



# Surgical approaches for CO-A

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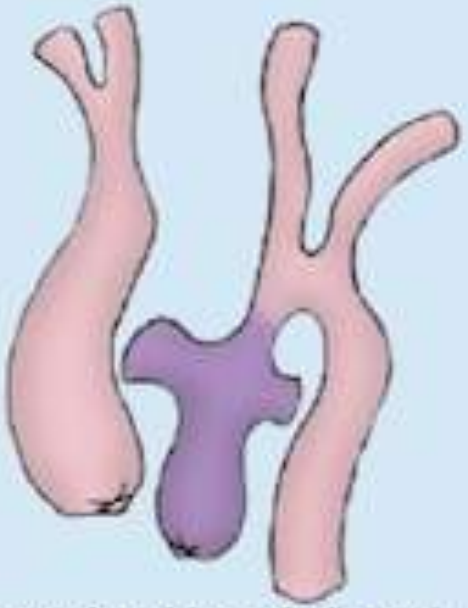
Esfand 95, Feb. 2017

Interruption

At isthmus

Between left common carotid and left subclavian artery



Between brachiocephalic and left common carotid artery

# ACC/AHA 2008 Guidelines for the Management of Adults With Congenital Heart Disease: Executive Summary

**A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Develop Guidelines for the Management of Adults With Congenital Heart Disease)**

## Recommendations for Interventional and Surgical Treatment of Coarctation of the Aorta in Adults

- *Class I*

1. Intervention for coarctation is recommended in the following circumstances:

   a. Peak-to-peak coarctation gradient greater than or equal to 20 mm Hg. (*Level of Evidence: C)*

   b. Peak-to-peak coarctation gradient less than 20 mm Hg in the presence of anatomic imaging evidence of significant coarctation ( > 50% stenosis) with radiological evidence of significant collateral flow. (*Level of Evidence: C)*

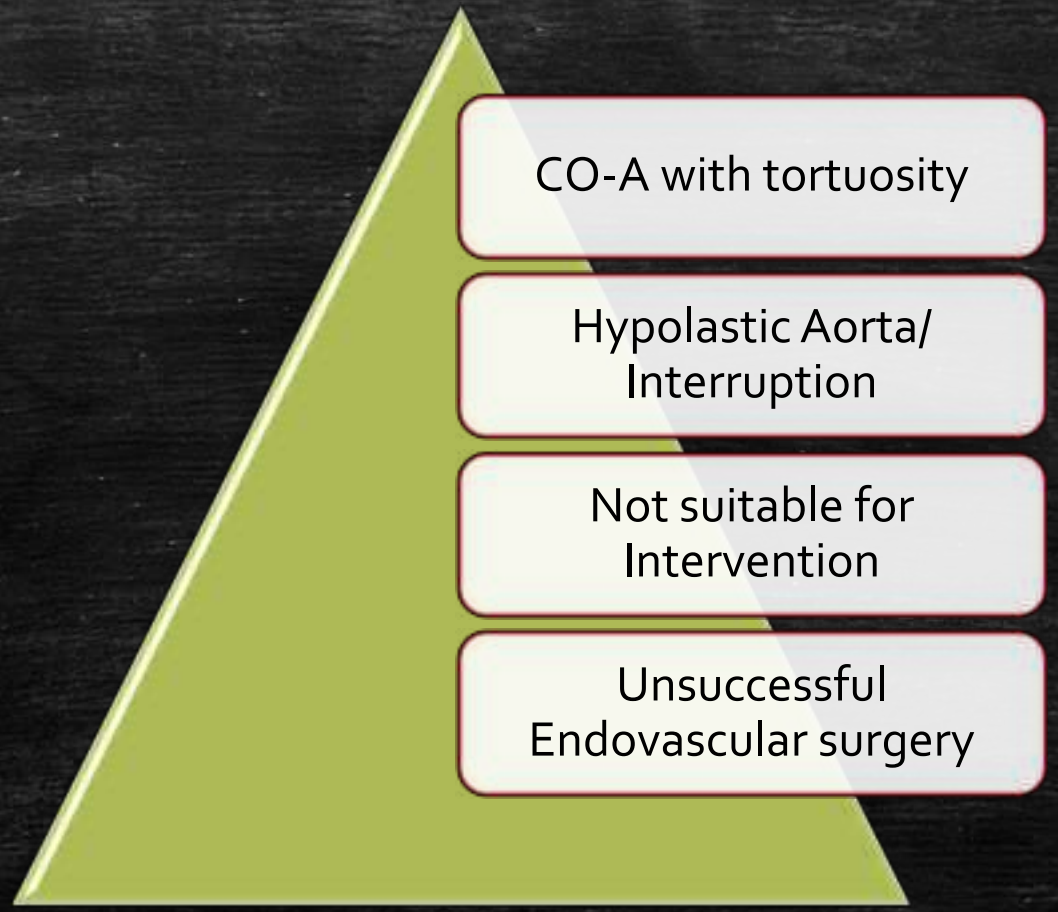
## Recommendations for Interventional and Surgical Treatment of Coarctation of the Aorta in Adults

- *Class 1*

2. Percutaneous catheter intervention is indicated for recurrent, discrete coarctation and a peak-to-peak gradient of at least 20 mm Hg. (*Level of Evidence: B)*

3. Surgeons with training and expertise in CHD should perform operations for previously repaired coarctation and the following indications:)
   a. Long recoarctation segment. (*Level of Evidence: B)*
   b. Concomitant hypoplasia of the aortic arch. (*Level of Evidence: B)*

# Other indications?



# Management Plan?

- Age at presentation
- Complexity of the coarctation
- Native Co-A
- recurrent obstruction

# Infant or young child

**Surgery**

Due to:

- longterm risk of aneurysm after balloon angioplasty,
- the need for redilation with stent placement, and
- the limitations imposed by small arteries unable to accommodate larger sheath sizes

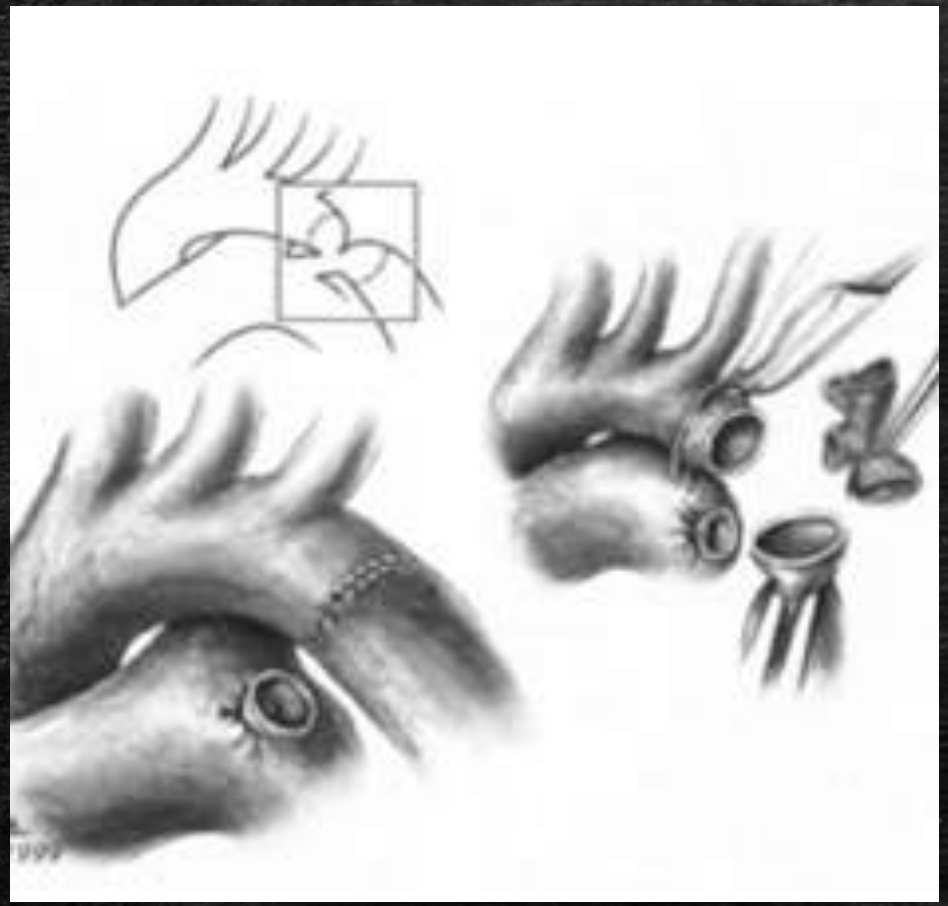
# Intervention role?


