

# GRAND ROUNDS CLINICI DEL MERCOLEDÌ

## con il Policlinico San Matteo

Sistema Socio Sanitario



Regione  
Lombardia



Fondazione IRCCS  
Policlinico San Matteo

ATS Pavia

Aula Magna "C. Golgi"  
& WEBINAR

26 Ottobre 2022

*Erika Negrello*

2° CASO CLINICO - Un caso "*singolare*" di trapianto polmonare

# La stampa 3D per il planning pre-operatorio



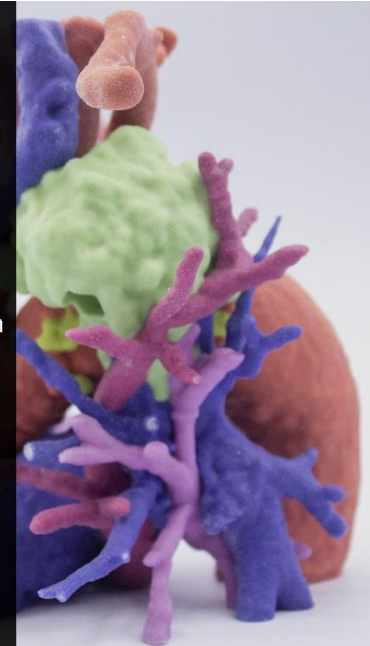


3D4MED is the **first Clinical 3D Printing Lab** in Italy and one of the first worldwide. Since 2018 it is located at Fondazione IRCCS Policlinico San Matteo of Pavia at **Floor 0 Tower B, DEA**.

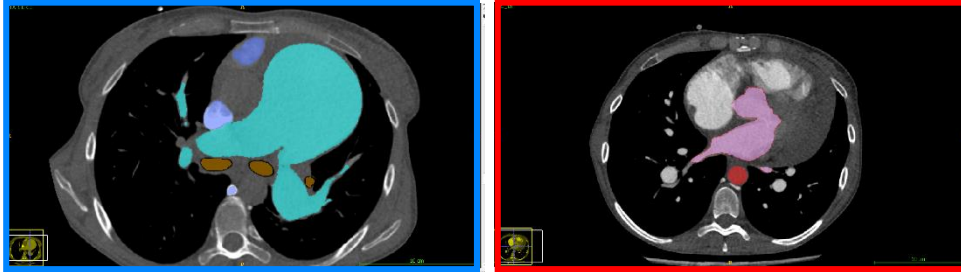
3D printed models can be useful – in any medical specialties – for **surgical planning and simulation, anatomical comprehension, medical training and intra-operative guide**.

## How to know when i need a patient-specific 3D model?

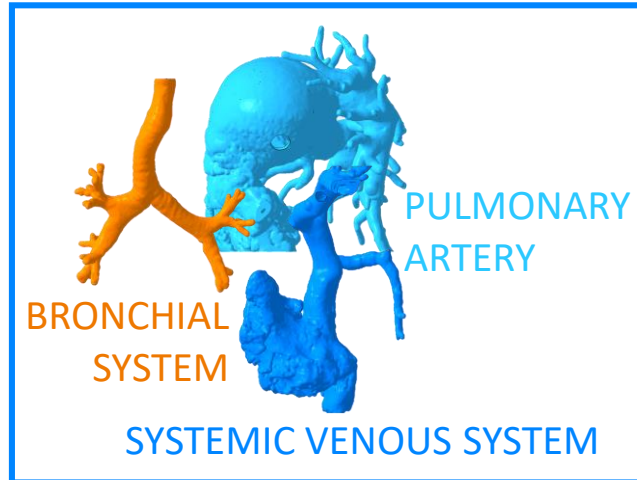
- ✓ The clinical case presents a **rare or highly complex pathology**
- ✓ The clinical case requires the intervention of a team of **different surgical specialists**
- ✓ The medical images **do not allow to fully understand** the specific anatomy
- ✓ The clinical case requires a **careful pre-operative planning and simulation** in order to chose the best surgical approach



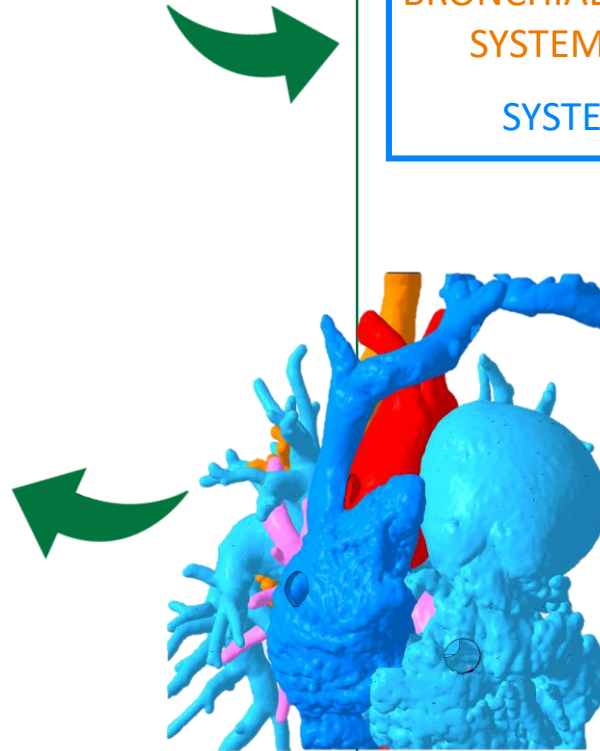
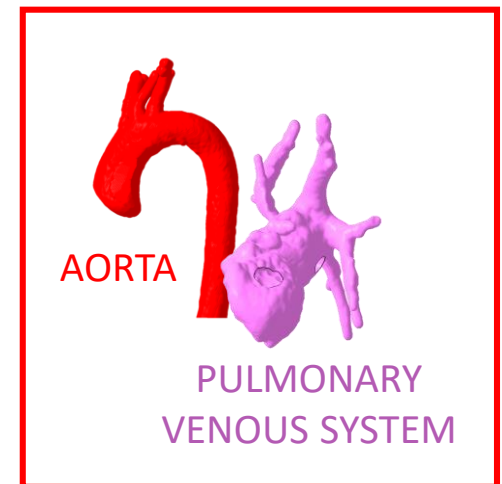
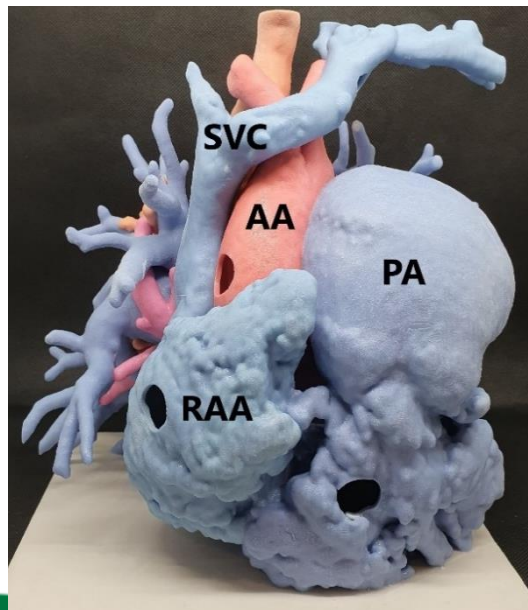
## 1. Medical Images CTA 1.0 CE



## 2. 3D Virtual Model



## 3. 3D Printed Model



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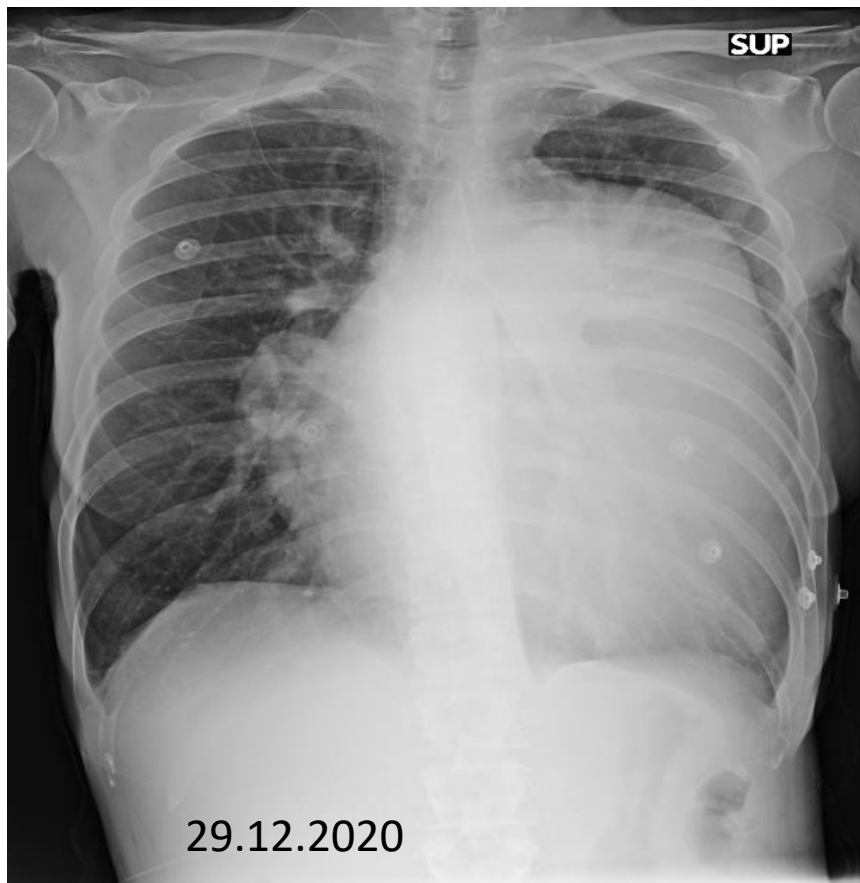
26.10.2022

Un caso "*singolare*" di trapianto bipolmonare

*Stefano Pelenghi*  
*UOC Cardiochirurgia*







Trapianto bipolmonare +:

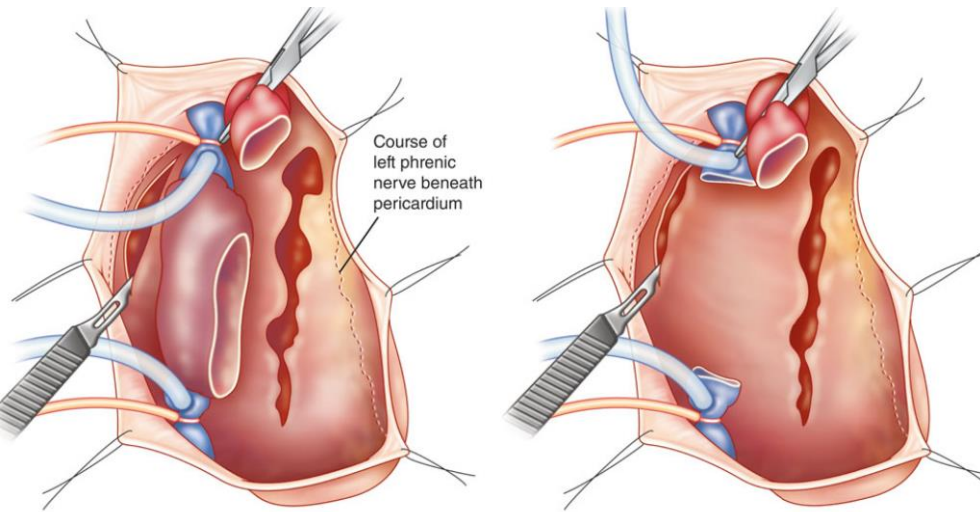
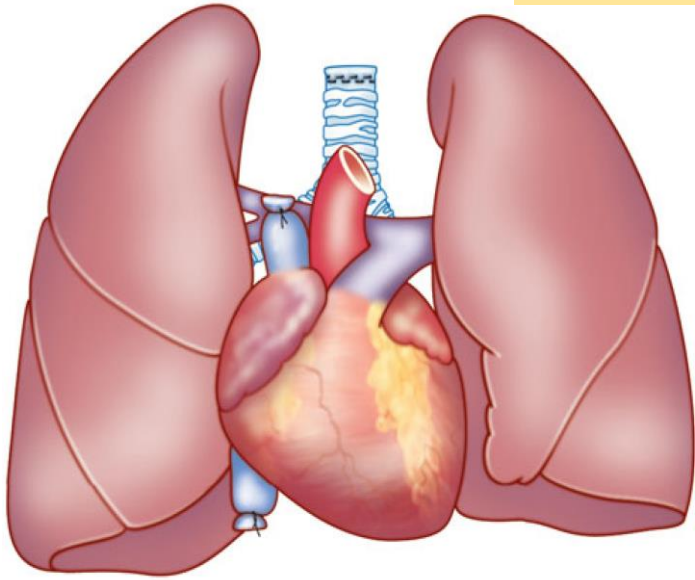
Trapianto cuore o

