.01
DLCO (%)	88.99 (51-123)	90.14 (38-124)	90.72 (53-128)	0.604
Postop 12month PFT				
PEV1 (%)	83.05 (39-129)	85.96 (40-122)	89.78 (58-121)	< 0.01
DLCO (%)	88.99 (45-133)	90.94 (54-127)	90.45 (49-126)	0.751

P-353

GLOBAL LEADERSHIP INITIATIVE ON NEW MALNUTRITION CRITERIA FOR POSTOPERATIVE PRIMARY LUNG CANCER: USEFULNESS OF PREOPERATIVE MUSCLE MASS MEASUREMENT

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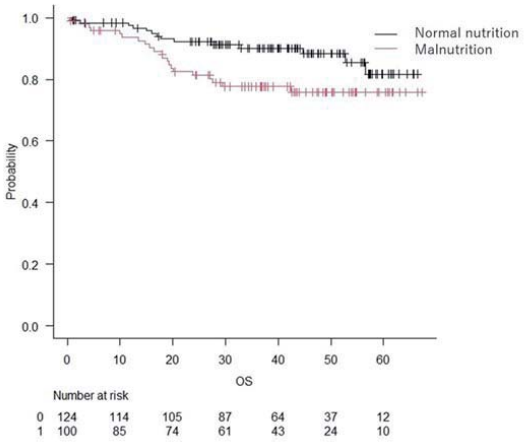
OBJECTIVES
The preoperative nutritional condition of patients with lung cancer is related to prognosis, which we have reported previously. Recently, the Global Leadership Initiative on Malnutrition (GLIM) criteria was proposed for precise diagnosis of malnutrition clinically. GLIM criteria is consisted in phenotypic and etiologic criteria. In our department, preoperative patients with lung cancer receive skeletal muscle mass measurement using bioelectrical impedance analysis and interview with dietitian to assess nutritional status according to the criteria. In this study, we clarified the significance of GLIM criteria in patients receiving lung cancer surgery.

METHODS
The patients who receive resection for primary lung cancer and agree to undergo the checkup between April 2018 and May 2021 were included. Patients' background, pathological stage, recurrence, and prognosis were investigated. The patients were divided into two groups; the malnutrition (met GLIM criteria) and normal nutrition groups (did not meet the criteria). Overall survival (OS), disease-free survival, and postoperative complication were compared between the groups. Multivariate analysis was investigated to clarify postoperative prognosis.

RESULTS
The malnutrition group comprised 100 patients and normal nutrition group comprised 124 patients. Malnutrition was significantly associated with poor postoperative OS (P=0.033). Multivariate analysis showed that malnutrition (hazard ratio [HR]; 2.042, P=0.039), advanced pathological stage of lung cancer (HR; 1.927, P=0.001), and presence of postoperative complications (HR; 2.158, P=0.024) were significantly associated with poor OS. Among the criteria items, low skeletal muscle mass index was related to poor OS (P=0.033).

CONCLUSIONS
The GILM criteria, especially on muscle mass evaluation, was significantly associated with prognosis of lung cancer, which may be used for perioperative nutrition and rehabilitative interventions for patients.

Disclosure: No significant relationships.
Keywords: Lung Cancer, GLIM Criteria, Malnutrition.



	Univariate analysis			Multivariate analysis		
	HR	95% CI	P Value	HR	95% CI	P value
Age (70 or over 70)	1.041	0.997, 1.087	0.066			
GLIM (malnutrition)	2.057	1.045, 4.047	0.037	2.042	1.037, 4.021	0.039
Surgical procedure (segmentectomy or partial resection)	1.036	0.422, 2.543	0.938			
pathological stage (II or III)	2.016	1.371, 2.965	<0.001	1.927	1.308, 2.838	<0.001
Preoperative comobidity	0.829	0.344, 1.997	0.675			
Postoperative complication	2.27	1.167, 4.418	0.016	2.158	1.105, 4.215	0.024
Performance Status>0	1.88	0.930, 3.802	0.079			

GLIM; the Global Leadership Initiative on malnutrition, HR; Hazard ratio, CI; Confidence interval

P-354

THE ROLE OF [18F] FDG PET/CT IN PATIENTS UNDERGOING PULMONARY MICROWAVE ABLATION

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[3]*Diagnostic and interventional Radiology Department, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy*

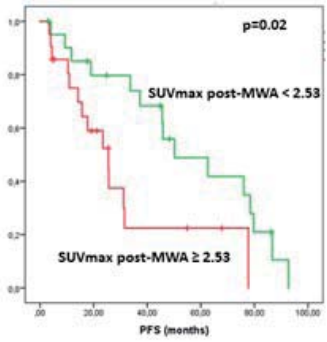
OBJECTIVES
To investigate whether semi-quantitative and volumetric parameters from [18F] FDG PET/CT could be associated with clinical outcomes in patients with pulmonary lesions treated with microwave ablation (MWA).