Balloon angioplasty can be considered as a palliative strategy

**to stabilize neonates presenting in extremis and considered too sick for immediate surgical intervention**

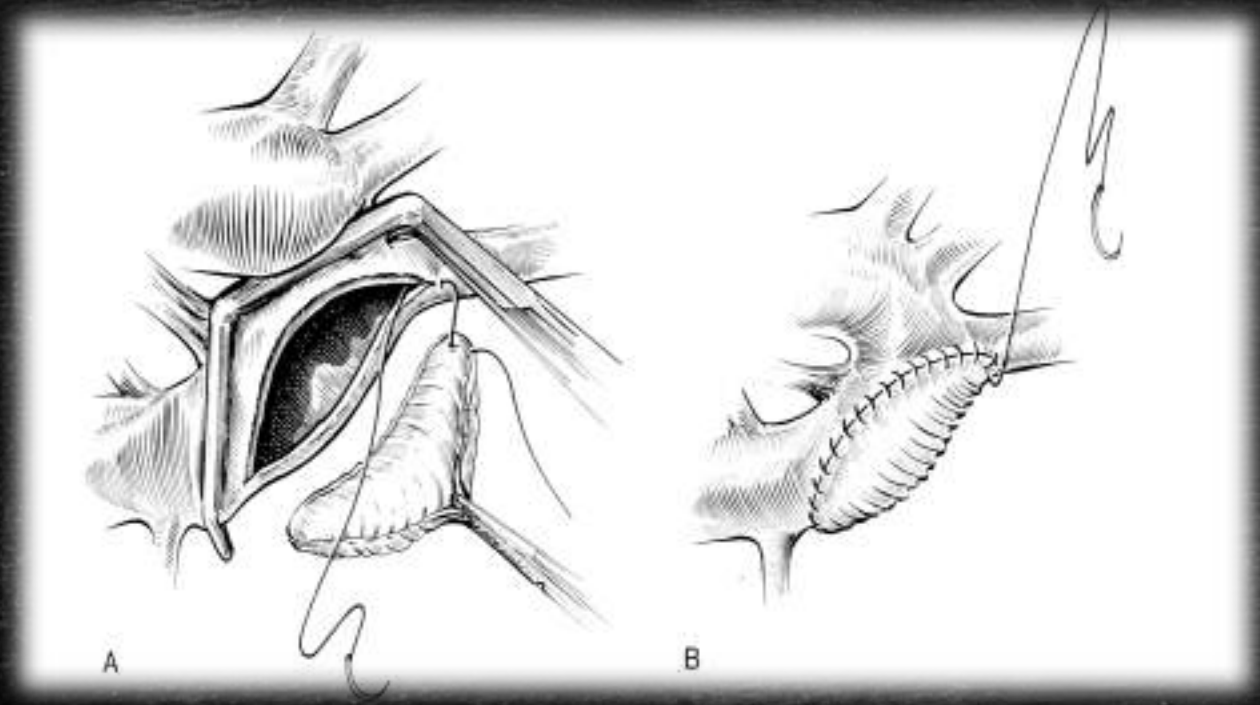

# Different Surgical Approaches

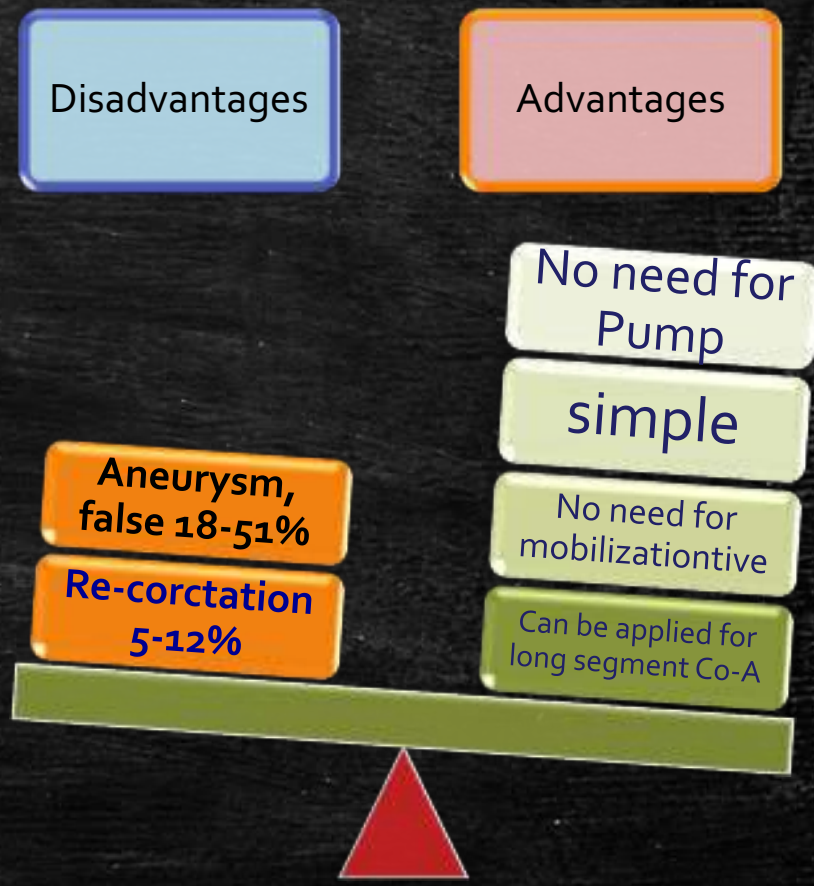
## Endtoend anastomosis by Crafoord in 1944



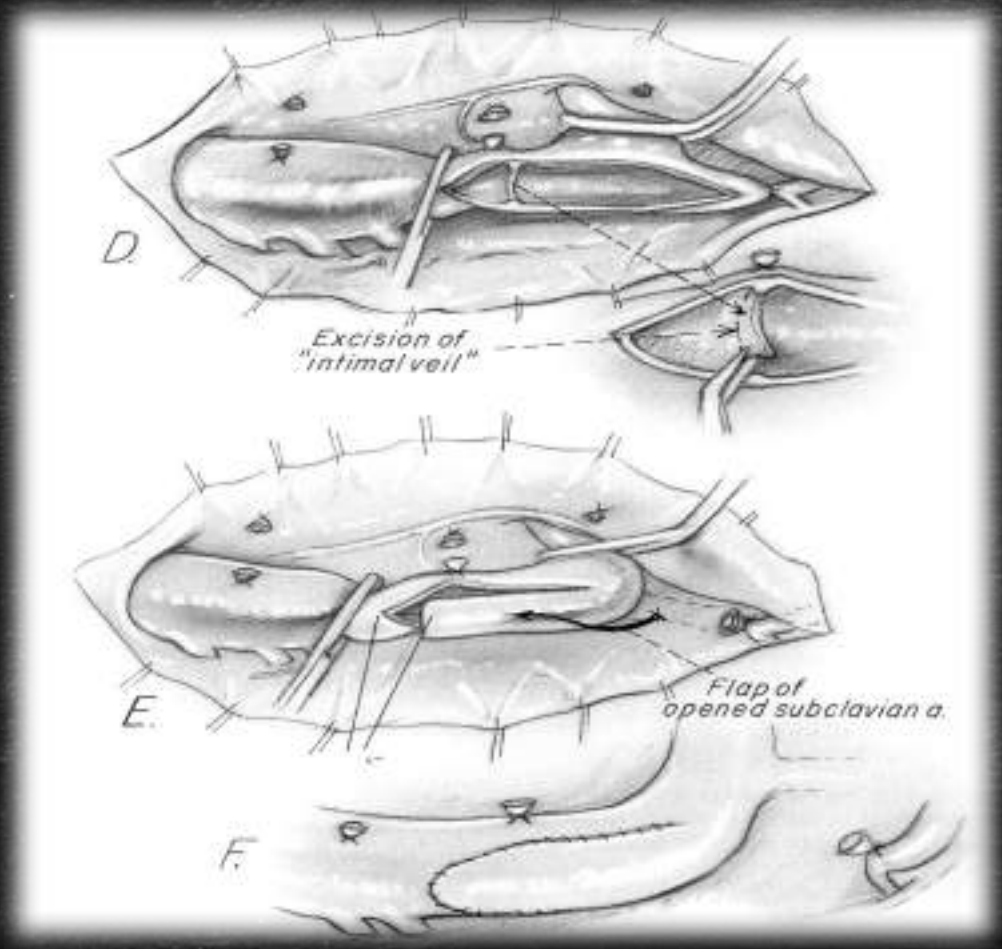
- Recoarctation rates in over 50% of patients

# Prosthetic patch aortoplasty by Vosschulte 1961



Subclavian flap aortoplasty by Waldhausen and Nahrwold in 1966.




- avoids a circumferential suture line
- Avoid and the use of prosthetic material,
- allow for improved growth,
- can be used for repair of long segment coarctation
- **Although still occasionally used by surgeons, one of the main reservations of this approach has been the need to sacrifice the left subclavian artery.**

# Resection and interposition graft by Gross in 1951

- . This approach is rarely used in the current era for kids, as it is not ideal for pediatric patients due to growth limitations.

- However occasionally it is an appropriate technique for adult

# Extended endtoend anastomosis by Amato 1977


Avoids the use of prosthetic material

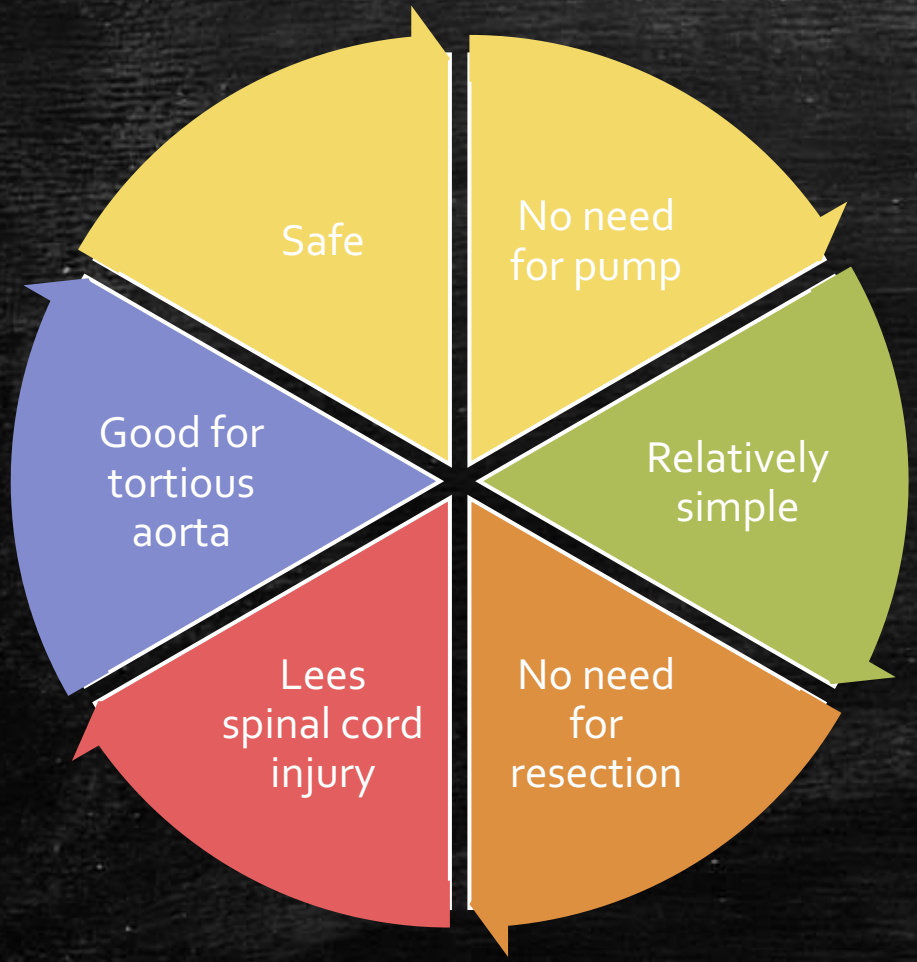
Allows resection of the coarctation and residual ductal tissue