Sostituzione Arteria e Valvola polmonare

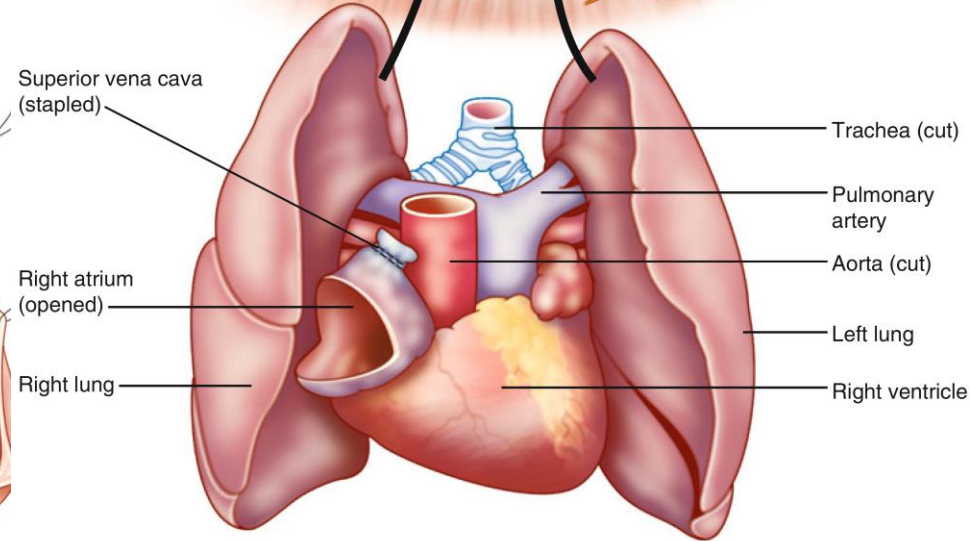
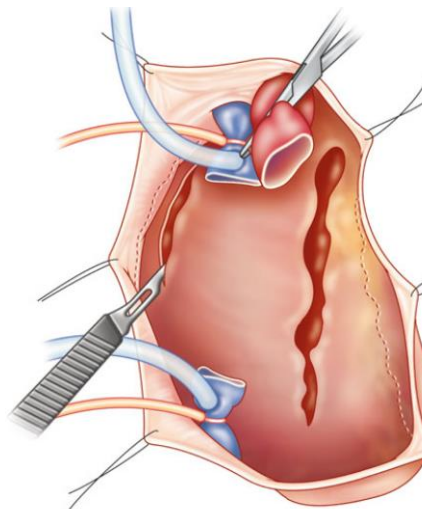
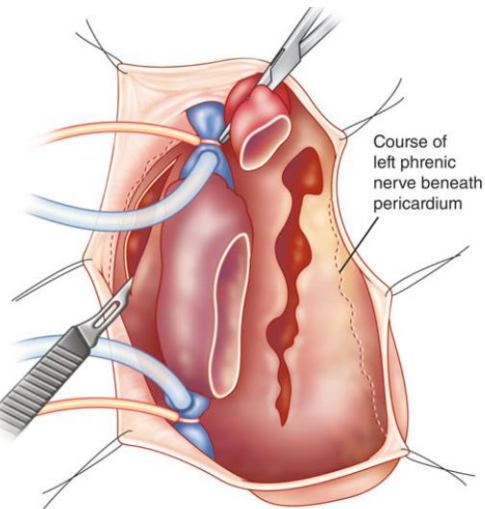
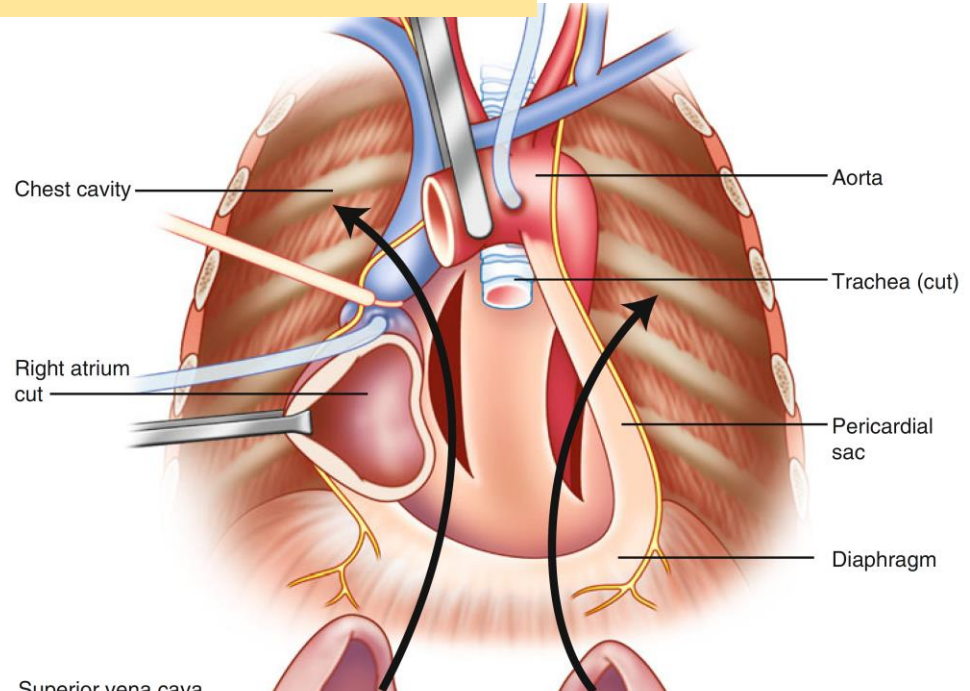
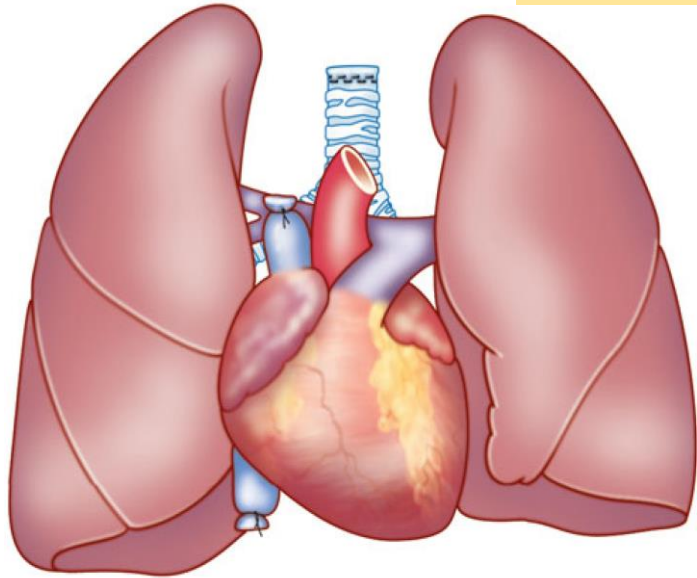
Sostituzione efflusso Ventricolare destro.



# Trapianto cuore polmone



# Trapianto cuore polmone

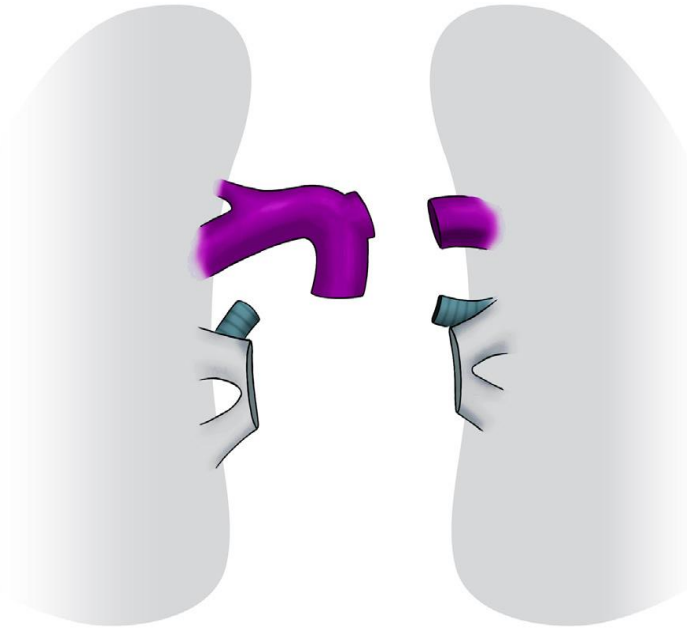
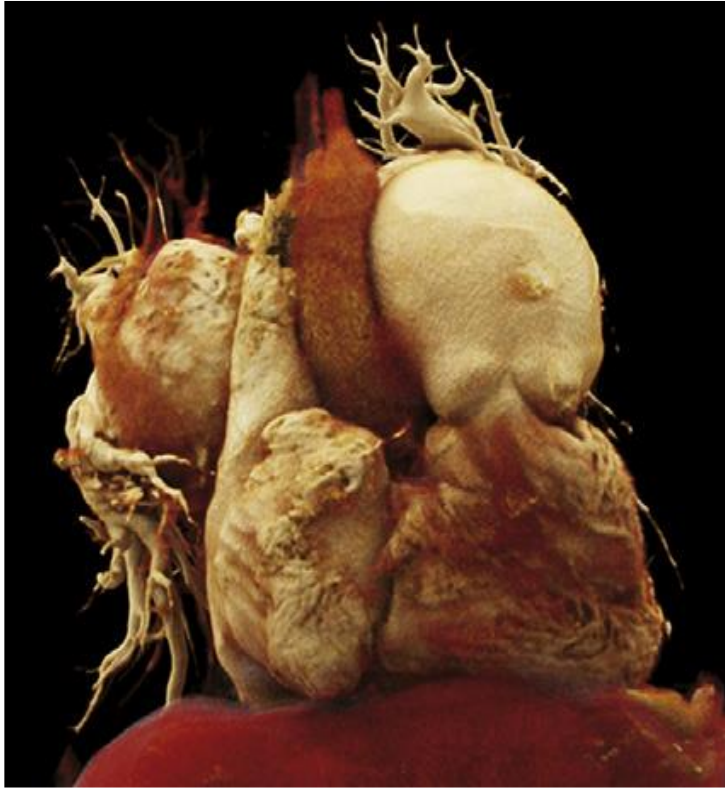




Lung transplantation for pulmonary hypertension with giant pulmonary artery aneurysm

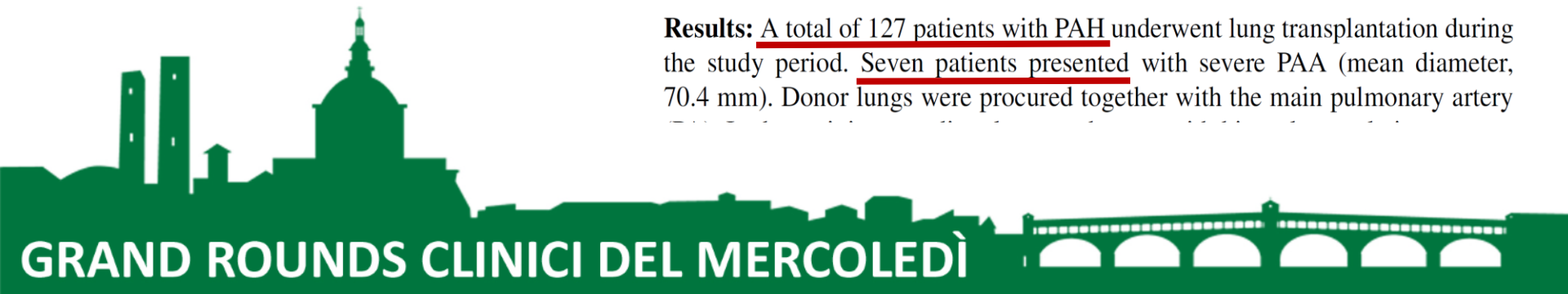
Stefan Schwarz, MD,<sup>a</sup> Alberto Benazzo, MD,<sup>a</sup> Helmut Prosch, MD,<sup>b</sup> Peter Jaksch, MD,<sup>a</sup> Walter Klepetko, MD,<sup>a</sup> and Konrad Hoetzenecker, MD, PhD,<sup>a</sup> the Vienna Lung Transplant Group\*

J Thorac Cardiovasc Surg 2019;1-8

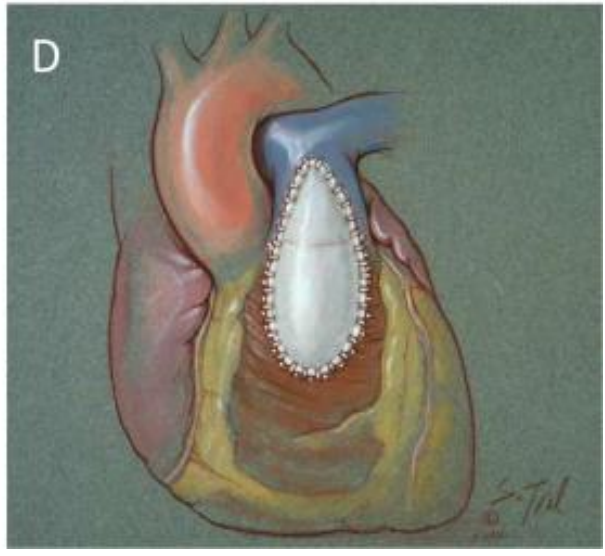
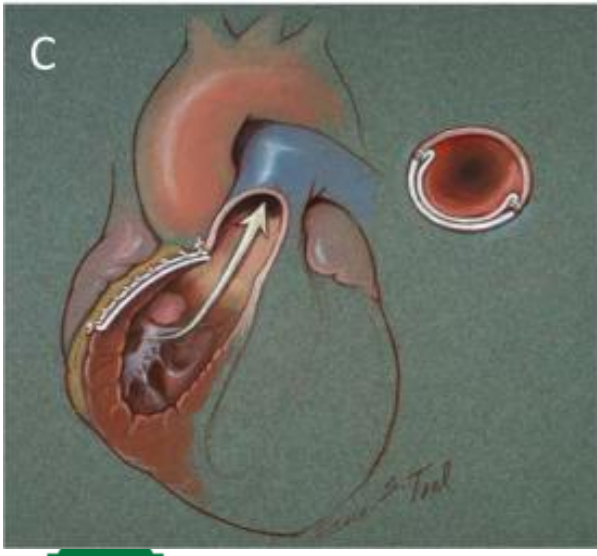
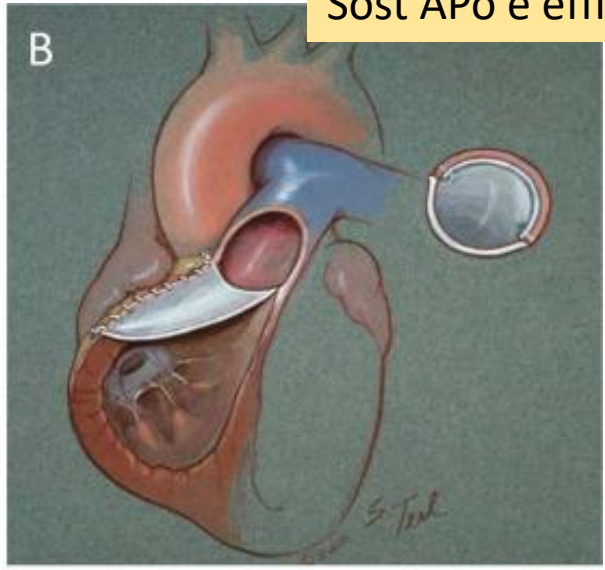
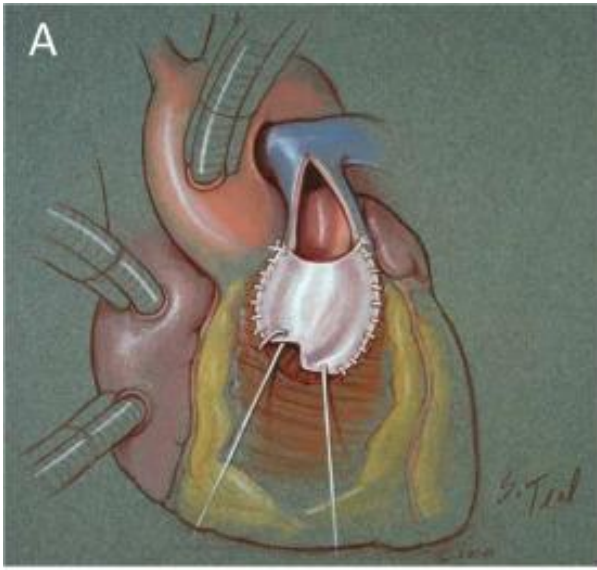


