Uniportal right upper bilobectomy after previous anterior thoracotomy for cardiac surgery: is still previous surgery a limit?

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Video-assisted thoracic surgery (VATS) lobectomy has become the gold standard for the treatment of early-stage lung cancer. Uniportal video-assisted thoracoscopic resections seem to offer potential benefits in terms of postoperative pain and morbidity. Previous cardiothoracic surgery has been considered for years a contraindication for thoracoscopic lobectomies, for the presence of intra-thoracic adhesions and pleural symphysis. With increasing experience in VATS, this strategy is often proposed, even in complex procedures.
We report a case of uniportal VATS right upper bilobectomy in a patient who previously underwent an anterior thoracotomy for mitral valve replacement.

CASE REPORT

A 69 year-old man, former smoker, was referred to our Institution for a highly suspected solitary pulmonary nodule in the right upper lobe. The patient underwent a mitral valve replacement (biological Edwards 29) with an anterior thoracotomy approach three years before. He also implanted a bicameral pace-maker for a complete atrio-ventricular parossistic block. The positron emission tomography (PET) scan revealed a nodule with 4.5 standardized uptake value, no lymphadenopathy and no signs of distant metastasis. A transthoracic needle biopsy confirmed an adenocarcinoma. The patient had normal pulmonary function.
The procedure was performed under general anaesthesia and using selective-one lung ventilation. An uniportal approach was used with a single 4-5 cm incision made in the auscultatory triangle in the 5th intercostal space, parallel to the previous thoracotomy scar. A 10-mm, 30° angled camera was placed in the posterior part of the incision. The initial step was to lyse with an harmonic scalpel all the adhesions beetwen the lung parenchyma, the mediastinum, the diaphragm and the chest wall.
This part of the operation was very long, but with the high definition angled camera the adhesiolysis was precise and safe, even at the apex and in the costophrenic sinus; the amount of bleeding was moderate.
The lesion melted the minor fissure with middle lobe infiltration, so we decided to proceed with an upper bilobectomy. Then, an anatomic dissection with individual ligation of arteries, veins and bronchi were performed in a standard manner. The specimen was retrieved through the utility incision in an endoplastic bag. A systematic lymph node dissection completed the operation and a single 28 F drainage was left in pleural cavity.
The operative time was 405 minutes; no intraoperative or post-operative complications were observed; the chest drainage was removed after 3 days.
Histology revealed a pT1aN0 adenocarcinoma, and the patient is alive without recurrence one year after surgery.

DISCUSSION

The uniportal approach offers a straight view, allowing a safe surgical field, even in complex cases. As expected, a great amount of adhesions increased the complexity of the

case, but the magnification of the angled camera permitted a safe dissection even at the apex, that is always technically demanding in open surgery .
We believe that uniportal video-assisted thoracoscopic resections are not contraindicated in patients who previously underwent cardiothoracic surgery.
If hilar and mediastinal adhesions are too dense for a safe dissection of vital structures, conversion to open thoracotomy is mandatory: this is not a surgical failure and should be considered early enough to prevent vascular injuries.

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