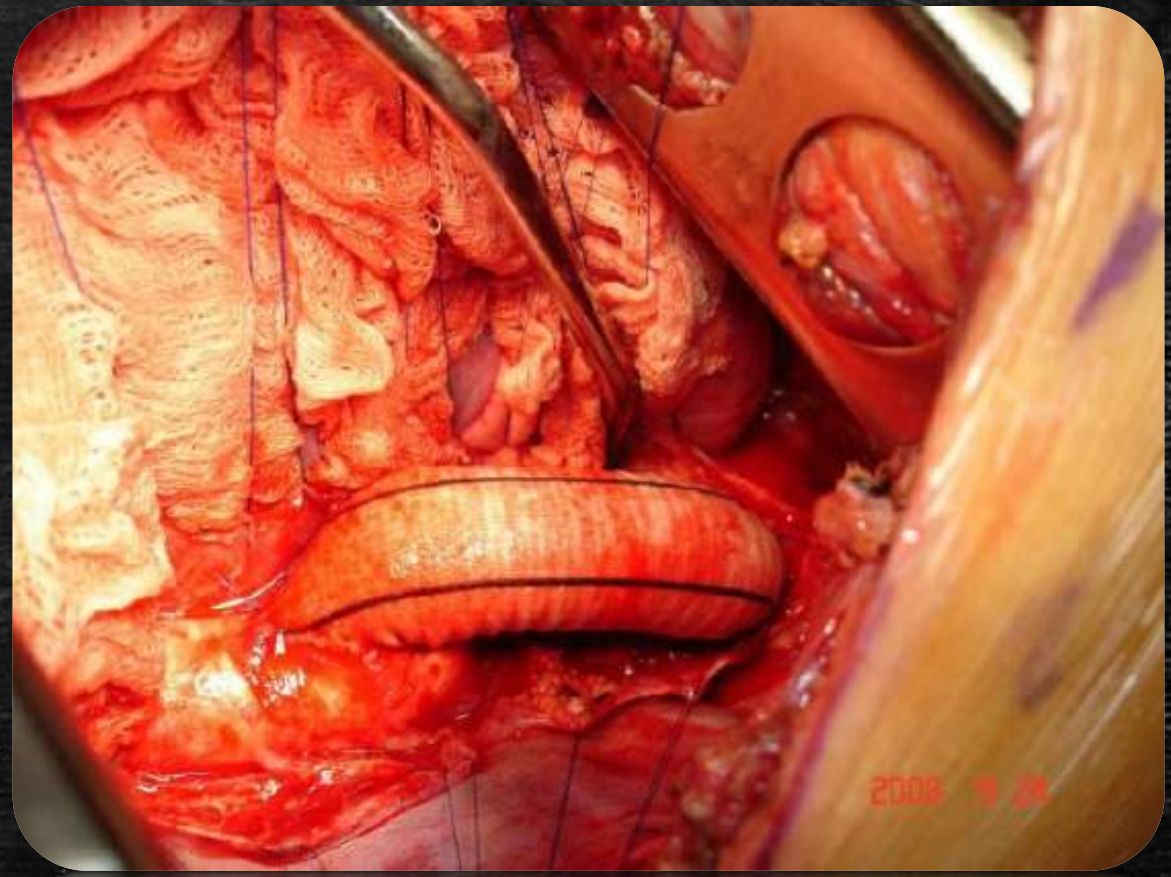
less prone to restenosis

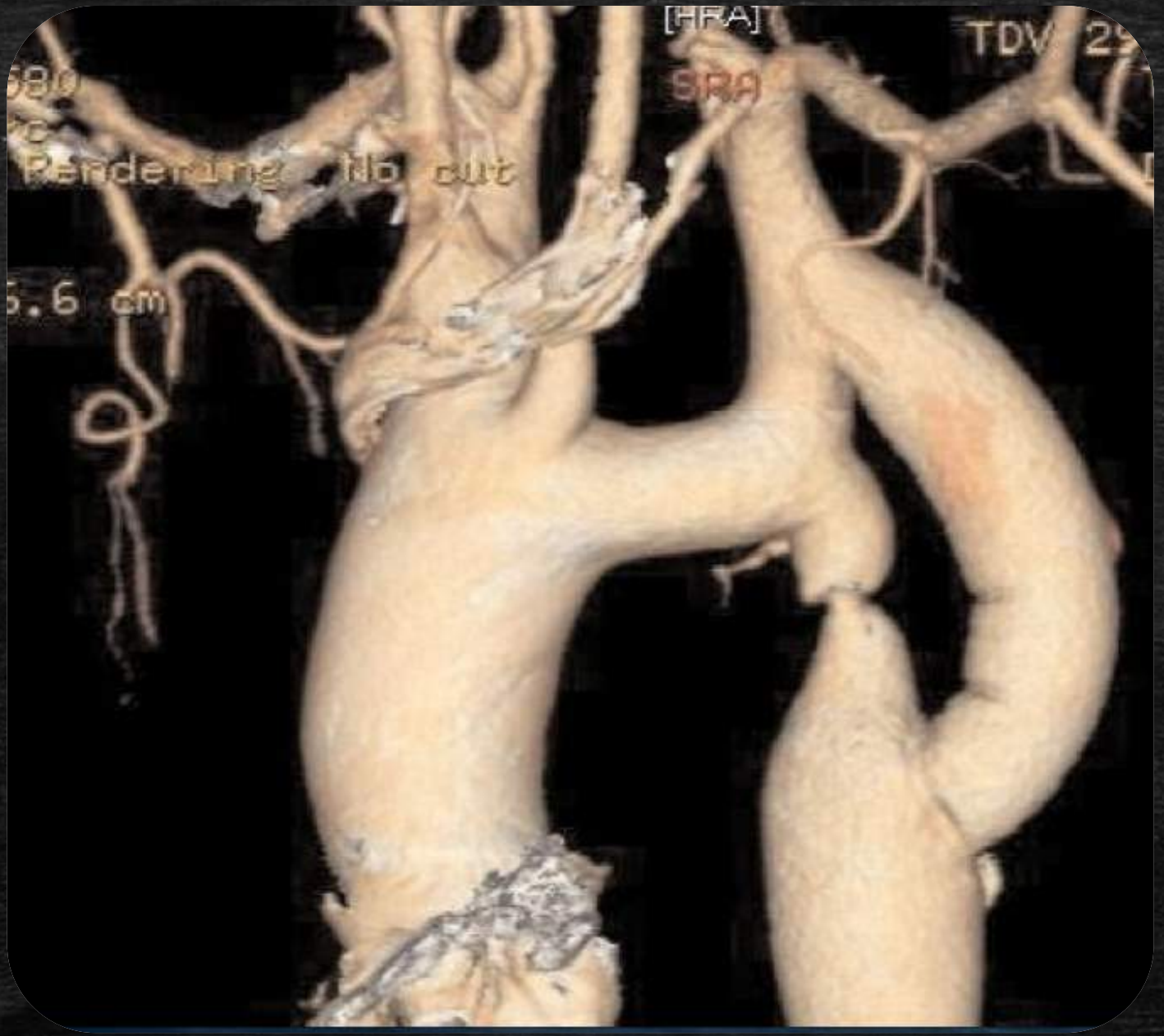
enables enlargement of the transverse aorta, which is particularly helpful in neonates

In the present era, extended endtoend anastomosis is typically the preferred technique for surgical repair, especially in small children, due to low mortality rates and low rates of restenosis, ranging between 4%11%