**Methods:** We performed a retrospective single-center analysis of patients with PAH and a severe PAA who underwent lung transplantation between January 1996 and November 2018.

**Results:** A total of 127 patients with PAH underwent lung transplantation during the study period. Seven patients presented with severe PAA (mean diameter, 70.4 mm). Donor lungs were procured together with the main pulmonary artery









## **Trapianto bipolmonare +:**

Trapianto cuore o

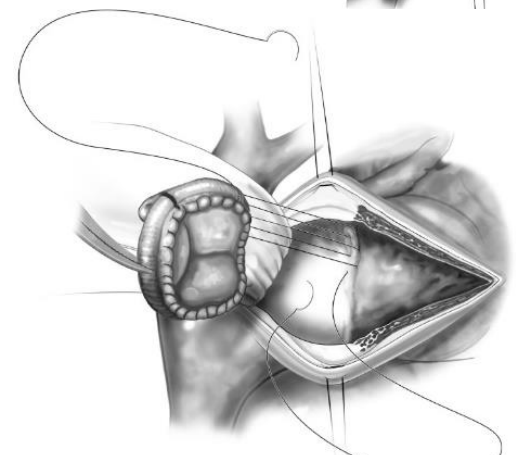
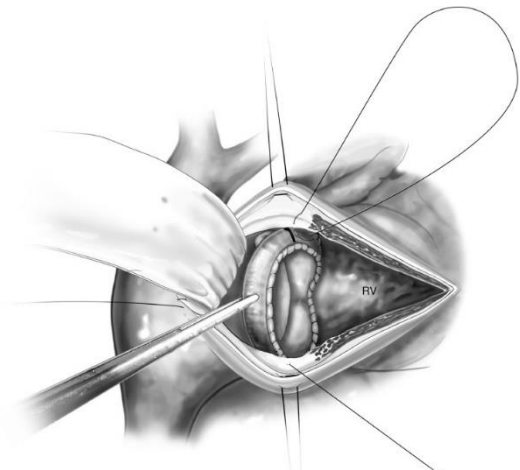
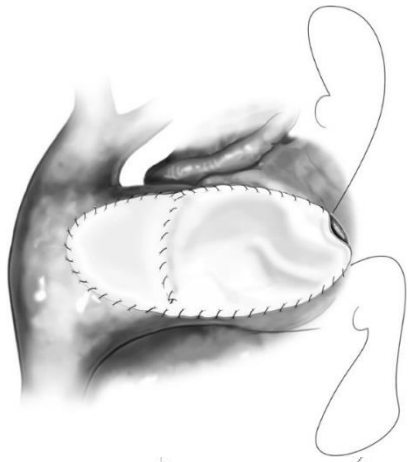
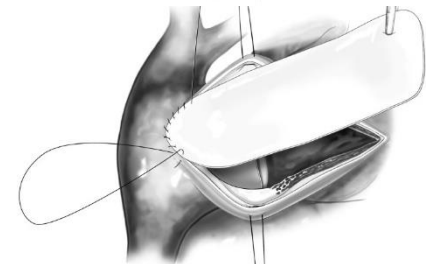
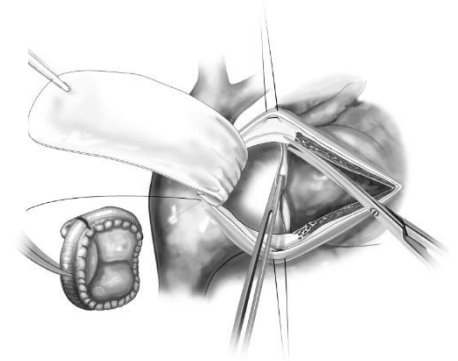
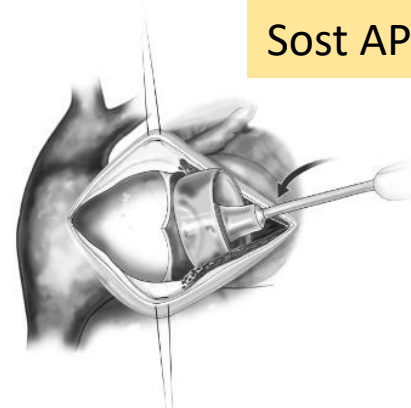
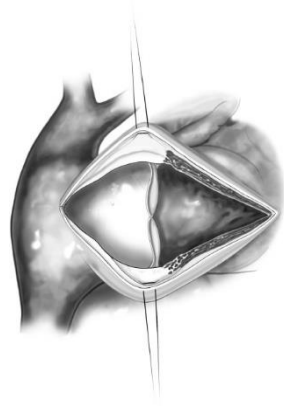
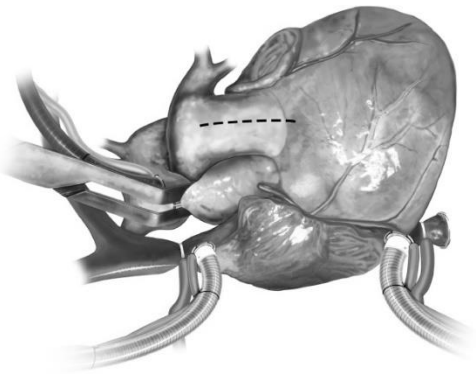
Sostituzione APo e VPo

Sostituzione efflusso VDx.

**Plastica Arteria polmonare (come Ao x TCuore)  
Sostituzione Valvola polmonare**

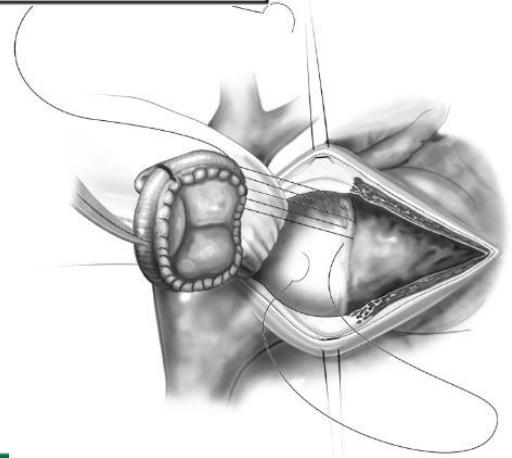
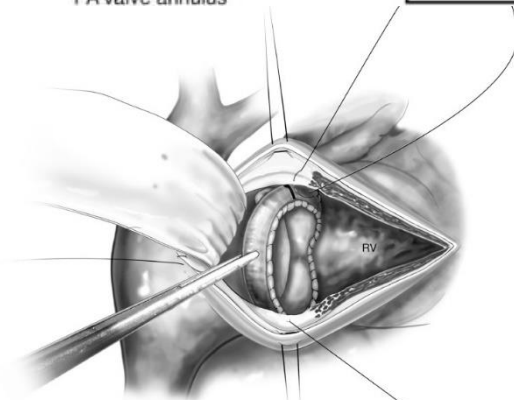
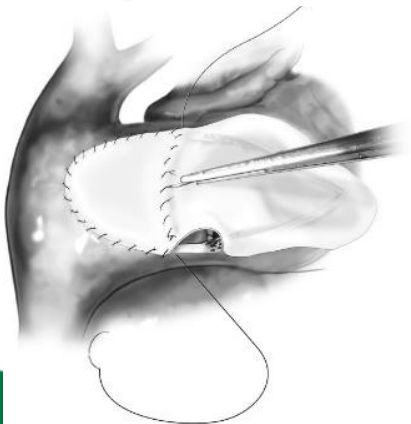
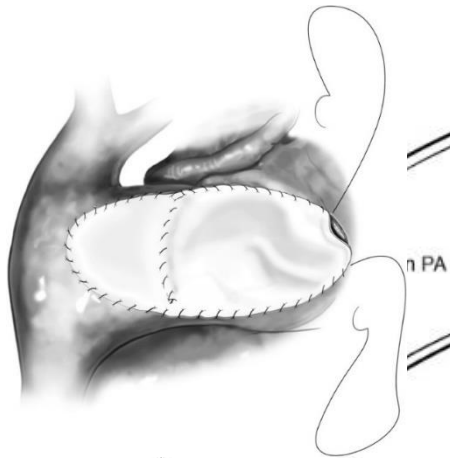
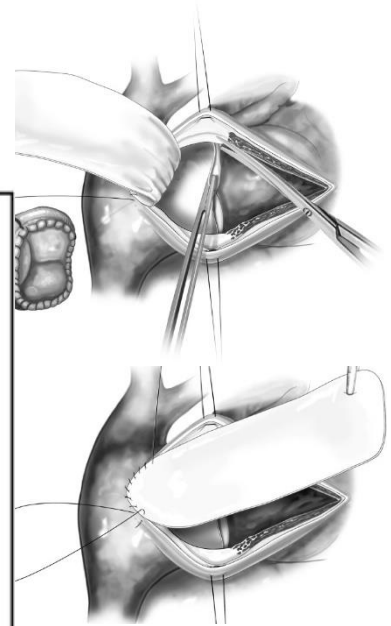
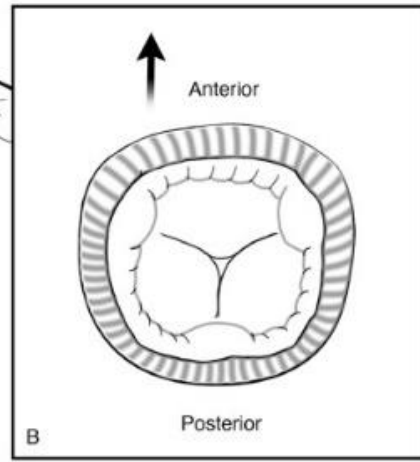
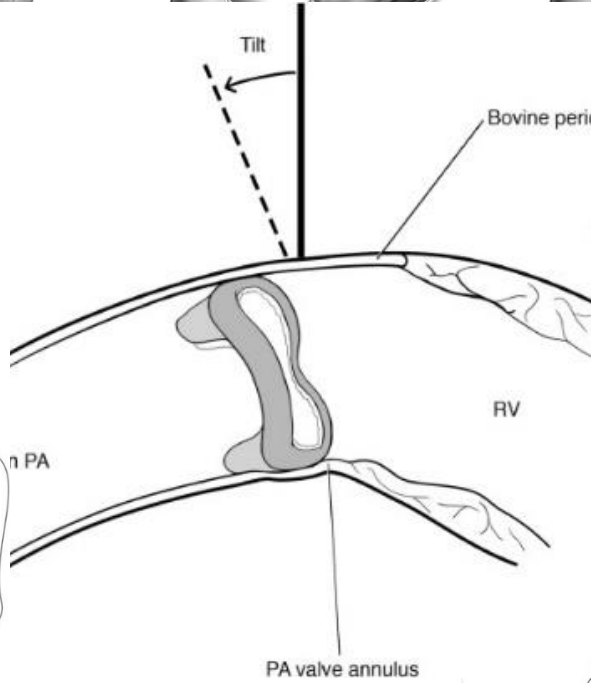
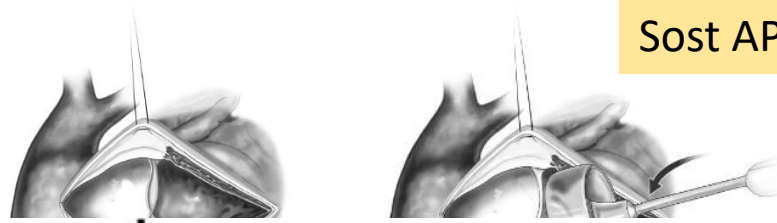
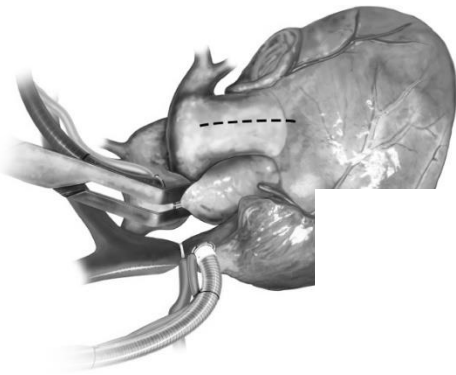