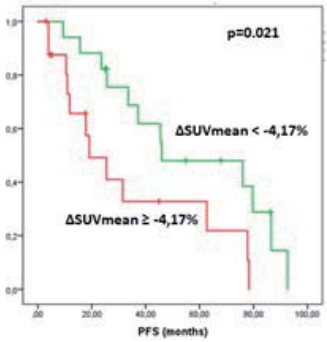
METHODS
Between January 2013 and December 2023, 40 patients (26 males, mean age 76 years) under-went MWA. [18F] FDG PET/CT was performed before and after a median of 3 months (range 2-5) from the procedure. For each lesion we semi-automatically calculated SUVmax, SUVmean, TLG, and MTV, as well as their percentage of change (Δ) using Syngo-via software. Progression-free survival (PFS) and overall survival (OS) were determined and compared using the Kaplan-Meier and the log-rank test. The median follow-up was 76 months (range 42-109 months).

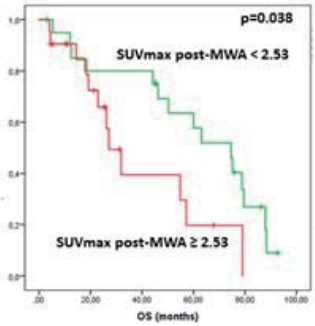
RESULTS
Overall 50 pulmonary lesions, primary lung cancers (n=41) and metastases (n=9), were treated with MWA, requiring a median hospitalization of 2 days (range 1-3 days). Patients with SUVmax after MWA lower than 2.53 and those with ΔSUVmean lower than -4.17% showed longer PFS (p=0.02 and p=0.021, respectively). Likewise, SUVmax and SUVmean after MWA, as well as ΔSU-Vmean were significantly associated with OS (p=0.038, p=0.037, and p=0.02, rispectively), where-as SUVmax at baseline showed only a tendency (p=0.06) (Figure 1). On the other hand, volumetric parameters, expressed by TLG and MTV, were not prognostic neither for PFS nor for OS.

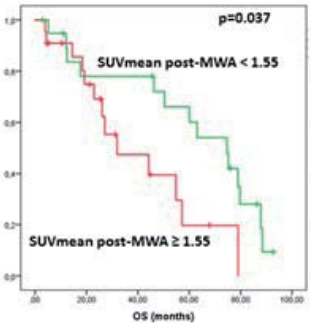
CONCLUSIONS
Our preliminary results demonstrated that the metabolic activity, at the first evaluation after MWA, was correlated with PFS and OS. SUVs parameters can be a potentially valuable tools for identifying patients who are likely to benefit from MWA.

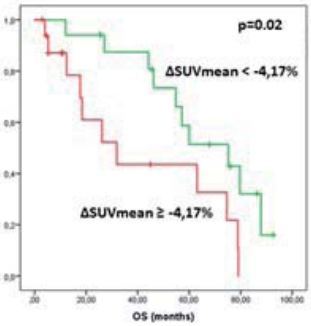
Disclosure: No significant relationships.
Keywords: MWA, Radioablation, PET/CT, Lung, Survival.


p=0.02
SUVmax post-MWA < 2.53
SUVmax post-MWA ≥ 2.53
PFS (months)


p=0.021
ΔSUVmean < -4,17%
ΔSUVmean ≥ -4,17%
PFS (months)


p=0.038
SUVmax post-MWA < 2.53
SUVmax post-MWA ≥ 2.53
OS (months)


p=0.037
SUVmean post-MWA < 1.55
SUVmean post-MWA ≥ 1.55
OS (months)


p=0.02
ΔSUVmean < -4,17%
ΔSUVmean ≥ -4,17%
OS (months)