# Bypass grafts

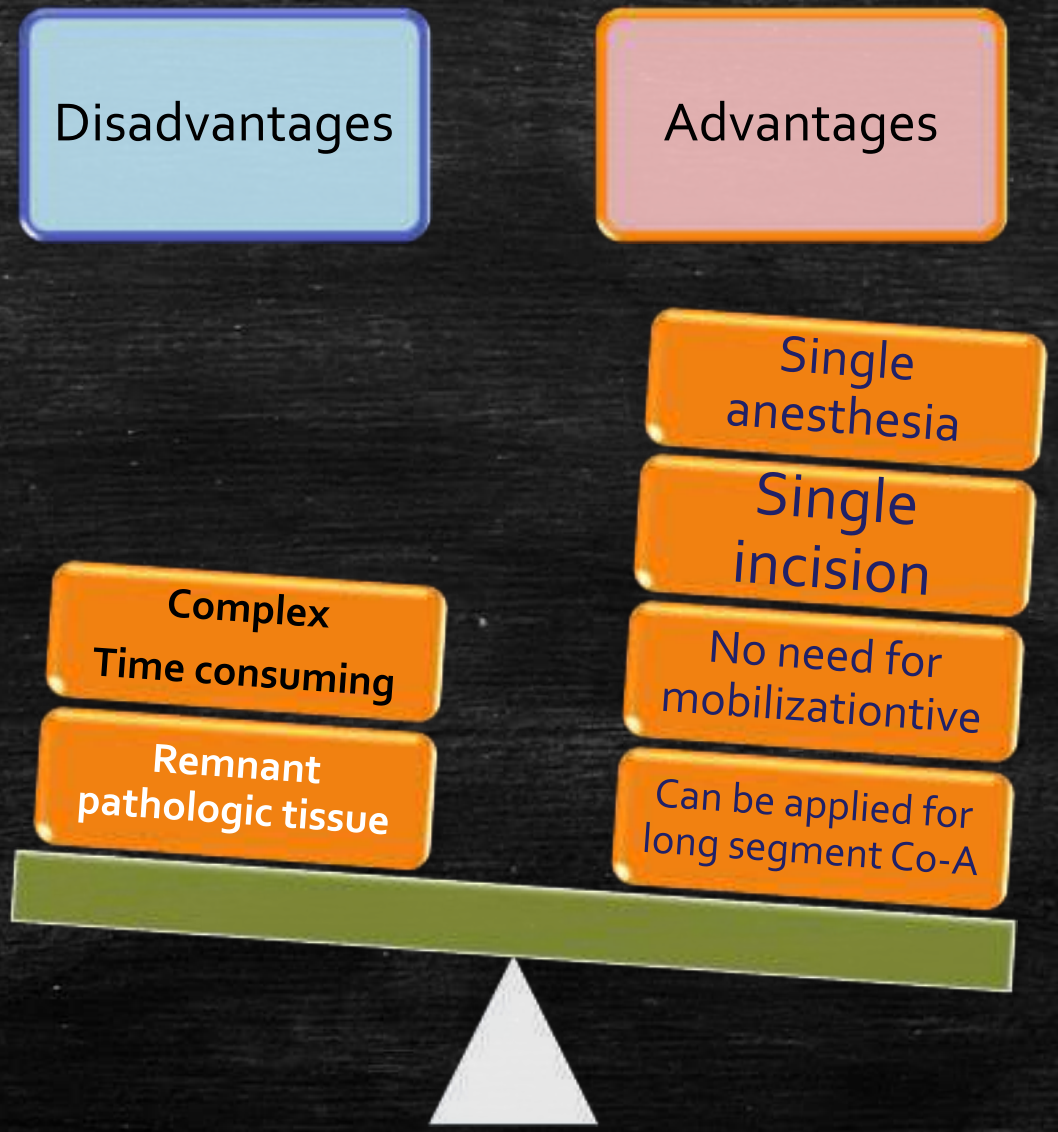



[HRA]
TDV
SRA
Rendering
no cut
5.6 cm

# Single stage vs Two stage Approaches

Co-A with concomitant cardiac lesions
Complex Cases
Re-coarctation was long, dense adhesions were present, collaterals were inadequate


Disadvantages
Advantages
Single anesthesia
Single incision
No need for mobilizationtive
Can be applied for long segment Co-A
Complex
Time consuming
Remnant pathologic tissue