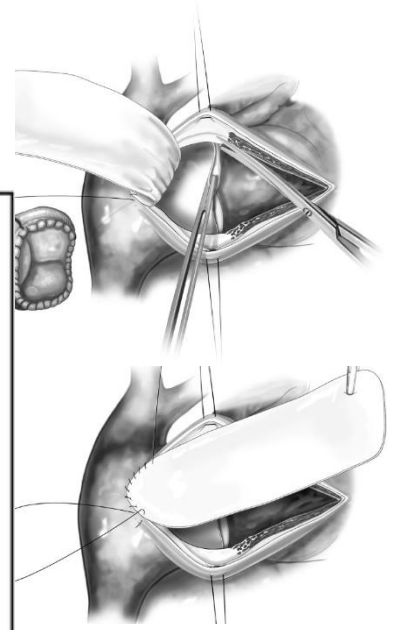
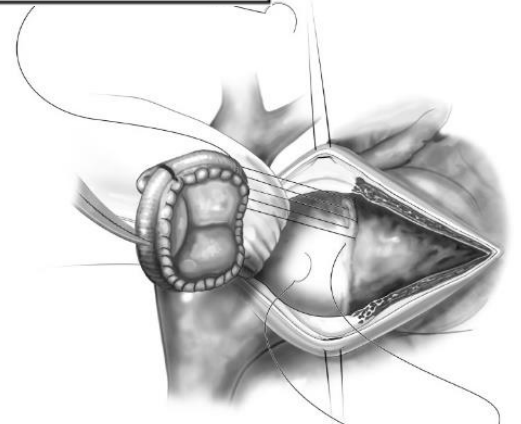
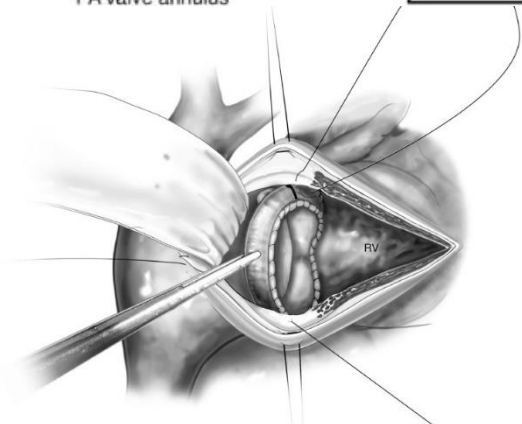
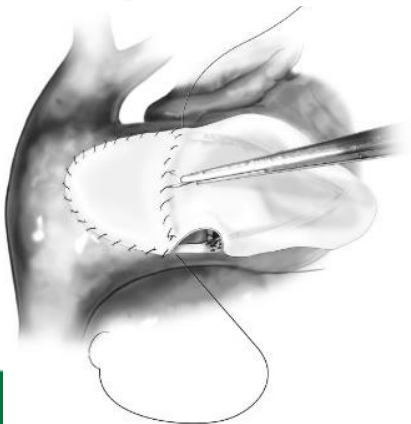
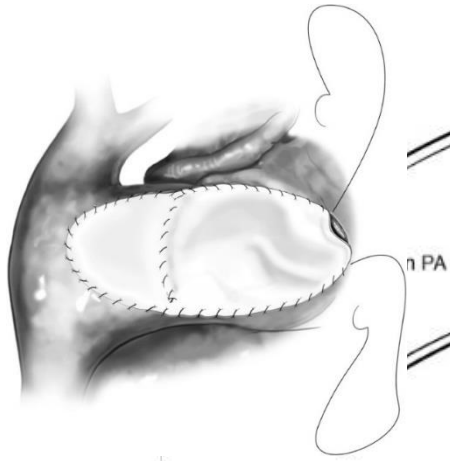
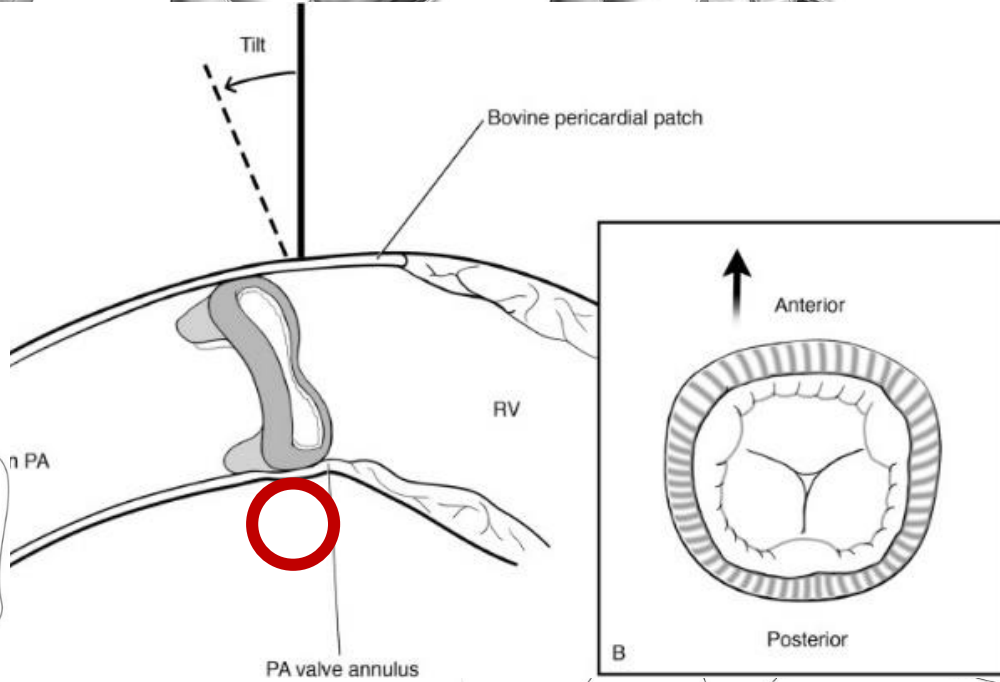
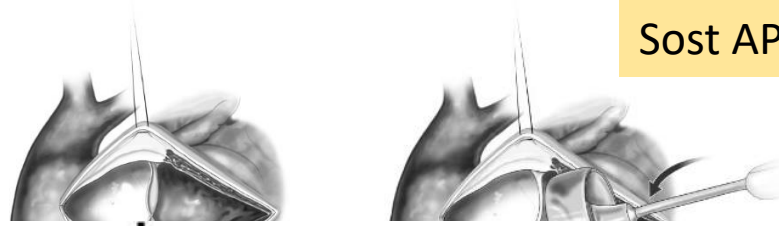
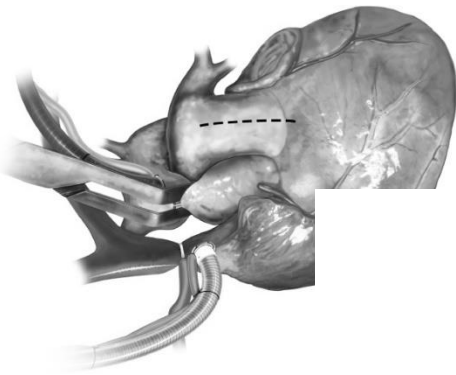
Sost APO e efflusso VDX

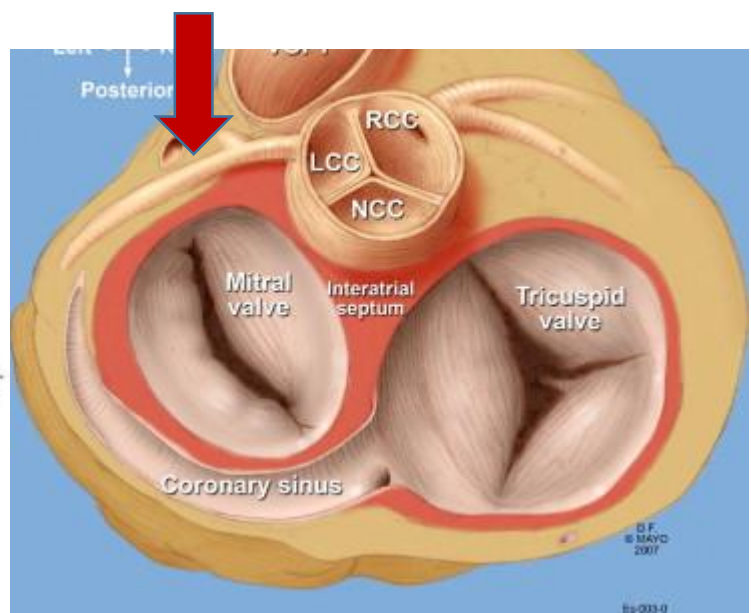
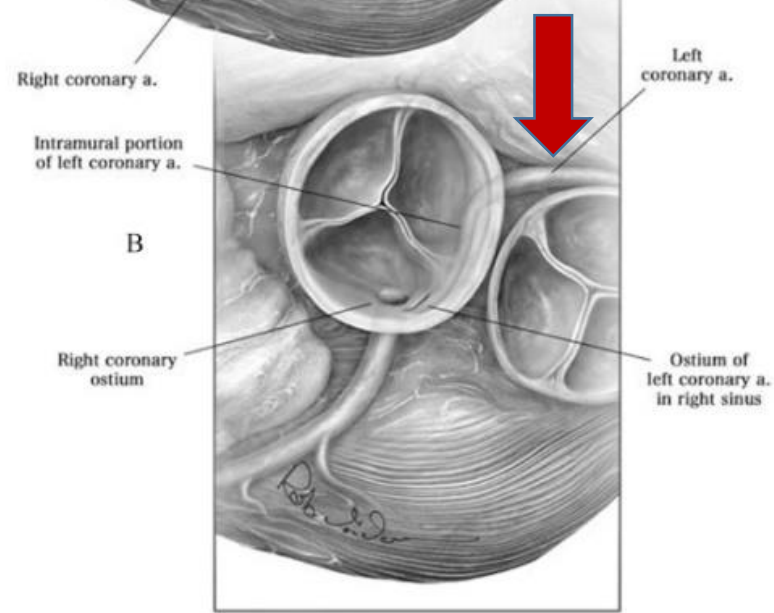
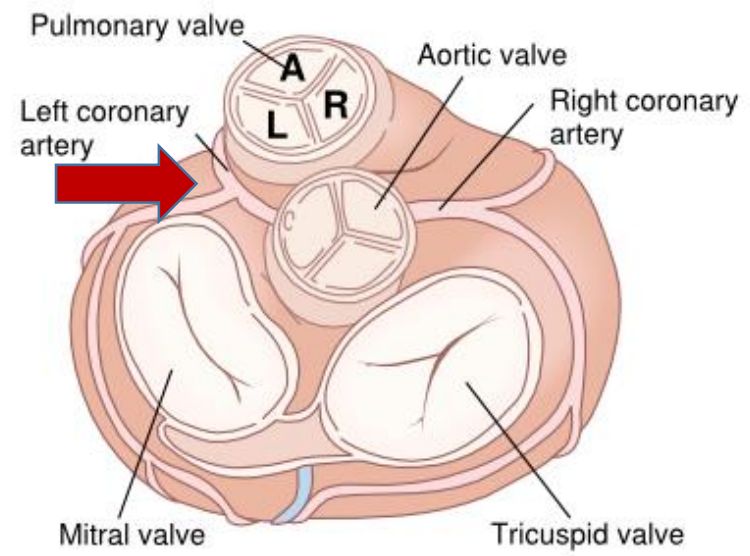
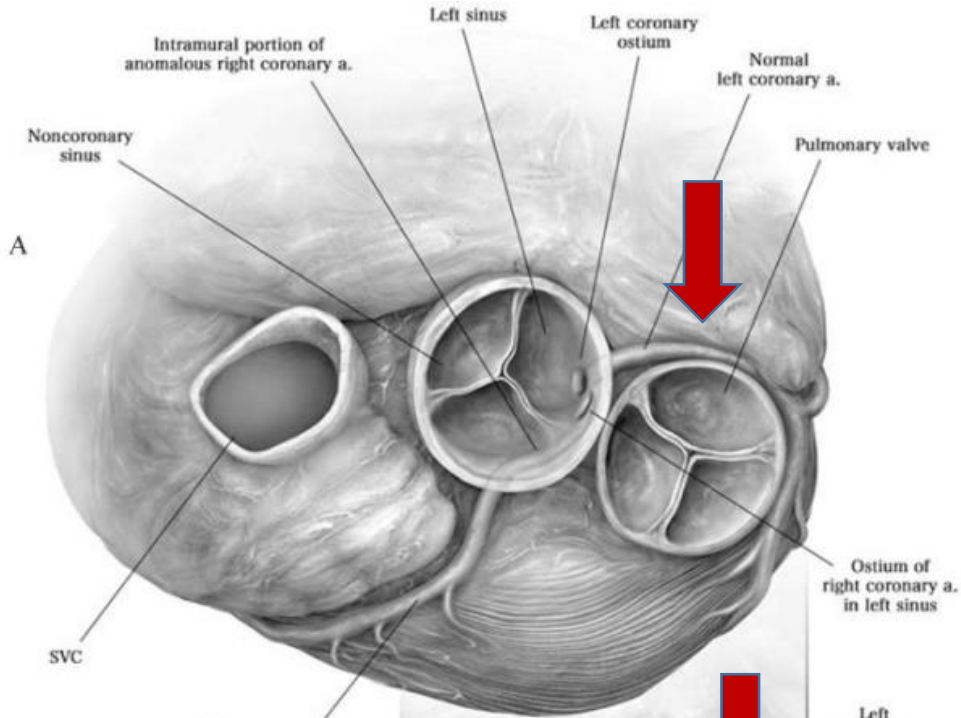




