

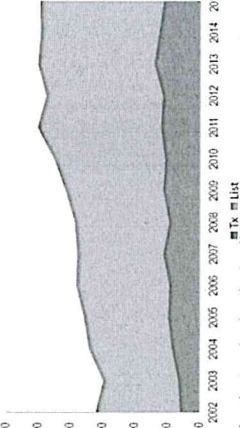
LUNG TRANSPLANTATION FROM DONORS AFTER PREVIOUS CARDIAC SURGERY: OUR EXPERIENCE

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Donor management
Poster No. PP35

Introduction

Lung transplantation has become the definitive therapeutic option for patient with end-stage lung disease but the number of available donor currently limits this option. The graph on the right shows the trend in Italy. Despite the efforts to expand donor criteria, previous cardio-thoracic surgery is still considered a contraindication from large part of transplant centres. Surely, a previous operation on the chest can be a real risk factor for poor quality of the graft.

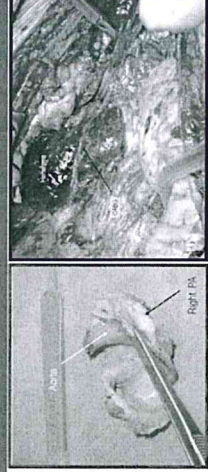


On the other hand, a donor who underwent a cardiac surgery can provide an ideal lung but high intraoperative risks and intrinsic technical challenges are expected.

Objectives

We present four clinical cases of lung procurement from donors who had a previous major cardiac surgery.

Methods



The table shows the donor characteristics and the procurement details of all four cases. The photos report the specific finding of case 1 and 4 (red and blue box, respectively), and the lung of donor 4 during EVLP evaluation (green box).

General data	Case 1	Case 2	Case 3	Case 4
Year	2013	2015	2016	2016
Sex	M	M	F	M
H (cm) x W (kg)	160 x 90	180 x 80	160 x 63	165 x 72
ICU stay (d)	7	4	3	3
ABO	O+	O+	O+	A-
Cause of death	ICH	Aneurysm	ICH	ICH
OTO score	7 → 5	2 → 4	6 → 8	8 → 4
Age (y)	60	59	68	57
Smoking Hx (cvs)	0	0	0	0
CXR	Minor (pl. eff)	Clear	Minor (pl. eff)	Minor
Secretions	Minor	None	Moderate	Minor
P/F	(393 → 585)	(620 → 411)	(483 → 491)	(350 → 576)
ECMO	Yes	Yes	No	No
CRV status	CABG (B)	MVR (L5)	CABG (L80)	AAR (L240)
Approach	Median sternotomy	Median sternotomy	Median sternotomy	Partial sternotomy
Quillcut saw	No	Yes	Yes	No
Team order	Tho → Abd	Tho → Abd	Abd → Tho	Abd → Tho
Cardiac injury	No	No	Yes	No
Lung damage	No	No	No	No
Waste of other organs	No	No	No	No
Perfusion solution	Perfadex	Perfadex	Perfadex	Perfadex
Procurement time (median → IQR, h)	4	5	2.5	8.5
EVLP	Yes	No	No	No

Results

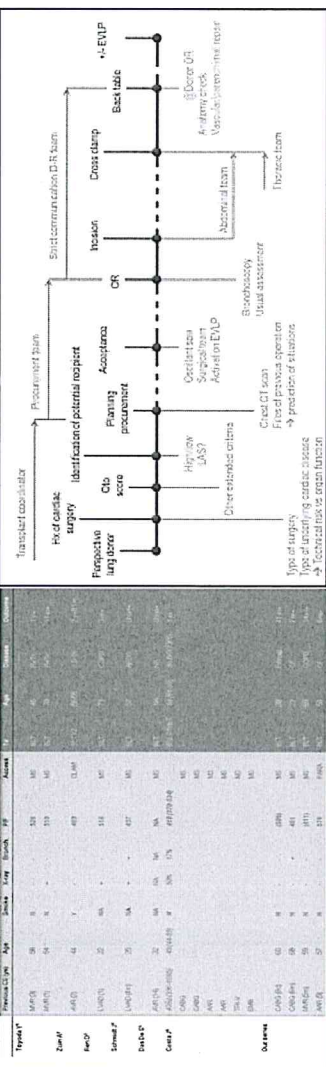
The table below summarizes the characteristics of the recipients, transplantation and short and medium-term outcomes.