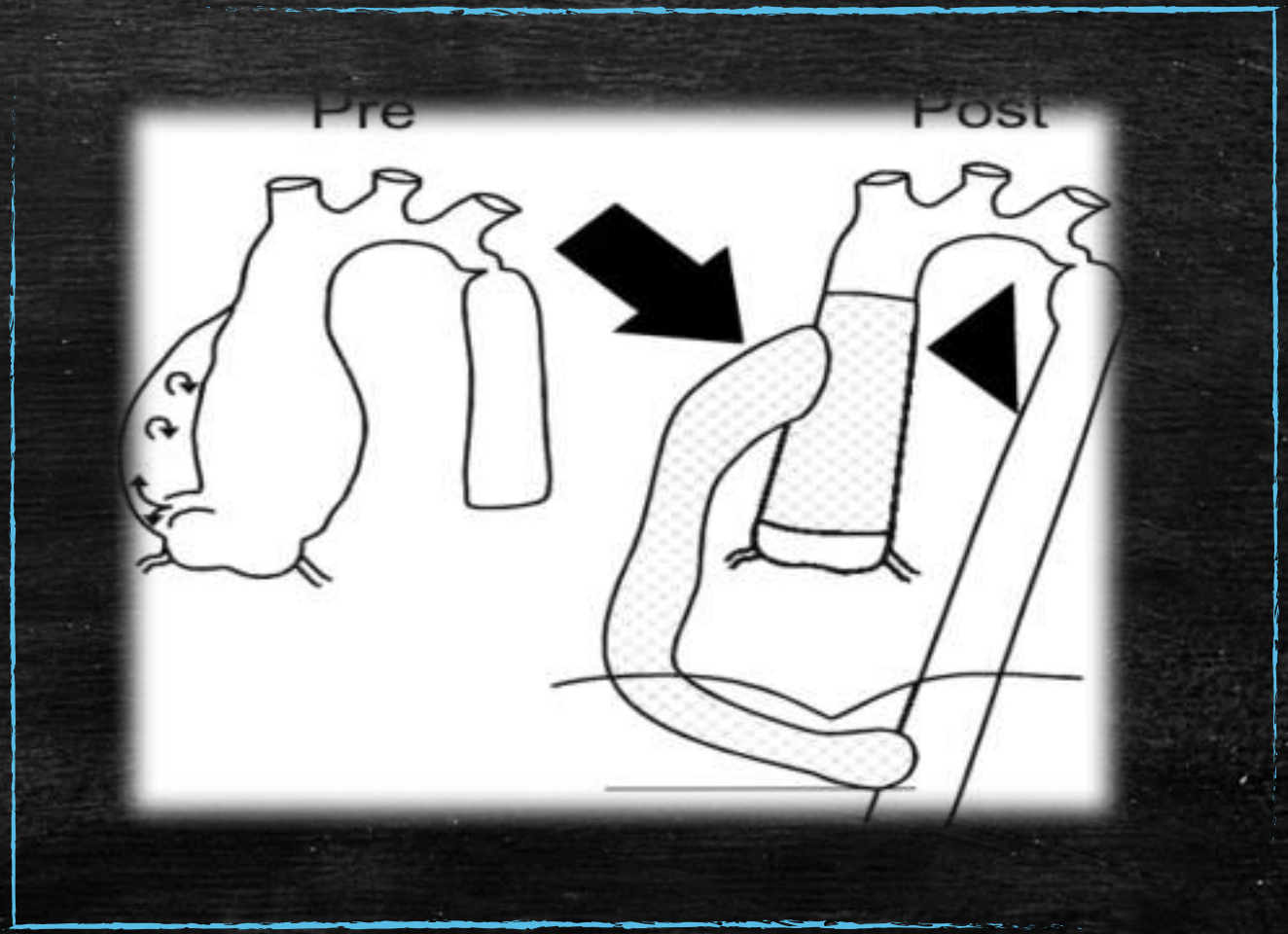
# One staged Approach

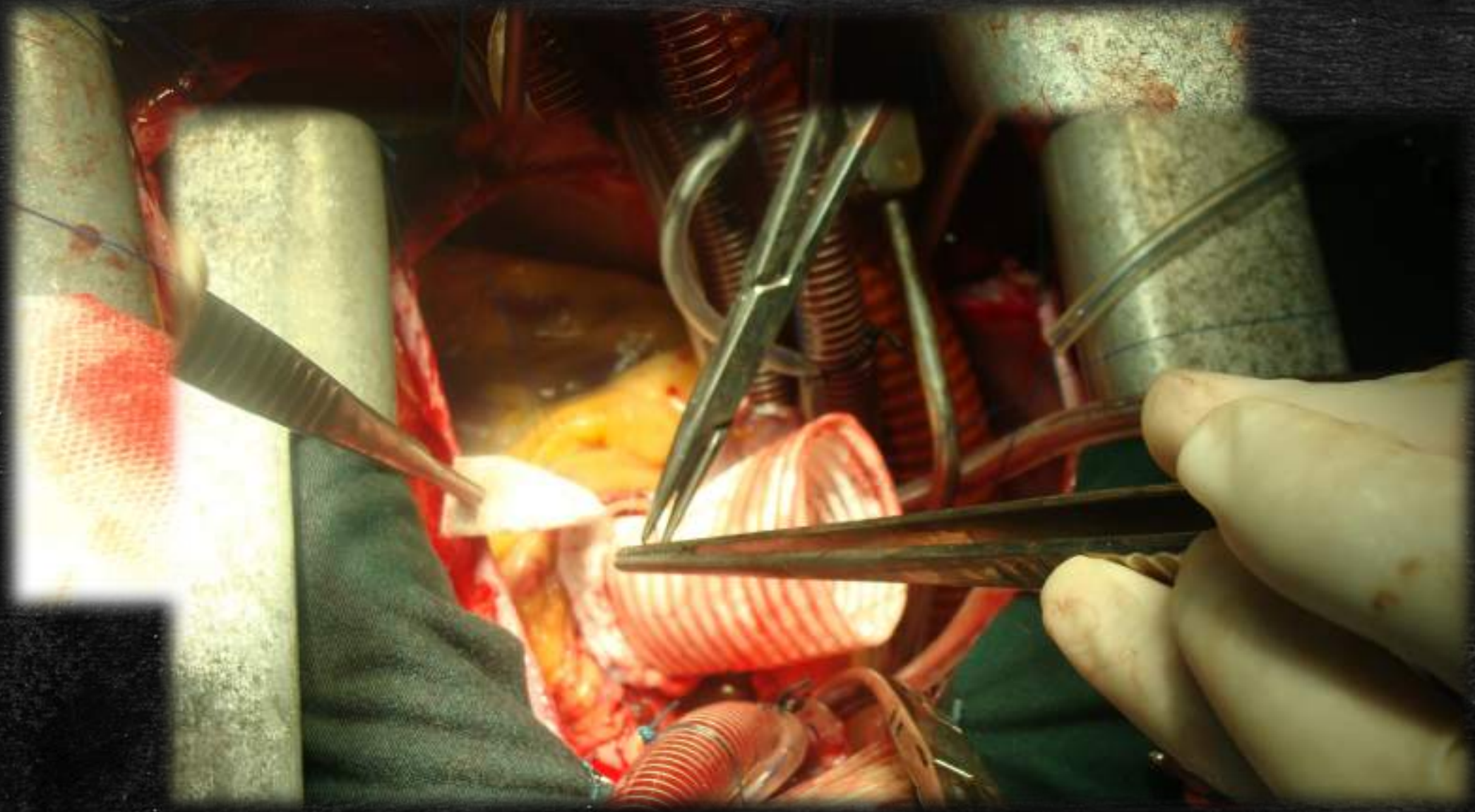
A 21 Yr gentleman

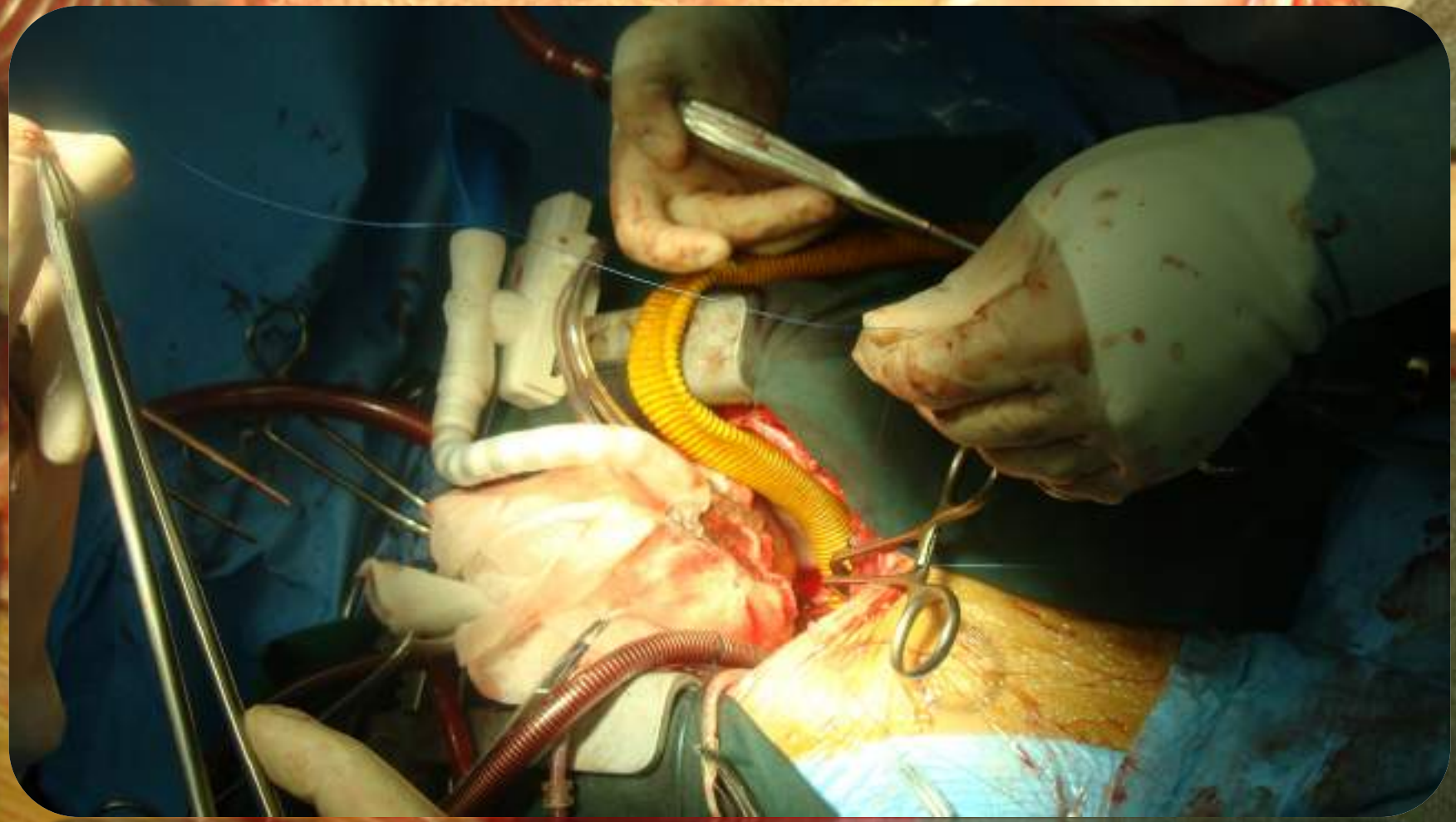