P-355

PREOPERATIVE ATRIAL FIBRILLATION AND PERIOPERATIVE OUTCOMES AFTER ROBOTIC-ASSISTED PULMONARY LOBECTOMY

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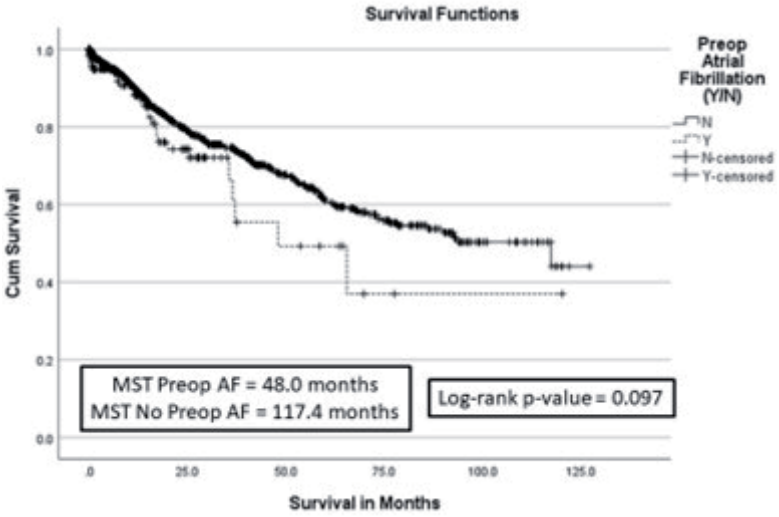
OBJECTIVES
We investigated preoperative atrial fibrillation (AF) and surgical outcomes of patients who underwent robotic-assisted pulmonary lobectomy (RAPL) for known or suspected non-small cell lung cancer (NSCLC) at an NCI-designated cancer center.

METHODS
We retrospectively analyzed patients who underwent RAPL from 2013 to 2023. Continuous variables are described as means with standard errors, but numerical variables that did not fit normality were described as medians with interquartile ranges. Categorical values are described as counts and proportions. Primary outcomes were postoperative complications, hospital length of stay (LOS), discharge disposition, and overall survival. Student's t test, Wilcoxon rank-sum test, Chi square/Fisher's exact test, and Kaplan-Meier estimates were used, with significance at $p \leq 0.05$.

RESULTS
Of 1512 study patients, 160 (10.6%) had preoperative AF. Patients with preoperative AF had greater mean age (71.6 yr vs 67.5 yr; $p<0.001$), higher male proportion (62.5% vs 39.5%; $p<0.001$), more anticoagulation use (72.8% vs 39.0%; $p<0.001$), and lower preoperative hypertension incidence (36.4% vs 45.2%; $p<0.001$) compared to those without preoperative AF. The most common complications in patients with preoperative AF were postoperative true new-onset AF (9.7%) and pneumonia (4.5%), but rates of these two postoperative complications did not differ between the two study groups ($p=0.235$ and $p=0.408$, respectively). Median hospital LOS for patients with preoperative AF was similar (4d vs. 4d) to that for patients without ($p=0.434$). Discharge disposition differences between the two study groups did not reach significance ($p=0.051$). Overall survival trended to be worse for patients with preoperative AF ($p=0.097$).

CONCLUSIONS
Preoperative AF is associated with older men without hypertension. Hospital LOS did not differ between patients with and without preoperative AF. Overall survival trended to be worse for patients with preoperative AF. Further research is required to investigate true postoperative AF and its association with postoperative embolic phenomena, surgical outcomes, and recurrence-free and overall survival.

Disclosure: No significant relationships.
Keywords: Atrial Fibrillation, Perioperative Outcomes, Robotic-Assisted Surgery, Pulmonary Lobectomy.



P-356

REDUCING POSTOPERATIVE ICU ADMISSIONS IN LUNG RESECTION: EFFICIENCY AND QUALITY IMPROVEMENT LESSONS FROM COVID-19

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OBJECTIVES
In many Dutch hospitals, patients are admitted to intensive care units (ICUs) following anatomical lung resections, despite recent developments aimed at reducing surgical impact, such as prehabilitation programs, minimally invasive surgery, and Enhanced Recovery After Thoracic Surgery (ERATS) protocols. Scarcity of ICU-beds caused by the COVID-19 pandemic prompted a quality and efficiency improvement effort to reconsider this standard policy.

METHODS
We conducted a Prospective Risk Assessment (PRA) in our centre, to identify risks when ICU-admission would be omitted and their potential causes. This PRA provides a framework involving the formation of a multidisciplinary working group, consisting of various medical professionals to establish criteria and control measures for safe implementation, based on retrospective analysis of our data and a literature review. Criteria for non-ICU-admission were established (Table 1) including patients under 70 and minimally invasive surgery, morning-only procedures, standby ICU-bed, mandatory training for healthcare professionals, clear documentation and frequent feedback sessions.