Sost APO e efflusso VDX

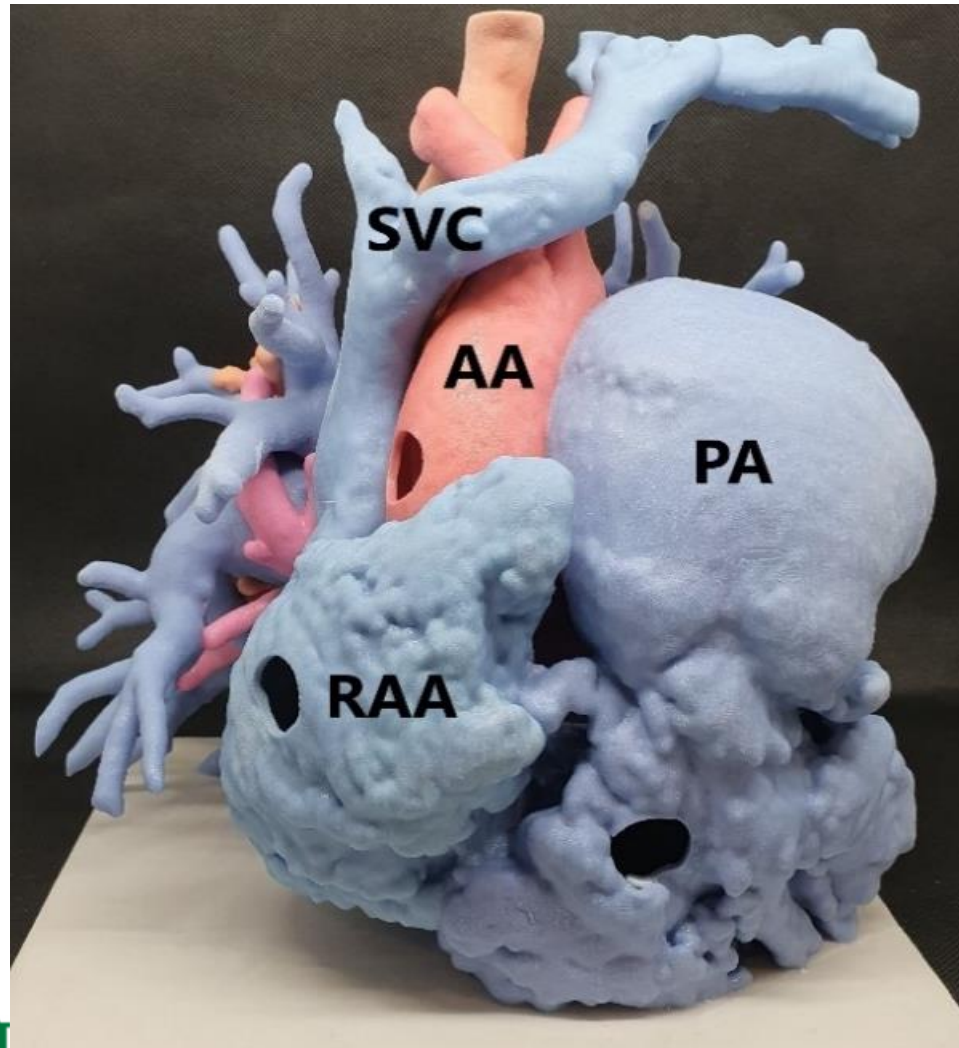


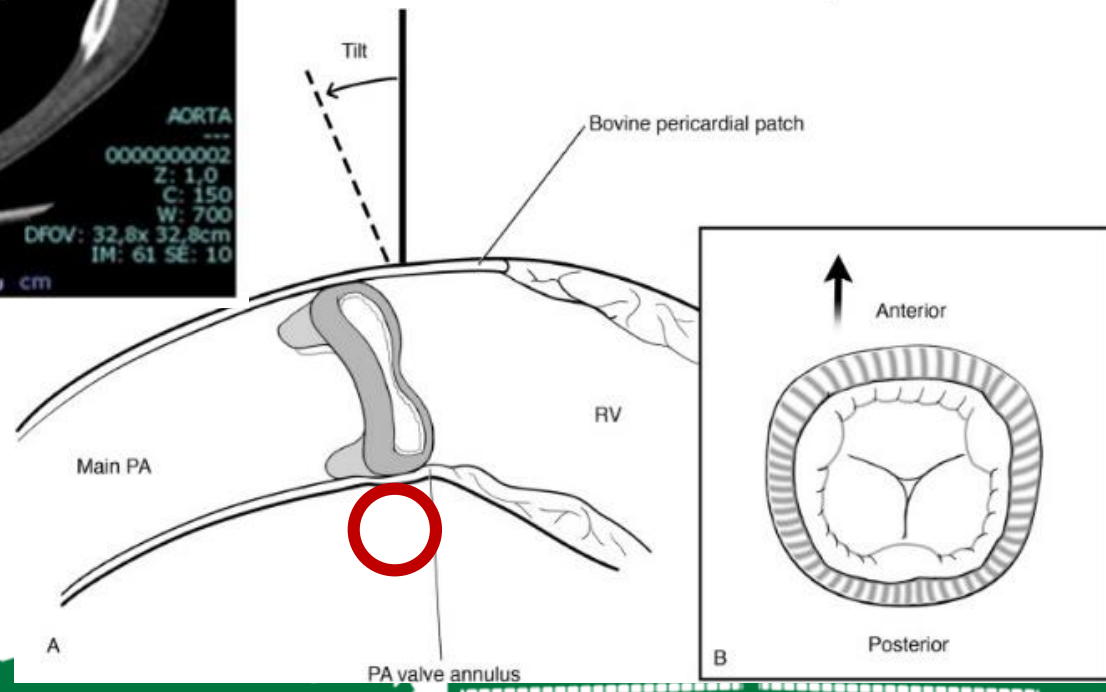
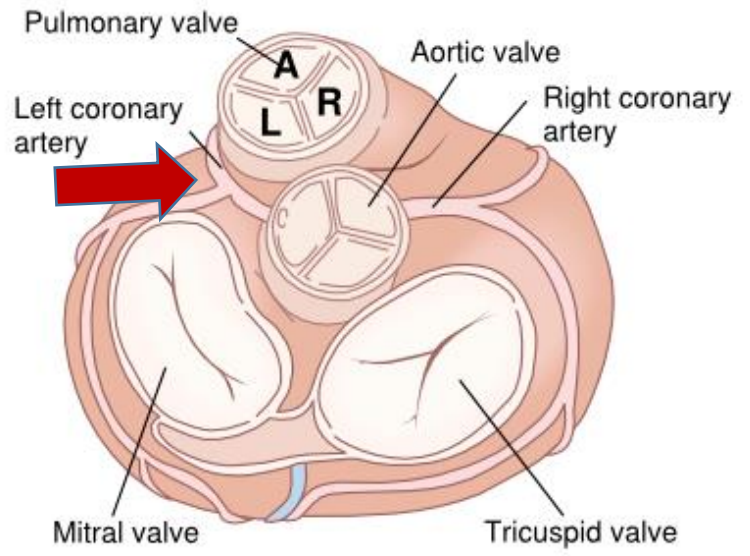
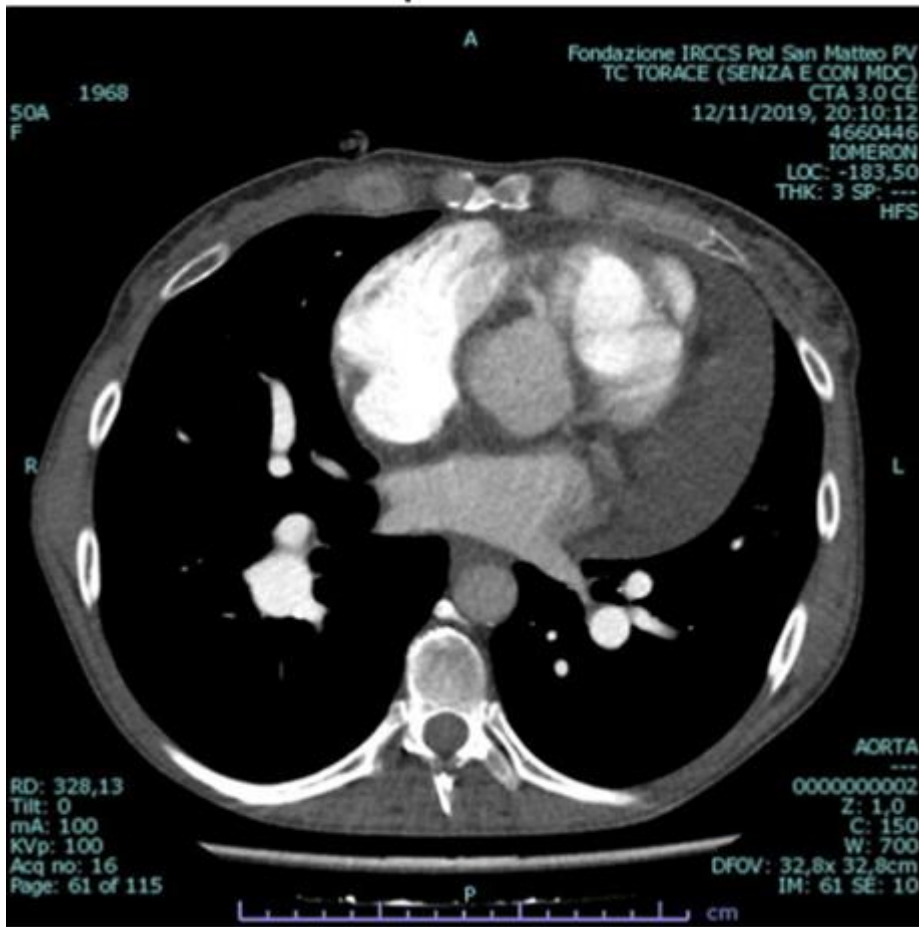


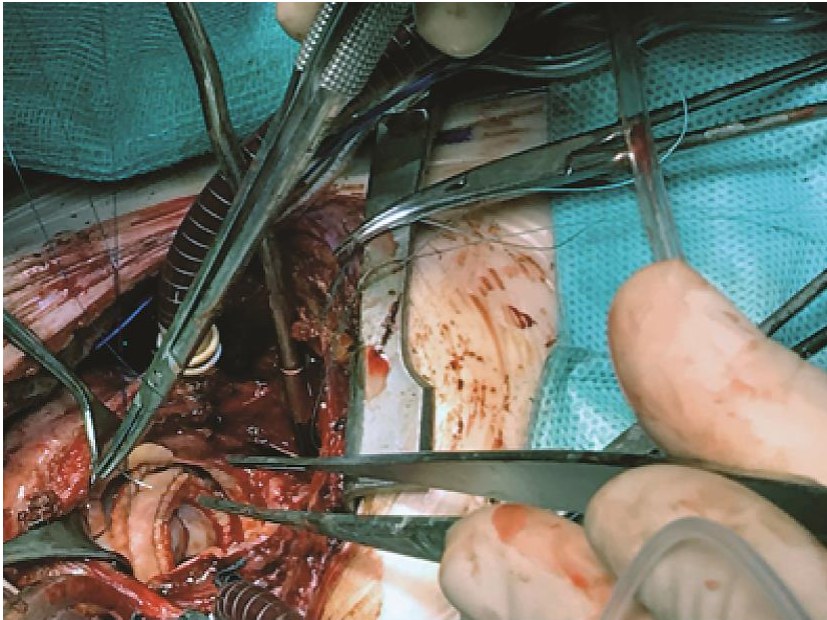




### 3. 3D Printed Model







**Aortic BioConduit**



**No-React® Injectible Pulmonic Valve – designed for use Off Pump**







Dr Stefano Marianeschi



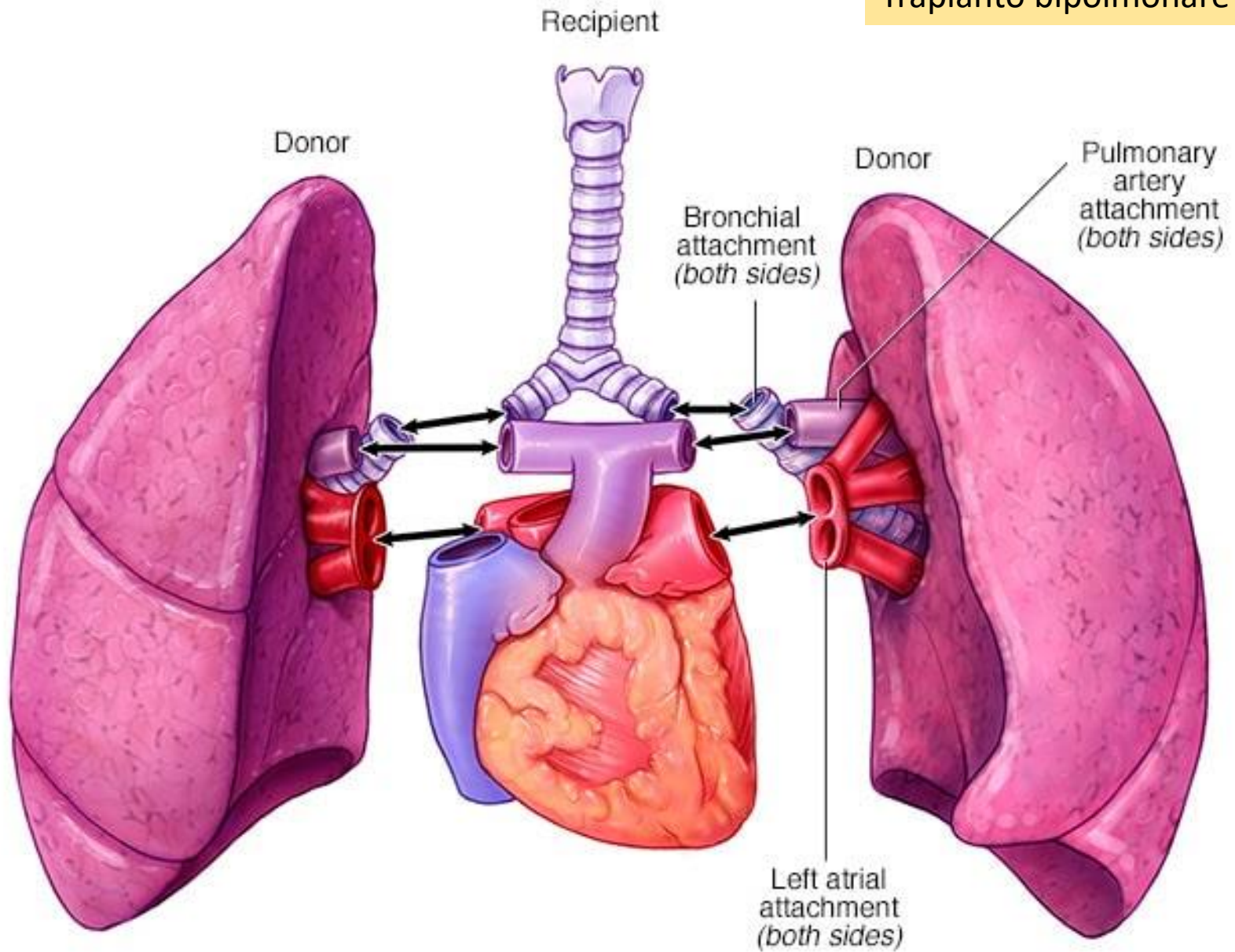
No-React® Injectible Pulmonic Valve – designed for use Off Pump