BAV, Asc Ao Aneurysm

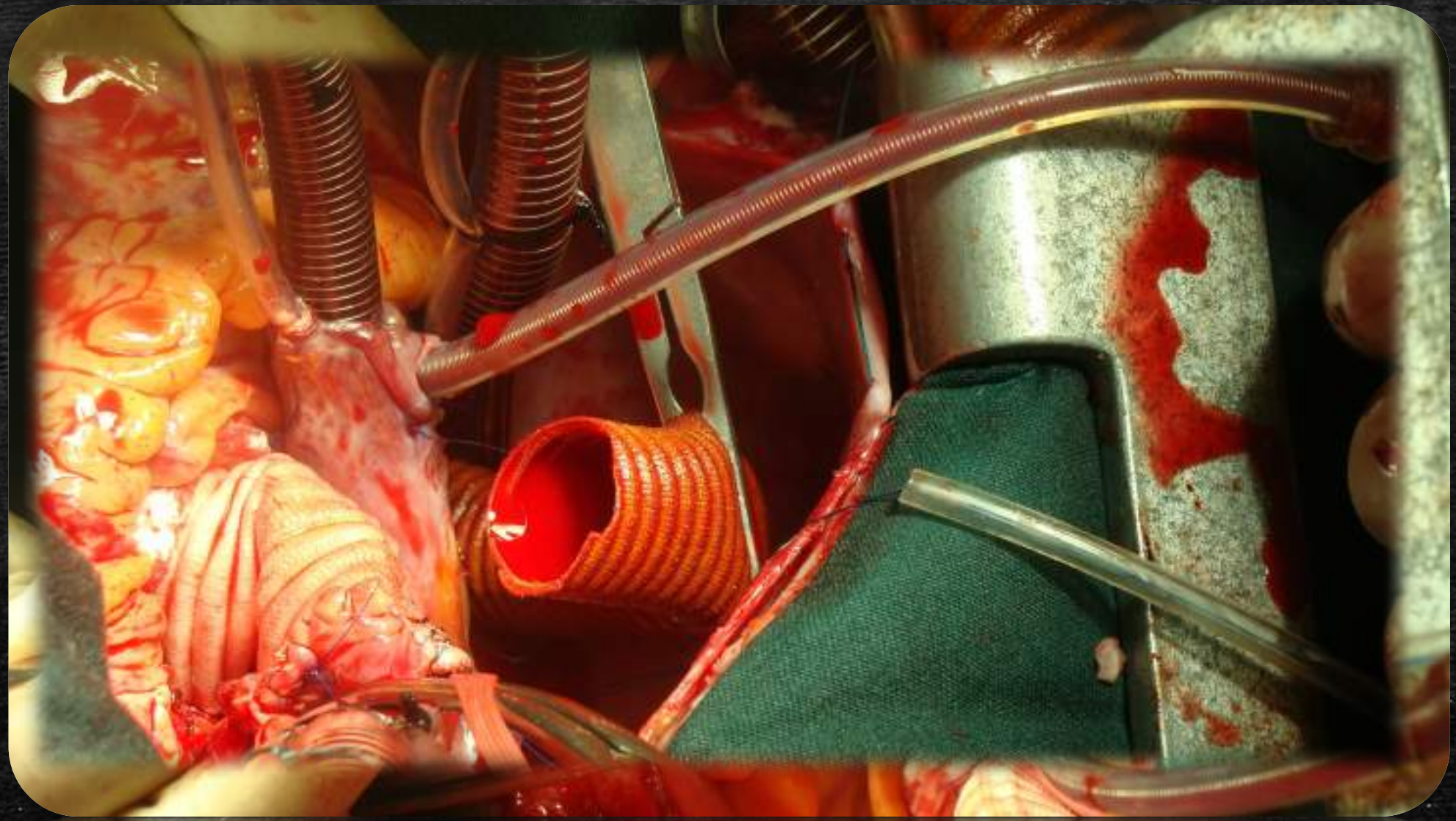
Small VSD

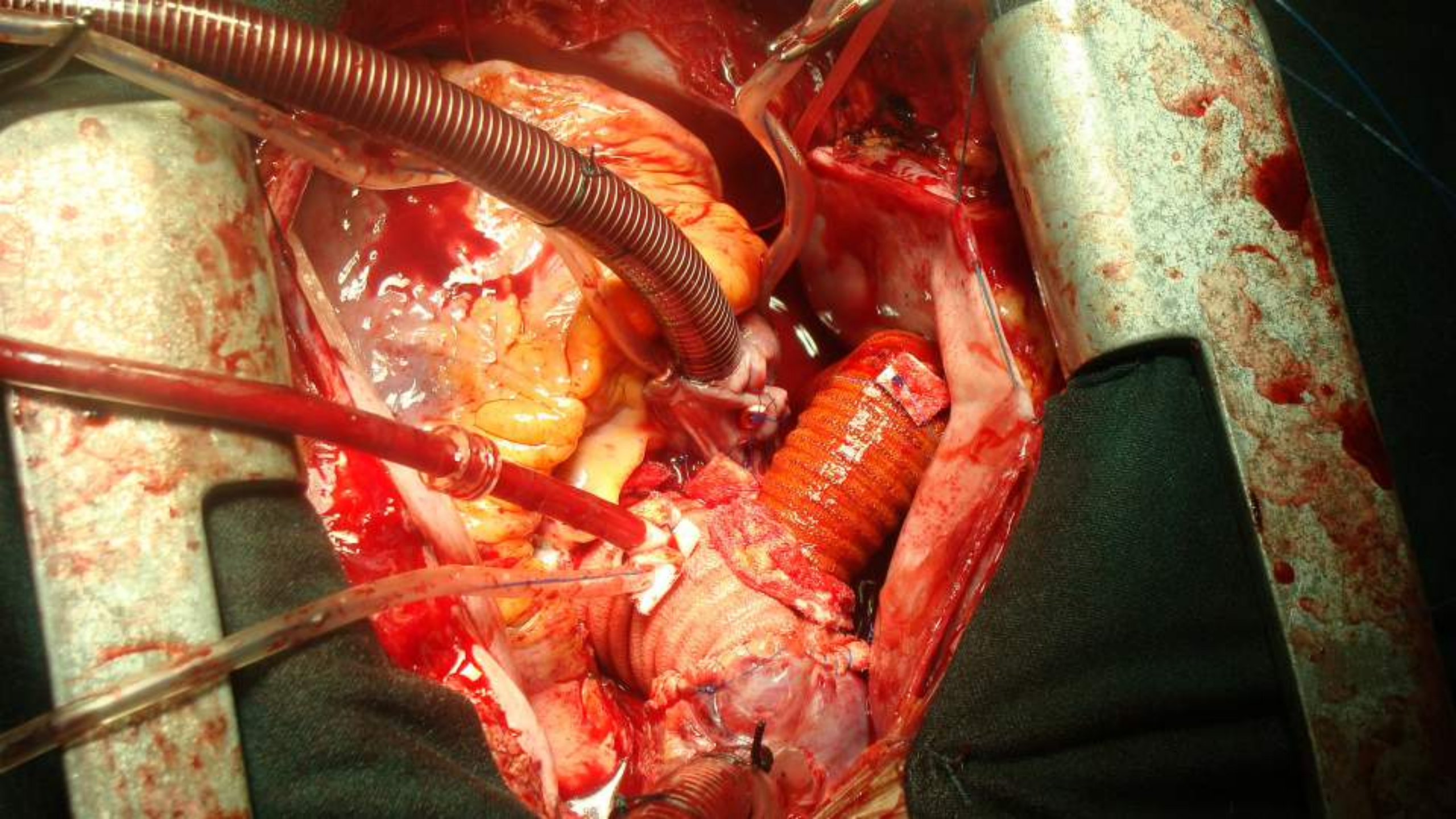
Sever Totrtous Co-A (56 mmHg)