Case #	Age (y)	Sex	Diagnosis	CMV status	IAS	Type of Tx	ECMO size	ECMO perf. per	ECMO time (h)	ECMO size	ECMO perf. per	ECMO time (h)	LOS (d)	FEV1, % change (%)	Operative mortality (%)	30d mortality (%)	Follow-up (mo)	Other
Case 1	39 (60)	M (M)	Exotropia	- (+)	Urg	Bilateral	17.00-20.00	Yes	Yes	3	54	21	72 (21 → 81)	0.5	No	70	Alive (41)	Photophobia
Case 2	59 (69)	M (M)	CCOP	- (+)	Urg	Bilateral	7.50-11.15	No	No	0	1	2	25	0.3	No	107	Alive (14)	Vertical fractures
Case 3	22 (68)	F (F)	CF	+ (+)	Urg	Bilateral	6.00-9.25	Yes	Yes	0	2	3	34	0.1	No	0.3	Alive (7)	Lymphoma
Case 4	59 (67)	F (F)	CF	+ (+)	Urg	Bilateral	8.15-17.03	No	Yes	0	3	6	26	0.6	No	106	Alive (6)	AKI

Conclusions

The lung donor shortage should prompt to explore all the possibilities to avoid the loss of any possible acceptable organs. A previous major cardiac surgery does not strictly imply a poor quality of lungs as well as unsustainable graft procurement, also in association with other expanded criteria (Table below; review of literature). In our experience, even if lung procurement from a redo chest can be technically challenging, it could be performed successfully by experienced surgeons. We stress the cooperation among the teams involved in the procurement; the coordination of the abdominal team and the anaesthesiologist with the thoracic surgeon is essential for the safe procurement of abdominal as well as pulmonary grafts (Diagram below; proposal of operative algorithm).

Procurement paradigm



References

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Poster

Overview

Agenda

Programme
Reference:

PP35

Programme

Presenting
Author:

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Milan, Italy

Posters

Category:

Donor management

LUNG TRANSPLANTATION FROM DONORS AFTER PREVIOUS
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Lung transplantation has become the definitive therapeutic option for patient with end-stage lung disease but the number of available donor currently limits this option. Despite the efforts to expand donor criteria, previous cardio-thoracic surgery is still considered a contraindication from large part of transplant centres. Surely, a previous operation on the chest can be a real risk factor for poor quality of the graft. On the other hand, a donor who underwent a cardiac surgery can provide an ideal lung but high intraoperative risks and intrinsic technical challenges are expected. We present four clinical cases of lung procurement from donors who had a previous major cardiac surgery. One donor had aortic valve substitution, one had mitral valve substitution and two donors had coronary artery bypass. The others criteria of eligibility for organs allocation were respected. In one of the cases with previous coronary bypass, the grafts were submitted under ex vivo lung perfusion (EVLP) evaluation, because the donor had extra-corporeal support (VA-ECMO). We report the technical details of procurement and recipients' postoperative courses. All procurements were uneventful, without lung damages or waste of abdominal organs related to catastrophic events. All recipients had a successful clinical outcome. In our experience, even if lung procurement from a redo chest can be technically challenging, it could be performed successfully by extensive experienced surgeons. We stress the cooperation among the teams involved in the procurement; the coordination of the abdominal team and the anaesthesiologist with the thoracic surgeon is vital for the safe procurement of abdominal as well as pulmonary grafts. Even though the computed tomography (CT) is not mandatory in the routine setting, mainly for possible donor instability, a meticulous pre-operative planning with CT scan is mandatory in this donor subgroup. CT scan with contrast could anticipate potential catastrophic injury to cardiac structures and lungs due to extensive thoracic adhesions identification. Moreover, the availability of EVLP evaluation makes relevant the possibility to move forward the decision on suitability of graft. We conclude that even such complicated situation might result in successful transplantation. We strongly believe that facing lung donor shortage, it is crucial to avoid the loss of any possible acceptable

lungs; in particular, previous major cardiac surgery does not strictly imply a poor quality of lungs as well as unsustainable graft procurement.



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