- Trapianto bipolmonare
- Sostituzione valvolare polmonare
- Plastica arteria polmonare

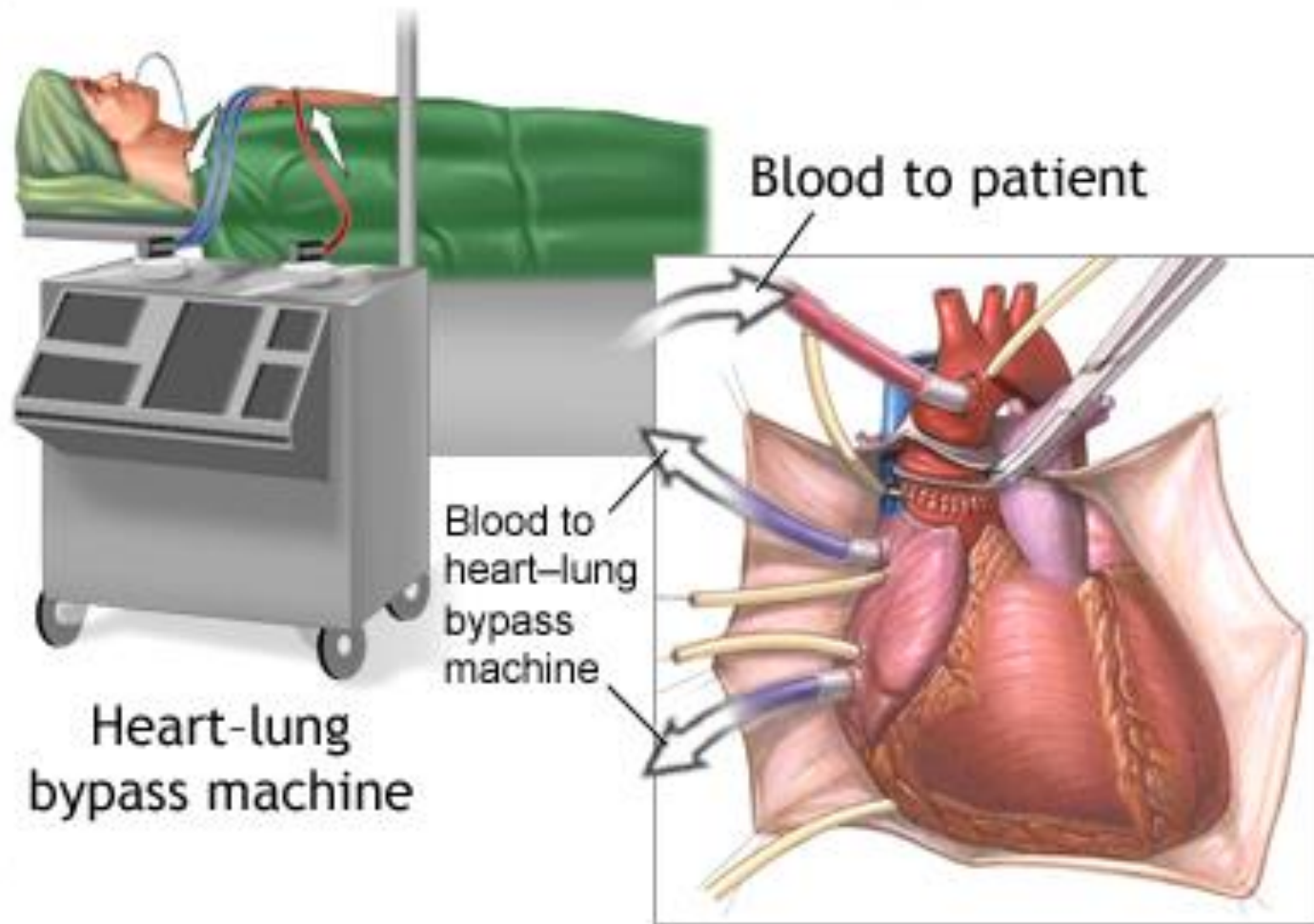


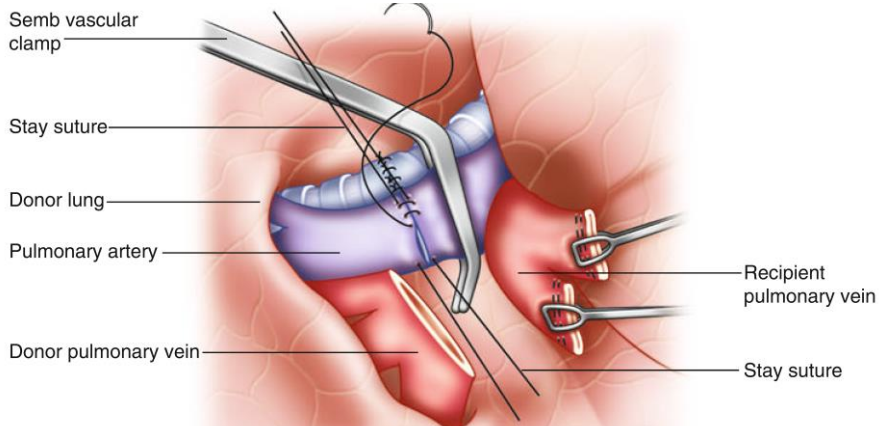
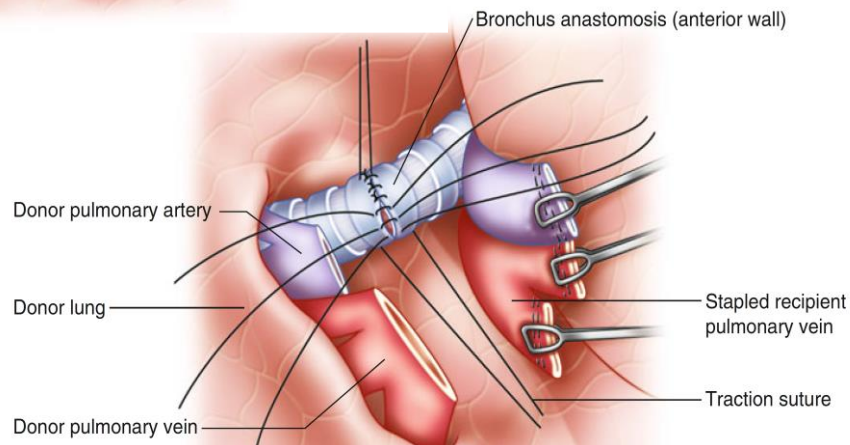
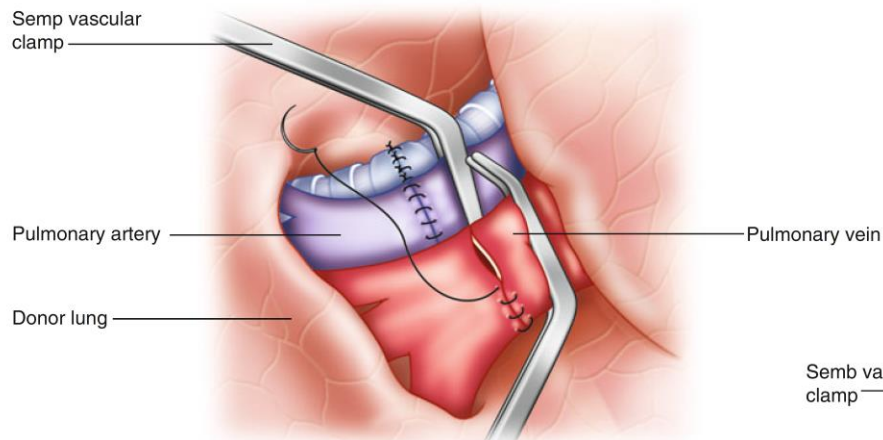
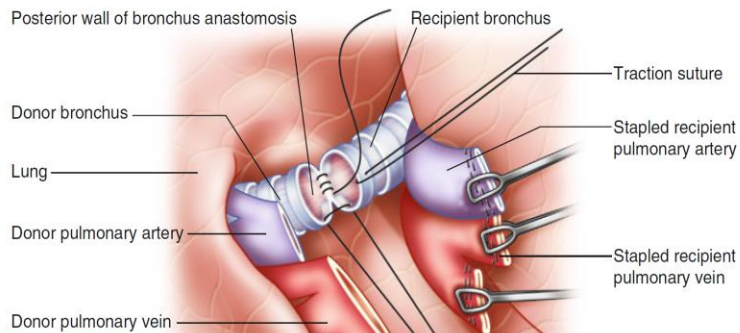
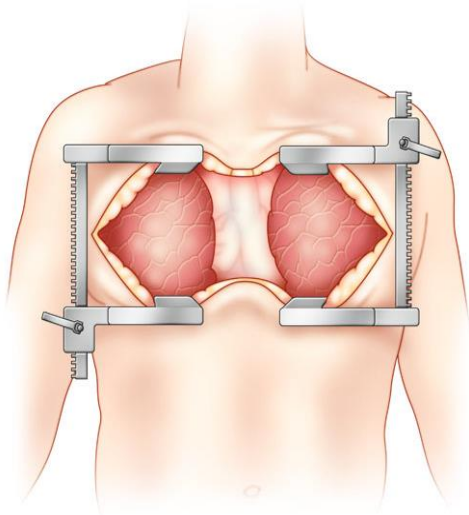
No-React® Injectable Pulmonic Valve – designed for use Off Pump

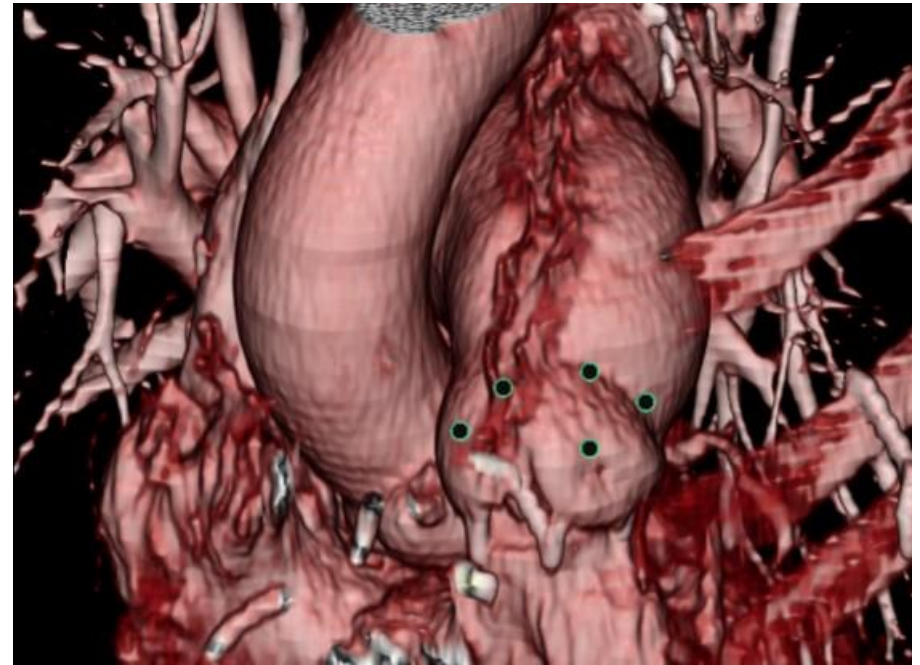
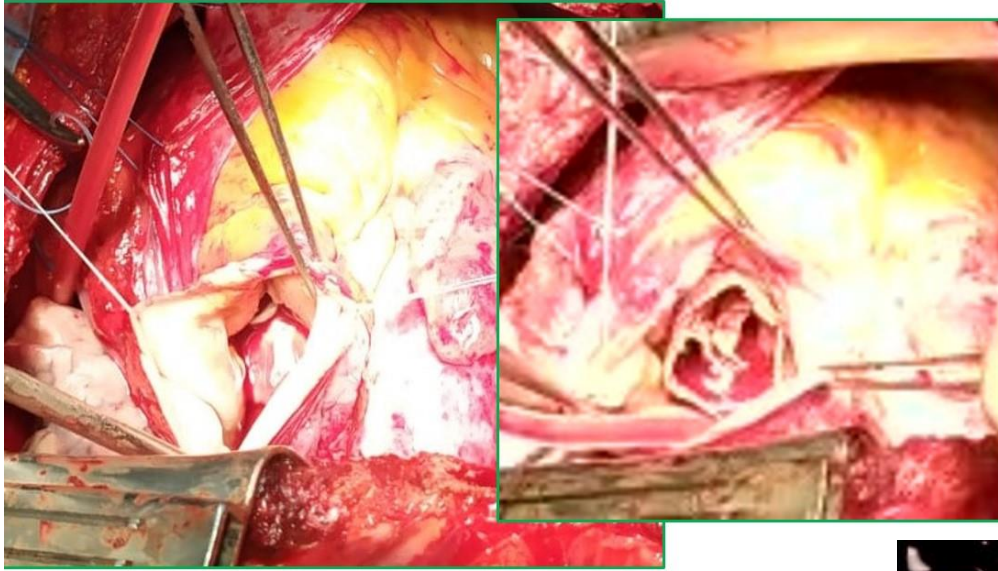
# Trapianto bipolmonare