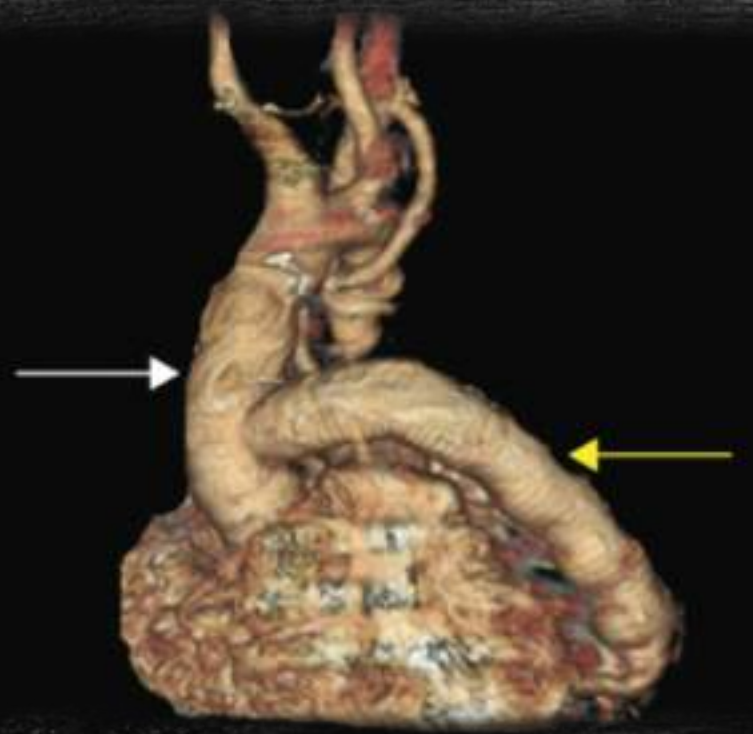




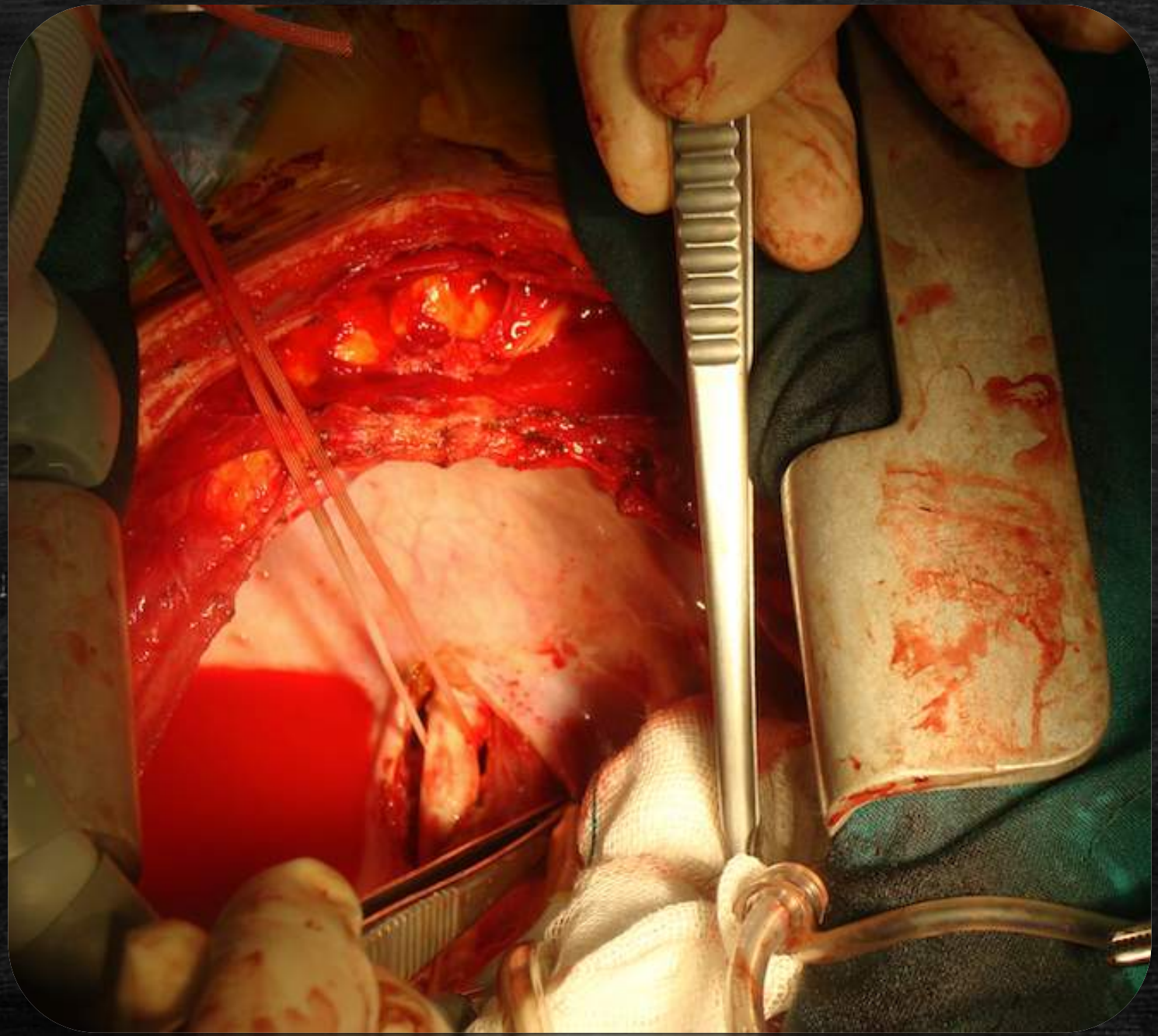


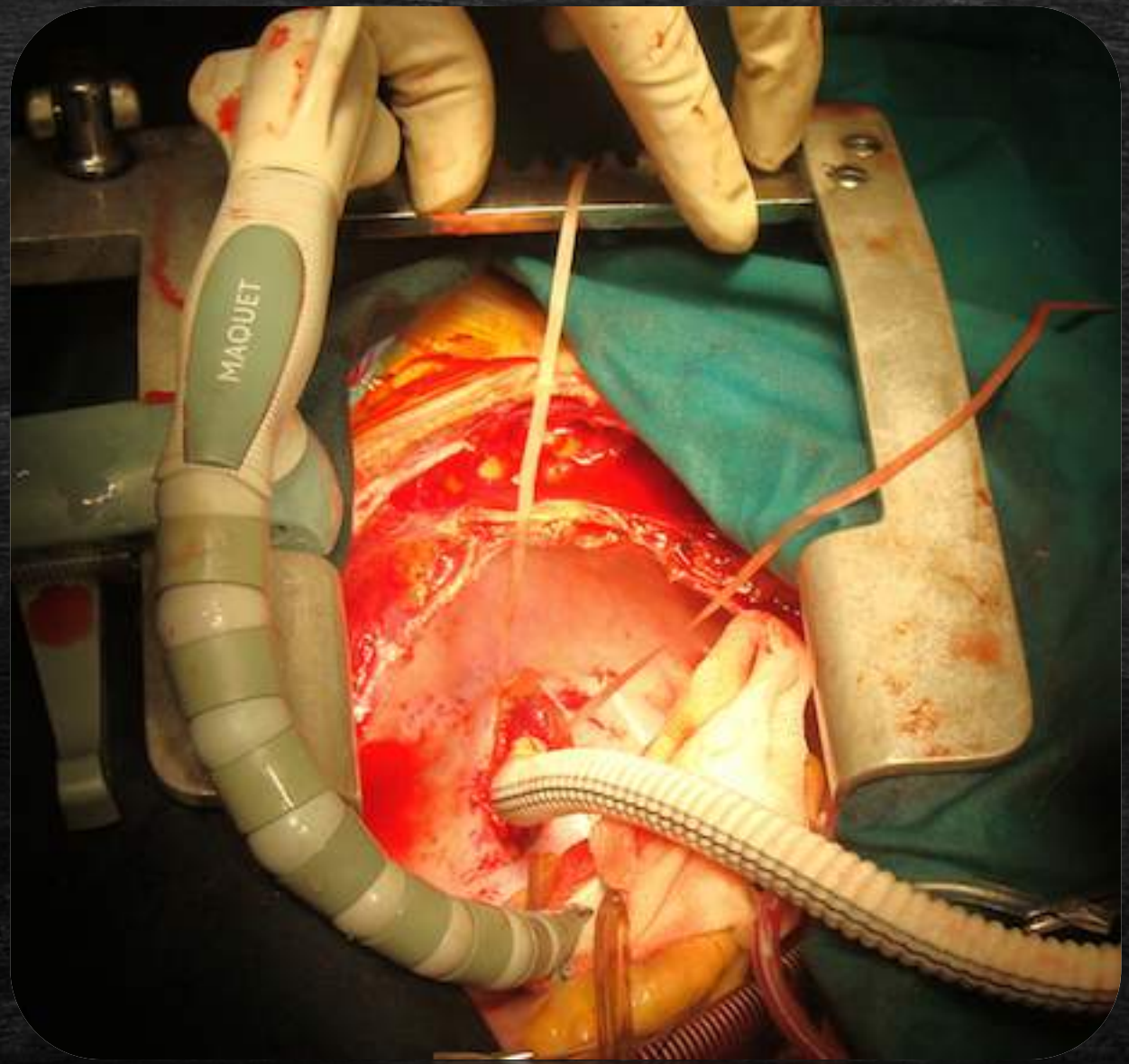


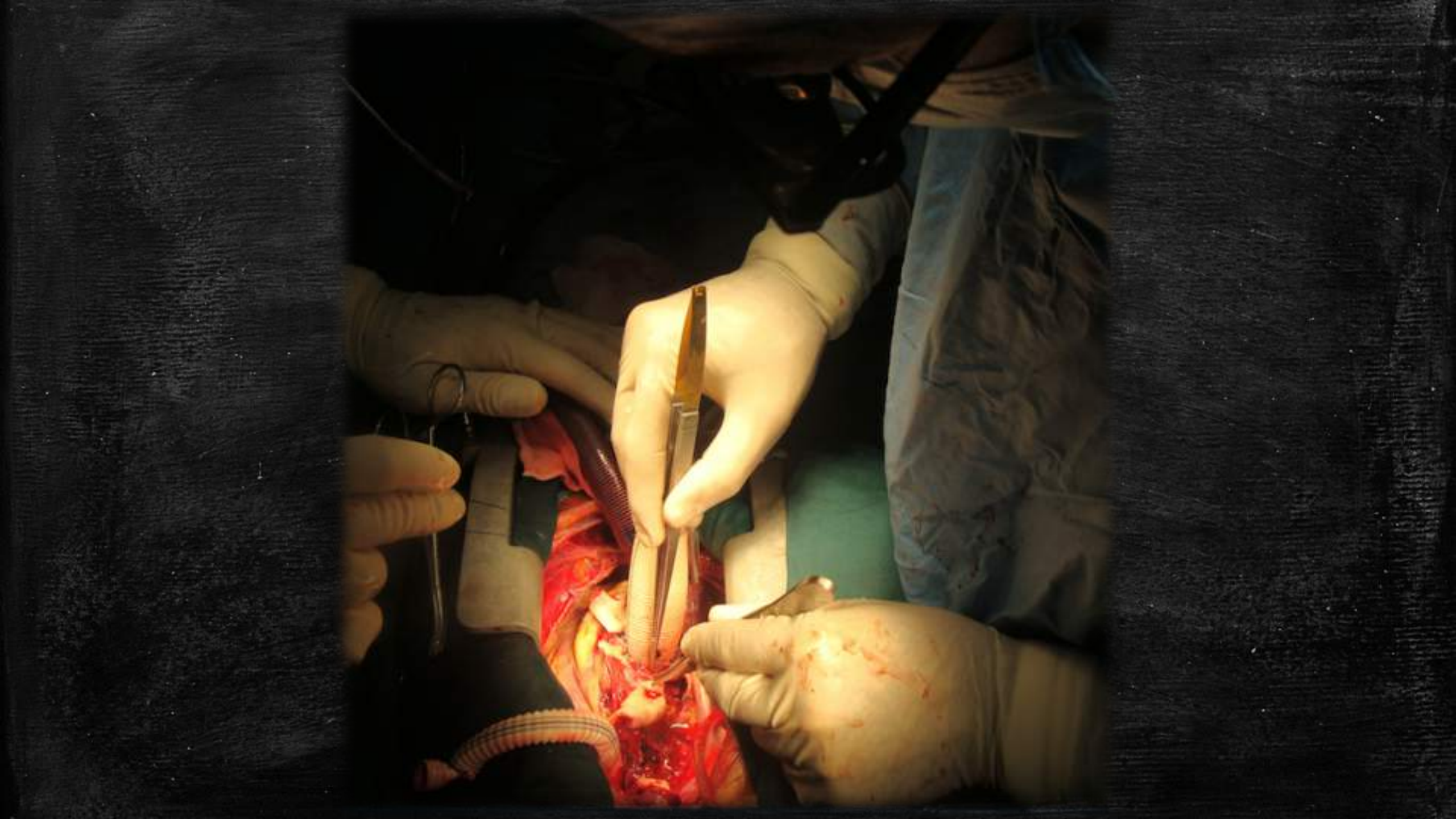

ECG
ART
PA
113
70
96
68
PA
120
80
40
0

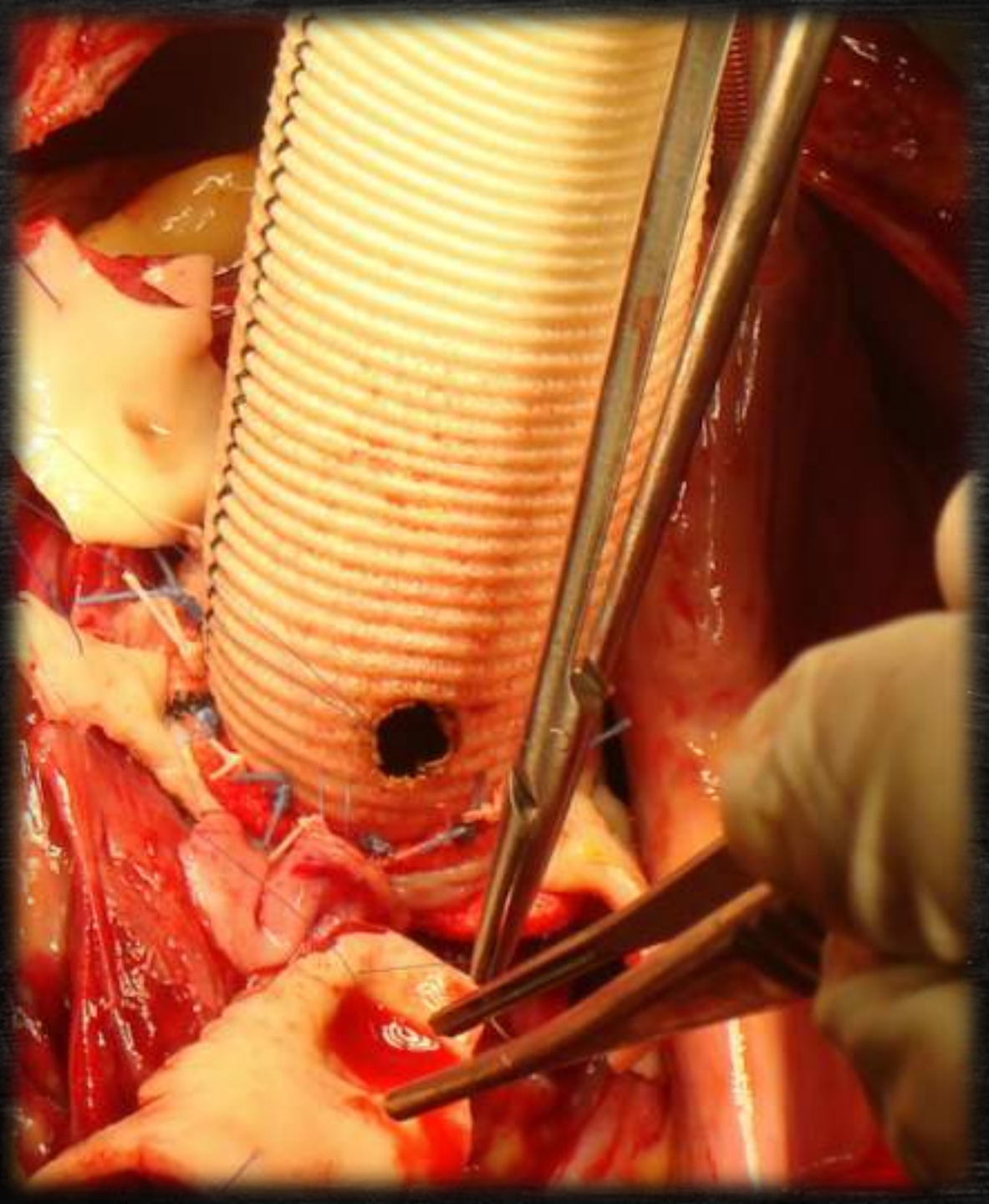


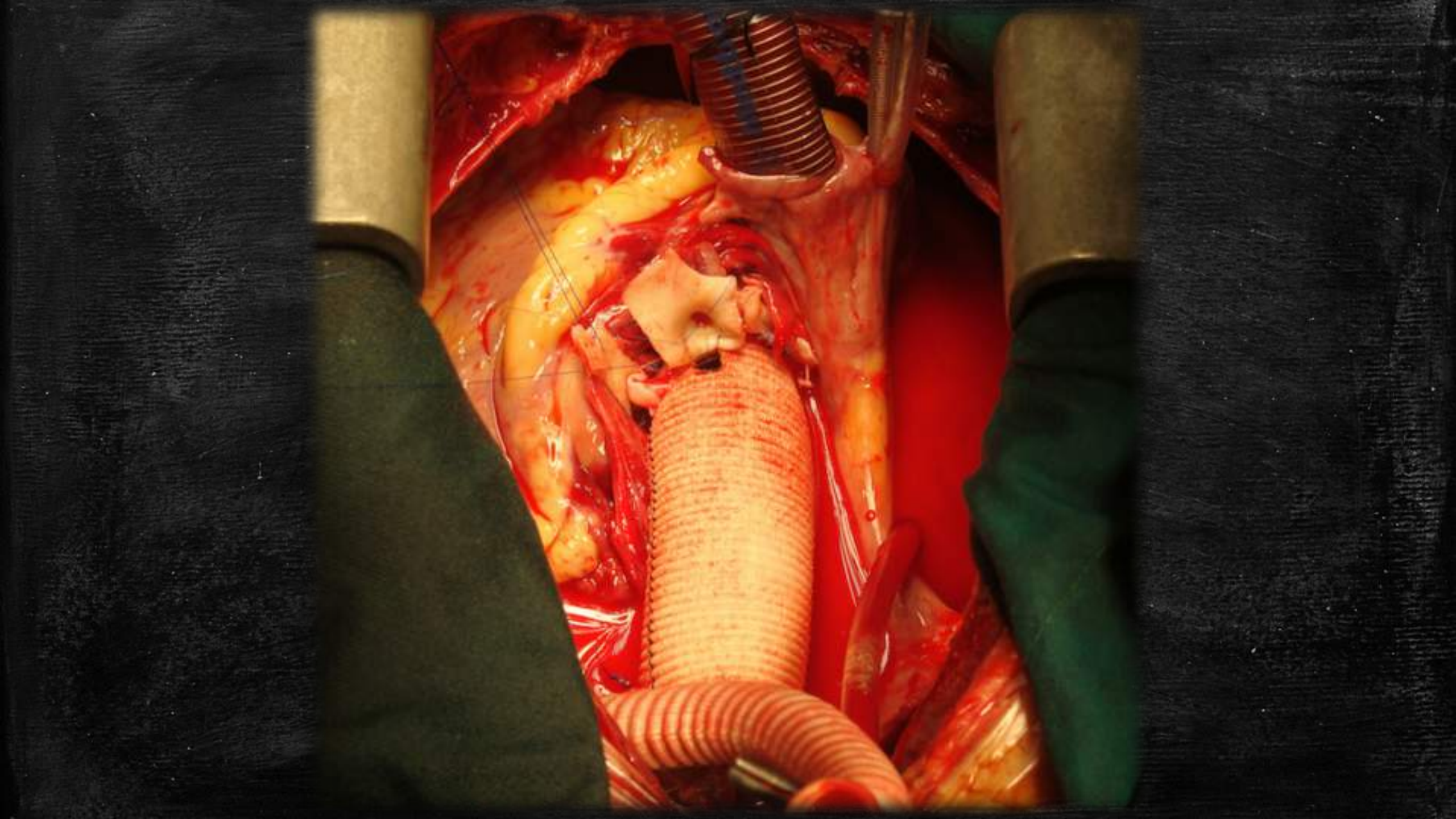