RESULTS
The implementation of new selection criteria for non-ICU-admittance resulted in fewer postoperative ICU-admissions, shorter length of stay (LOS), and cost savings in 2022 and 2023 (Table 1). Based on data analysis and consensus in feedback sessions, selection criteria were adjusted, skipping the age, morning-only and minimally invasive surgery criteria, leading to a safe increase in non-ICU-admissions with similar added positive effects in 2023. This contrasts with 2021 when all patients went to the ICU postoperatively.

CONCLUSIONS
Necessitated by the COVID-19 pandemic, quality improvement actions have led to improvements in LOS and cost efficiency. Through a structured approach and regular evaluations within the working group, unnecessary ICU-admissions could be reduced without adverse effects on patient outcomes. Key lessons include the use of a PRA framework, involvement of all specialties, and continuous feedback. This approach, prompted by the COVID-crisis, illustrates the importance and potential of structured quality improvement efforts in healthcare.

Disclosure: No significant relationships.
Keywords: Perioperative Lung Cancer Care, Lung Cancer, Quality Improvement, Lung Resection, Intensive Care Unit.

Figure 1. Criteria derived from Prospective Risk Analysis and results of changes

Criteria for non-ICU-admittance	ASA<3 Age ≤70 * ppoDLCO>65% Medical history: Non-cardiac or lungfibrosis No pneumonectomy No thoracotomy * Morning O.R.session * Bloodloss <500ml Operation time <180min *= abandoned in 2023	
Consequence of change	2022	2023*
Non-ICU admittance	21/46 (46%)	39/58 (67%)
Median LOS Non-ICU admittance	2 [IQR 1-2]	2 [IQR 1-5]
Non-ICU patients yet eventual admittance to ICU	0/21 (0%)	4/43 (9%) (3x after open surgery, 1x laryngeal edema)
Median LOS ICU patients	3 [IQR 2-4]	5 [IQR 5-9]
Savings	€50.400,-	€93.600,-

P-357

SURGICAL DECISION-MAKING REGARDING EXTENT OF LUNG RESECTION: A QUALITATIVE ASSESSMENT OF SURGEON QUESTIONNAIRES IN THE INITIATIVE FOR EARLY LUNG CANCER RESEARCH ON TREATMENT (IELCART)

Ammara Abbasi Watkins[1], Rowena Yip[2], Andrew Kaufman[2], Witold Rzyman[3], Henry Tannous[4], Paul Lee[5], Clifford Connery[6], Harvey Pass[7], David F Yankelevitz[8], Claudia I Henschke[8], Raja M Flores[8]

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OBJECTIVES

There are increasing data supporting sublobar resection for early-stage NSCLC. This study aims to identify factors surgeons deem crucial in determining the extent of planned lung resection and assesses concordance between the preoperative plan and operation performed.

METHODS

Patients with stage I NSCLC enrolled between 2016-2022 were included from 9 participating sites in the IELCART (Initiative for Early Lung Cancer Research for Treatment) study group. IELCART is a multi-center international data registry. Pre- and post-treatment, patient-centric surveys were administered to surgeons and patients. Surveys completed by surgeons were analyzed for this study.

RESULTS

710 patient questionnaires from 22 surgeons were included. Location (400/514; 77.8%) and size (336/514; 65.4%) of the nodule were the most important factors in determining extent of resection. Other factors influencing the preoperative surgical plan included ability to have a parenchymal negative margin (29.6%), functional status/co-morbidities (19.8%), and imaging characteristics (19.5%). In 57% of the cases, surgeons indicated multiple surgical options (lobar and sublobar) were available. 49% of the patients met selection criteria for the CALGB140503 randomized clinical trial comparing lobectomy to sublobar resection. Concordance between the pre-operative planned operation and operation performed was 88.1% (453/514). Of the 557 cases with completed post-treatment surgeon questionnaires, most operations discussed with the patients preoperatively were effectively carried out (538;96.6%). Surgeons changed the intraoperative plan from sublobar resection to lobectomy most commonly due to inadequate