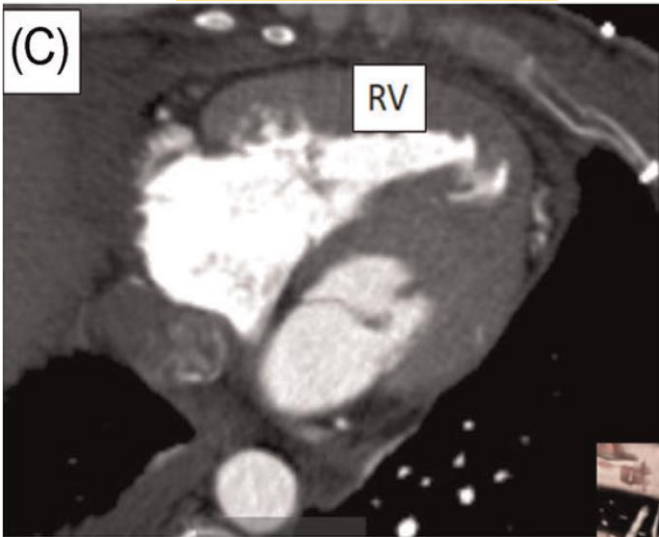
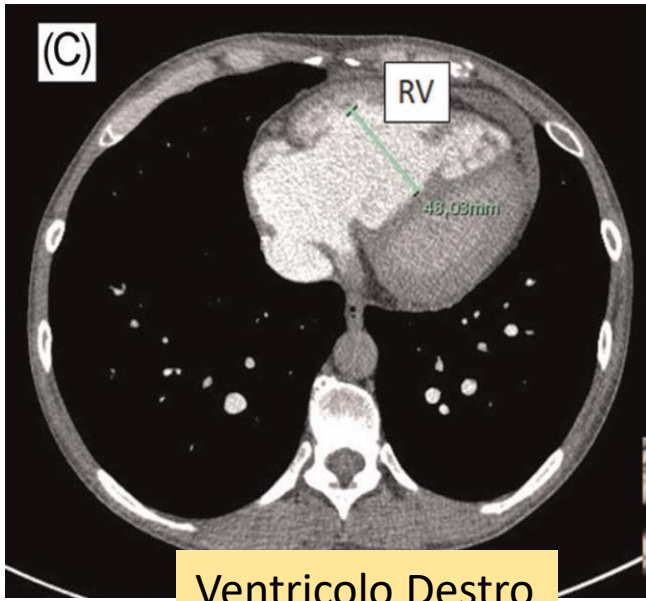


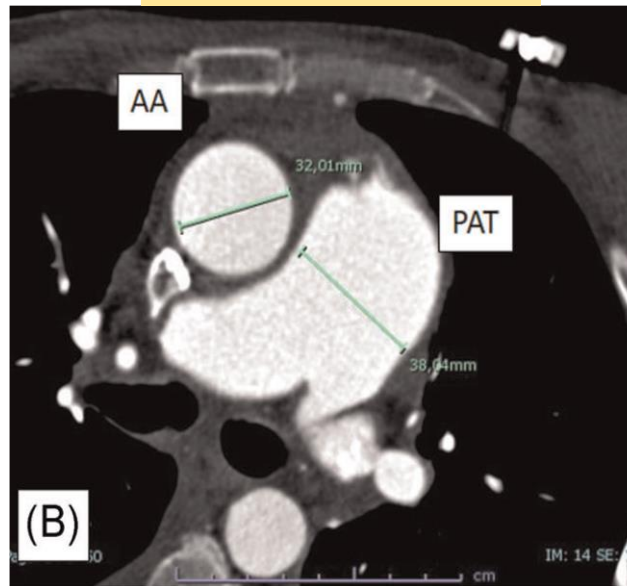
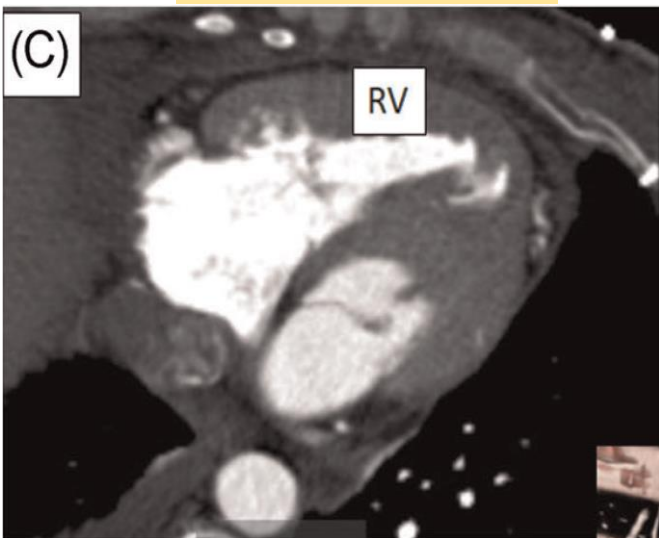
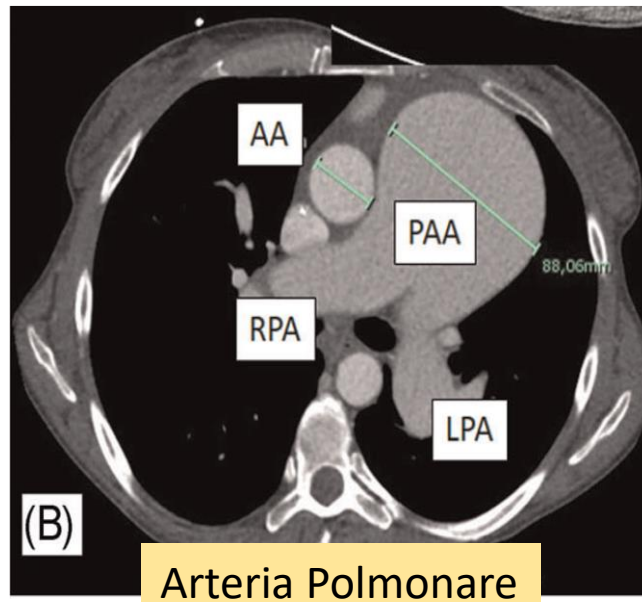
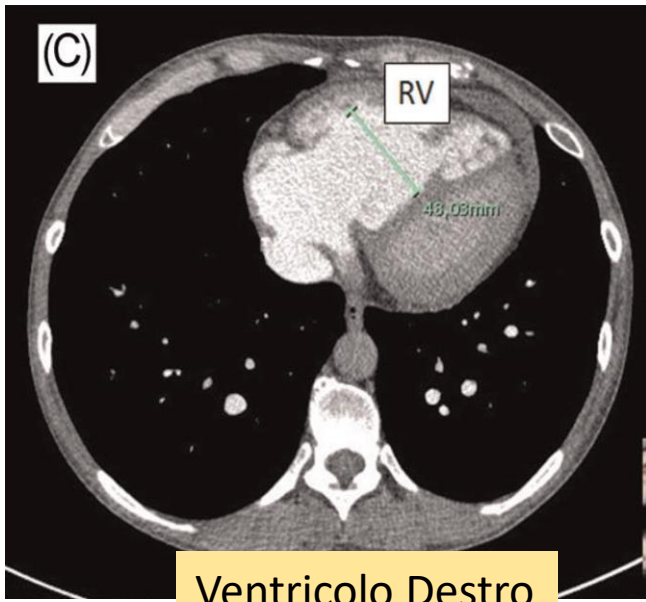


# Is it time for a paradigm shift: Should double-lung transplant be considered the treatment of choice for idiopathic pulmonary arterial hypertension and giant pulmonary aneurysm?

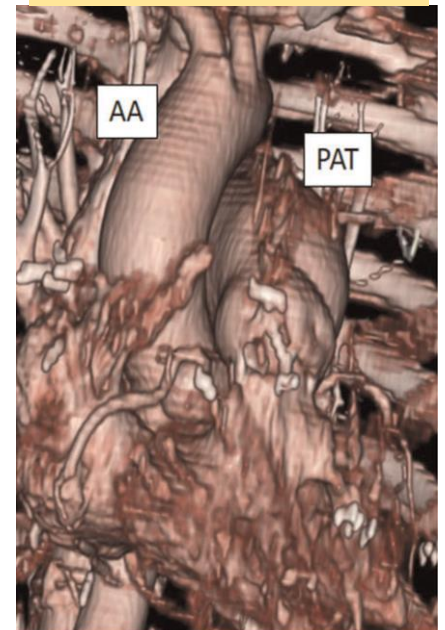
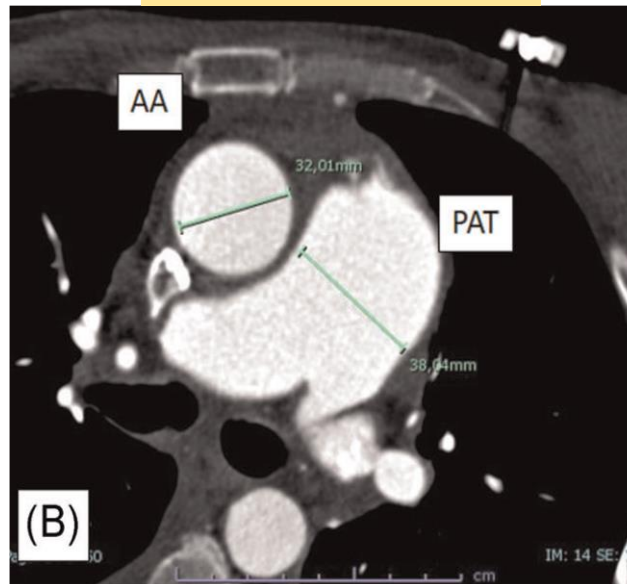
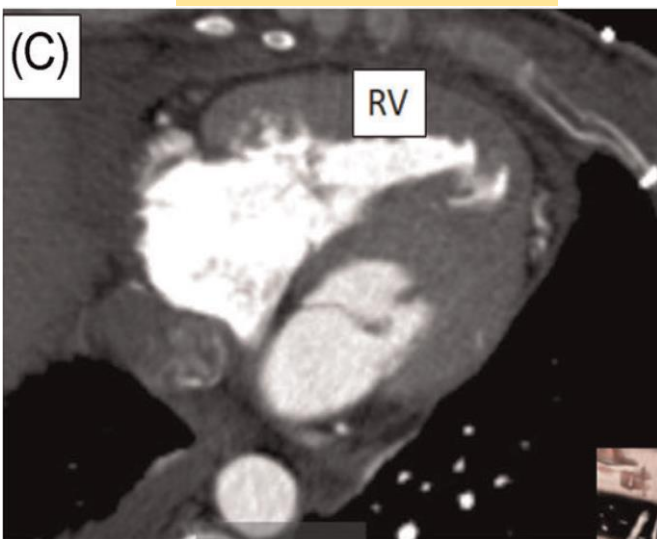
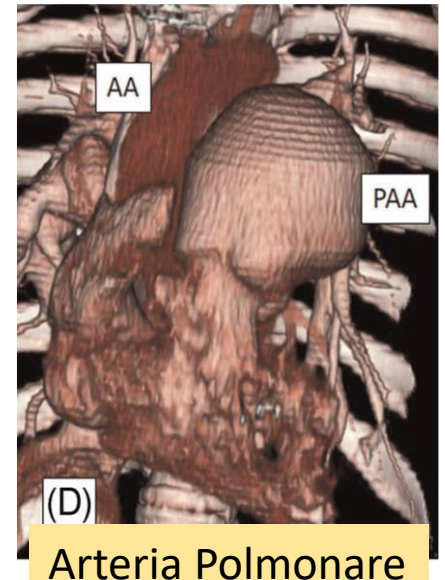
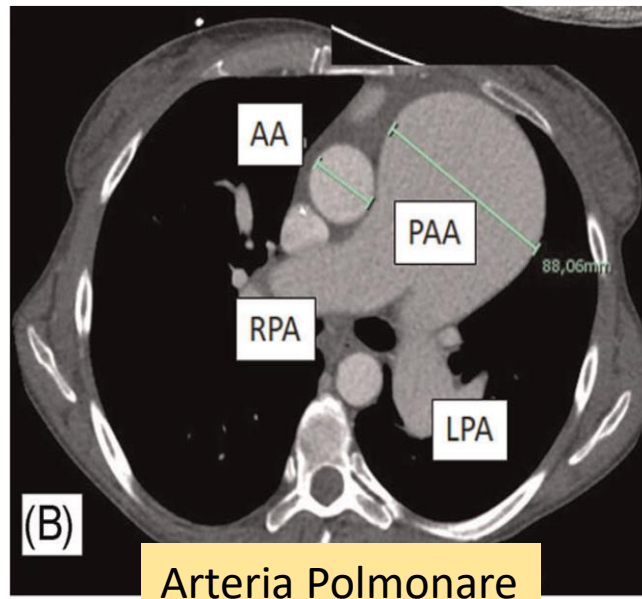
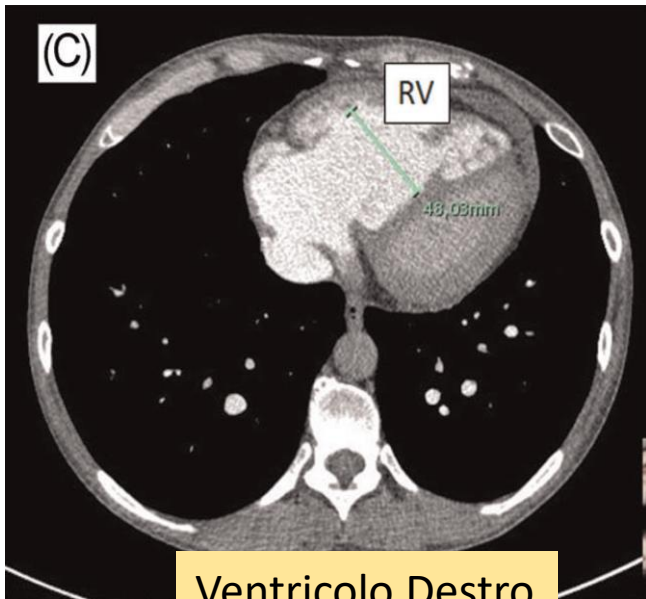
Stefano Pelenghi MD<sup>1</sup> | Cristiano Primiceri MD<sup>2</sup> | Mirko Belliato MD<sup>3</sup> |  
Stefano Ghio MD<sup>4</sup> | Laura Scelsi MD<sup>4</sup> | Pasquale Totaro MD, PhD<sup>1</sup> 