# A 28 Yr gentleman
# BAV, Asc Aorta Aneurysm
# Sever CoA

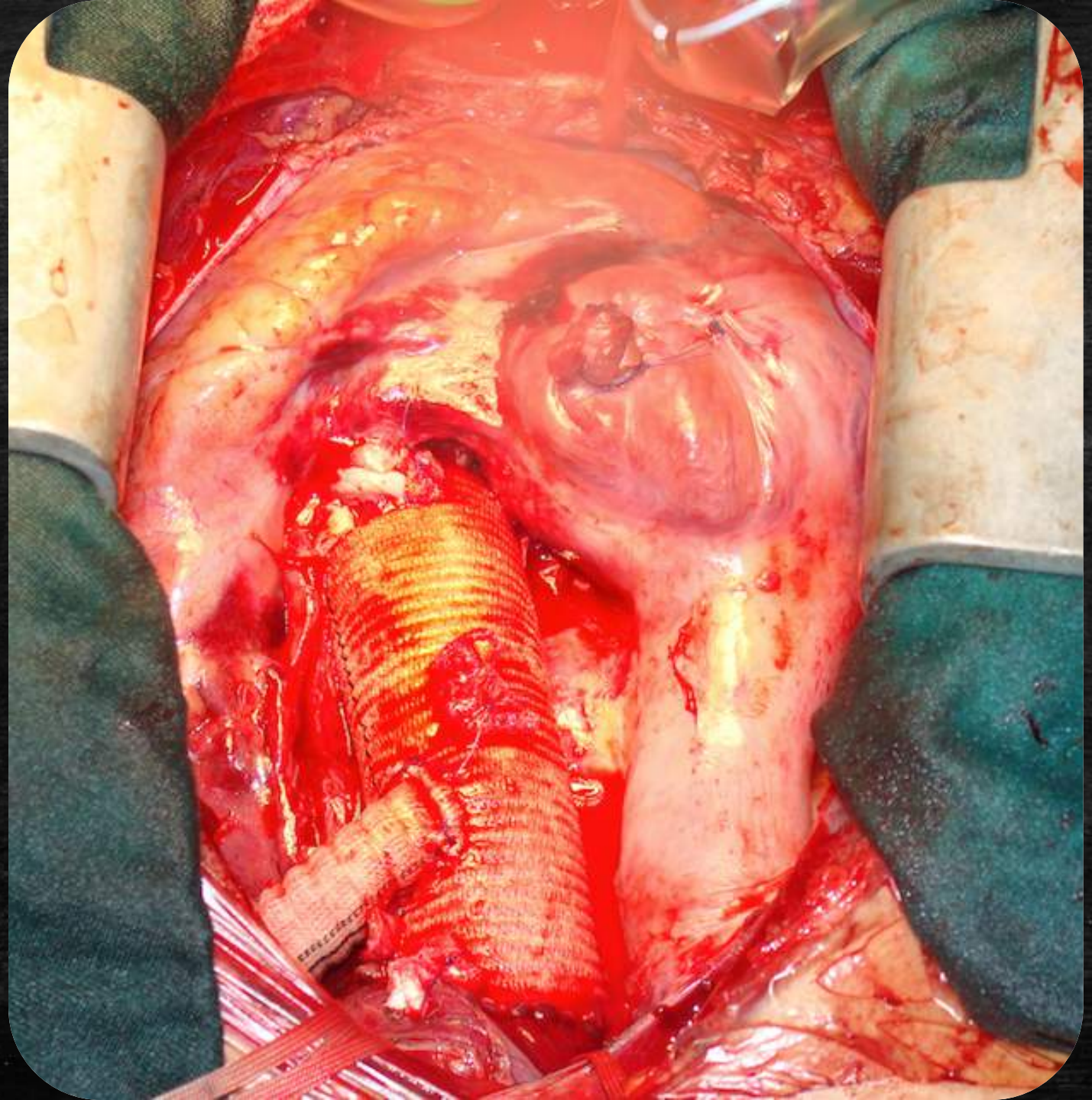



MAQUET



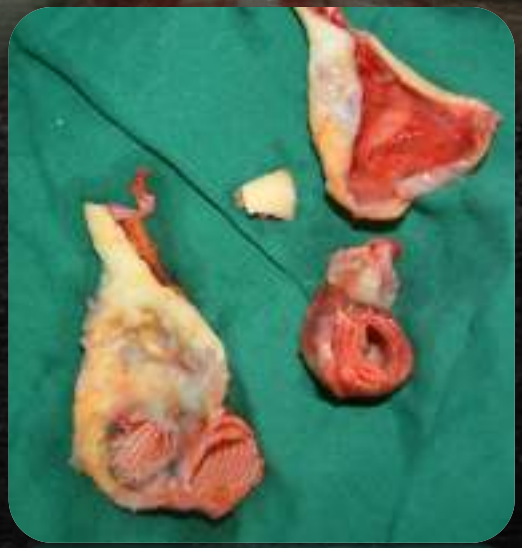






# Surgical approaches for Recurrent or Complicated

A 38 yr gentleman with previous Interposition graft for Co-A t age 12



# Early & late Complications of operation