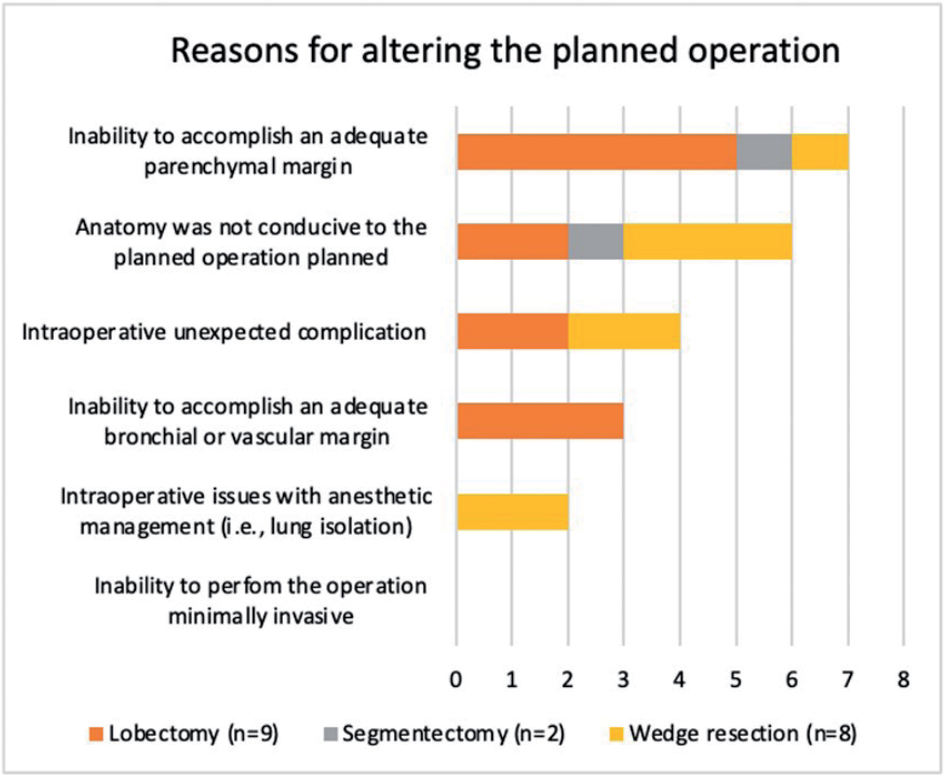
margin (36.8%). Compromised bronchial/vascular margin, intraoperative complications, and anatomy not conducive to sublobar resection were also cited as reasons for augmenting the surgical plan to lobectomy (Figure 1).

CONCLUSIONS

This is the first study to evaluate surgeon decision-making between lobectomy and sublobar resection in stage 1 NSCLC. A surgeon's ability to predict the planned operation is approximately 80%. The most common reason for changing the intraoperative plan from sublobar resection to lobectomy was concern for insufficient margin.

Disclosure: No significant relationships.
Keywords: Lung Resection, Segmentectomy, Sublobar Resection, Lobectomy, Wedge Resection.

Figure 1



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VACUUM THERAPY IN PEDIATRIC AGE GROUP PECTUS EXCAVATUM

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OBJECTIVES
Pectus excavatum (PE) is the most common chest wall deformity. The standard treatment for childhood PE is surgical repair. It is aimed to present the results of patients under the age of 18 who underwent vacuum therapy due to PE, in two groups, along with demographic information.

METHODS
Between September2021 and November2023, 67 patients were recommended vacuum therapy due to PE. Among these patients, 52 patients who started vacuum therapy were included in the study and examined retrospectively. 8 patients who used it irregularly or were decided to undergo surgery were excluded from the study. 44 patients were divided into two groups according to their ages (Group1:10 years and over(n=18), Group2:under 10(n=26).

RESULTS
31(70.4%) of the patients were male and 13(29.6%) were female. The average age of the patients is 9.65+/-3.58. The depth of the deformity was recorded as an average of 2.4+/-0.42cm at the beginning of treatment. During the follow-up, an average of 7.71+/-4.36 months later, the average pectus depth was found to be 1.76+/-0.46cm (Figure 1). The patients were divided into two groups according to their ages (Group 1 for those aged 10 and above, Group 2 for those under 10 years of age). 8 patients from group1 and 11 patients from group2 were not included in the calculation because their treatment was continuing. Among the groups, treatment success was found to be statistically higher in group2 (Table1-p:0.04). Less than 50% reduction in deformity depth despite regular use for 9-12 months or 7 patients who underwent surgical correction were considered as treatment failure. As for usage morbidity, petechiae were observed in the application area in 4(9%) patients.

CONCLUSIONS
It is possible to achieve acceptable results with vacuum treatment by eliminating surgical risks in selected patients under the age of 18 who apply for cosmetic and psychological reasons for pectus excavatum.

Disclosure: No significant relationships.
Keywords: Pectus Excavatum,Vacuum Therapy

Table 1	Success		Failure		p
	n	%	n	%	
Group 1	5	50	5	50	0,04
Group 2	13	86,7	2	13,3	


a
b

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