## Rx Torace

29.12.2020

2.2.2021

## OPERATORI

**Primo Chirurgo**

PELENGHI STEFANO

**Altri Chirurghi**

PRIMICERI CRISTIANO, SANNITO MARTA, TOTARO PASQUALE, SILVAGGIO GIUSEPPE

**Anestesisti**

ROSSINI BARBARA, RICCARDI MARIA CHIARA, SOTTOSANTI MARIANGELA

**Strumentisti**

BERGONZI MASSIMO, MERAGLIA RITA, FEROLETO ROSANNA

**Infermieri di Anestesia**

DIBARI ELIANA, TORCHIO ROMINA, COLUCCIA DANIELE

**TRx\_Perfusionisti\_TNF**

GRASSI DILETTA, FORTE MARICA, DORONZO FRANCESCO

**Supporto Disala**

FARRUGGIO CARMELA, CINIERI SILVANO, CARTAFALSA GIUSEPPE





## OPERATORI

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**Primo Chirurgo**

PELENGHI STEFANO

**Altri Chirurghi**

PRIMICERI CRISTIANO, SANNITO MARTA, TOTARO PASQUALE, SILVAGGIO GIUSEPPE

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ROSSINI BARBARA, RICCARDI MARIA CHIARA, SOTTOSANTI MARIANGELA

**Strumentisti**

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**InfermieridiAnestesia**

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**TRx\_Perfusionisti\_TNF**

GRASSI DILETTA, FORTE MARICA, DORONZO FRANCESCO

**Supportodisala**

FARRUGGIO CARMELA, CINIERI SILVANO, CARTAFALSA GIUSEPPE



# GRAND ROUNDS CLINICI DEL MERCOLEDÌ

## con il Policlinico San Matteo

Sistema Socio Sanitario



Regione  
Lombardia



Fondazione IRCCS  
Policlinico San Matteo

ATS Pavia

Aula Magna "C. Golgi"  
& WEBINAR

26 Ottobre 2022

*Federica Meloni*

Un caso "*singolare*" di trapianto polmonare



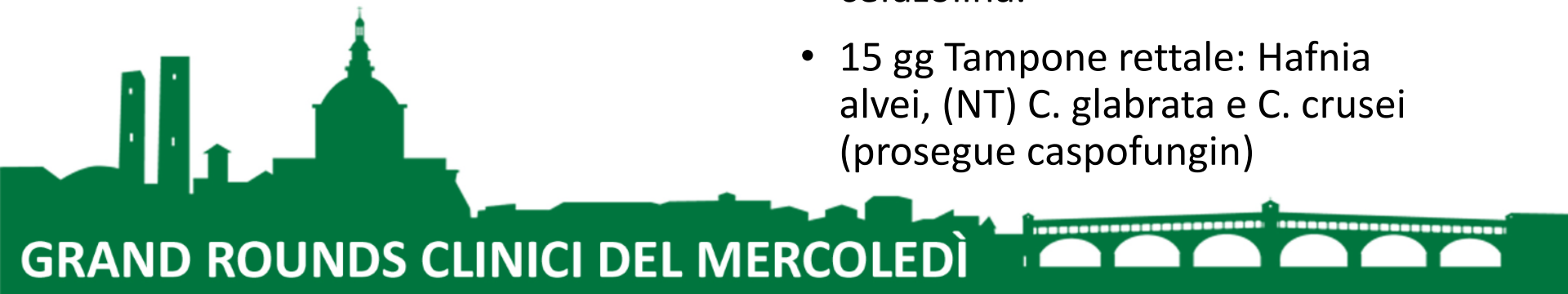
# early -post Tx

Data Trapianto:  
30/12/2020

- Necessità di **carico volemico** (colloidi/cristalloidi e GR+PI) → PGD grado 2 a 48 ore
- estubazione **in 8°POD**
- Rimozione drenaggi **11°POD**
- 3 episodi di FA ad elevata risposta ventricolare cardiovertiti farmacologicamente con ripristino di RS.
- Danno renale acuto (non Ultrafiltrata)
- Scarso controllo pressorio avviato ramipril

## Infezioni:

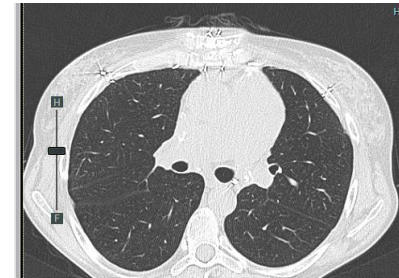
- Isolamento sul BAL del donatore di **K. oxytoca MS**.
- Profilassi periooperatoria: vancomicina, piperacillina/tazobactam, aciclovir e caspofungin.
- 9° gg BAS: positivo per **Geotricum e C. glabrata** a bassa carica → amfotericina B liposomiale inalatoria + copertura antibiotica con cefazolina.
- 15 gg Tampone rettale: Hafnia alvei, (NT) C. glabrata e C. crusei (prosegue caspofungin)





# 15-30 gg cuore

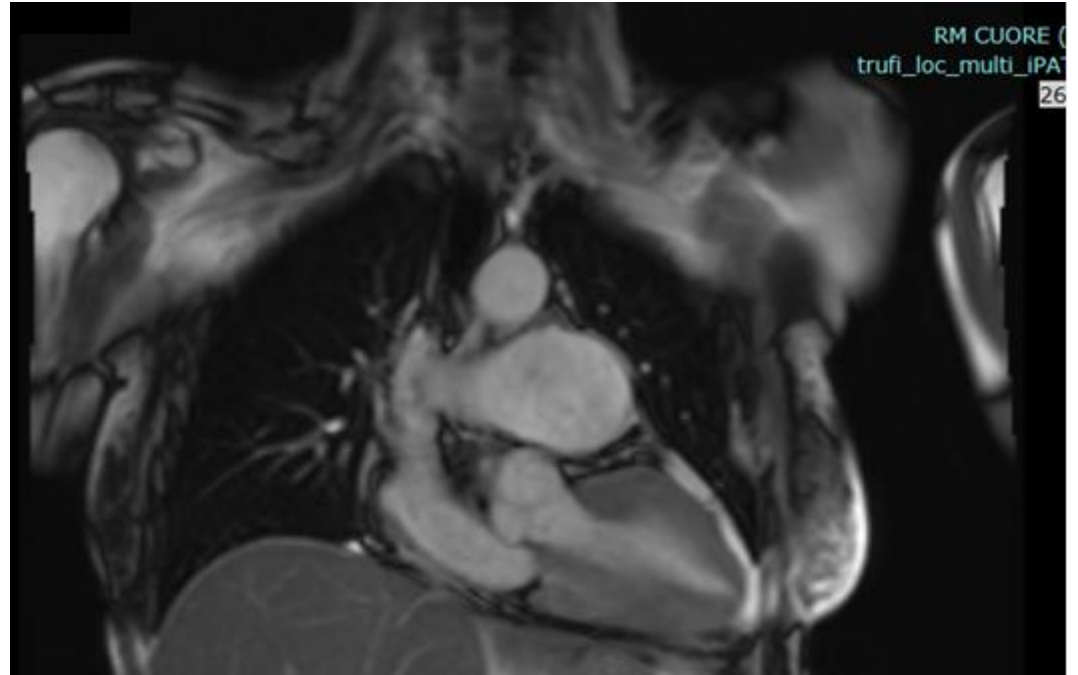
- Il **24 ggTC torace** .....modesto diffuso ispessimento delle pareti bronchiali... tre focali aree a vetro smerigliato all'apice di destra ....**Ridotta dilatazione delle camere cardiache di destra e del diametro del ventricolo di destra; permane ipertrofia della parete libera; protesi valvolare polmonare in sede. Riduzione del tronco comune dell'arteria polmonare (46 mm vs 81 mm), ...brusco salto di calibro dell'anastomosi arteria polmonare.**



- **Ecocardiogramma 35 gg:** PAPs non stimabili, **VD non dilatato, ipertrofico, lievemente ipocinetico.** Esiti di protesi valvolare polmonare con lieve accelerazione del gradiente anterogrado .....**Lieve dilatazione atriale destra. VS con moderata ipertrofia parietale concentrica e FE conservata. Minima rettilineizzazione del setto IV.** .....







RMN cuore (45 gg) ....normalizzazione

delle volumetrie e cinesi ai limiti

inferiori; dilatazione del tronco comune della

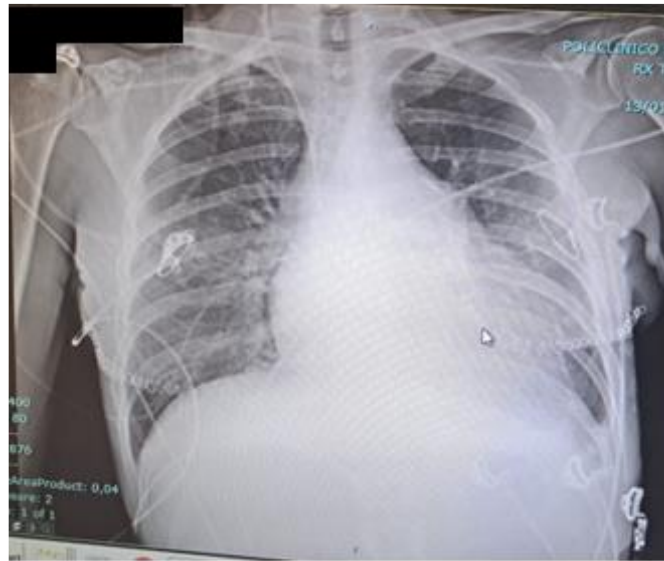
a. polmonare; ..... **Valori di normalità**



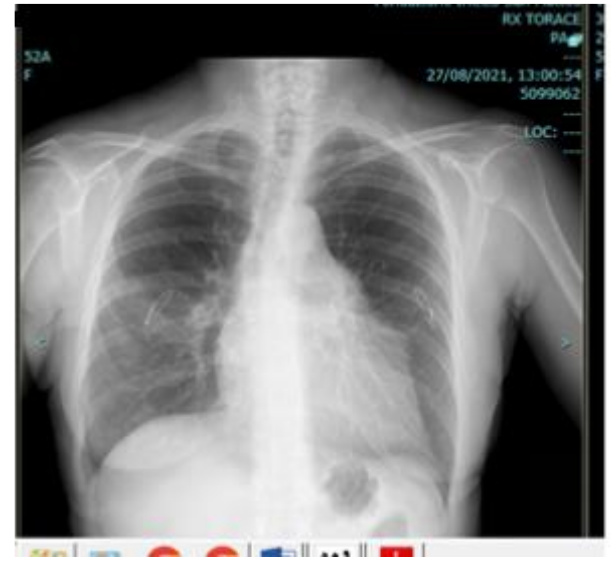
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**-1**



**+14**



**+32**



# E dopo? → 23 mesi Post Tx

- Cefalea
- Lieve riattivazione EBV --> esclusa PTLD
- Neutropenia severa (5M) HV6( analisi del bulbo pilifero: virus integrato) ↑
- Switch MMF → everolimus per neutropenia → sospensione everolimus (cefalea) → ripresa MMF bassa dose NORMALIZZAZIONE conta neutrofilica
- FBS sorveglianza con BAL e BTB negative a 3/6 e 12 mesi non complicanze infettive o immunologiche





## STABILITA' FUNZIONALE DEL GRAFT

Mese post TX	3	4	5	6	7	8	9	10	11	14	17	21
FEV1	2.93	3.03	3.12	2.95	3.01	3.03	3.17	3.11	3.11	3,13	3.18	3.15
% best	105	109	126	106.4	106	107	114	113	113	112	114	114

