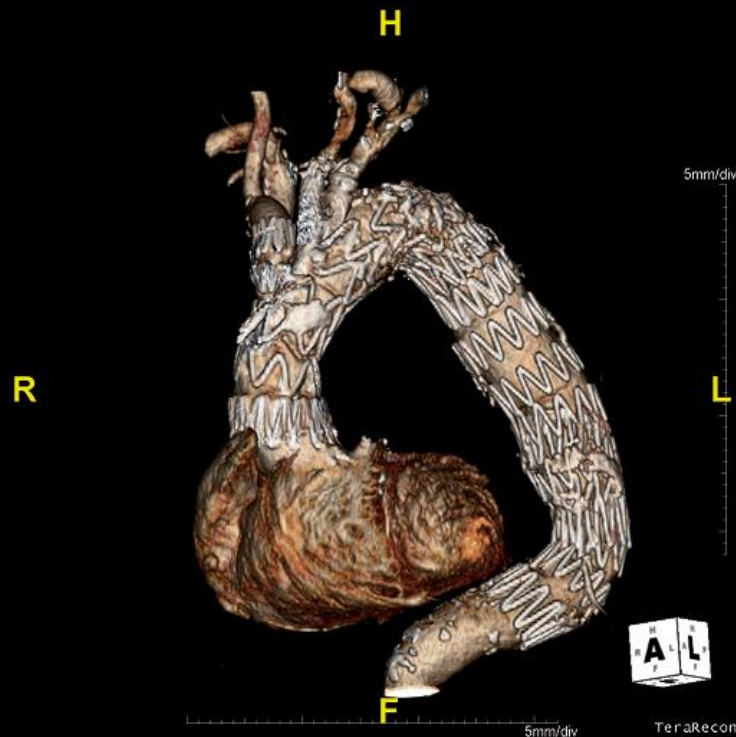


16<sup>TH</sup> INTERNATIONAL EXPERTS SYMPOSIUM  
**CRITICAL ISSUES**  
in aortic endografting 2012



**May 24 & 25**  
**LILLE, FRANCE**

# ARCH OPEN AND HYBRID OPTIONS

B Maurel, J Sobocinski,  
M Guillou, R Azzaoui,  
M Koussa, S Haulon

*Department of vascular surgery*  
*CHRU of Lille,*  
*59037 Lille Cedex, France*

# Faculty Disclosure



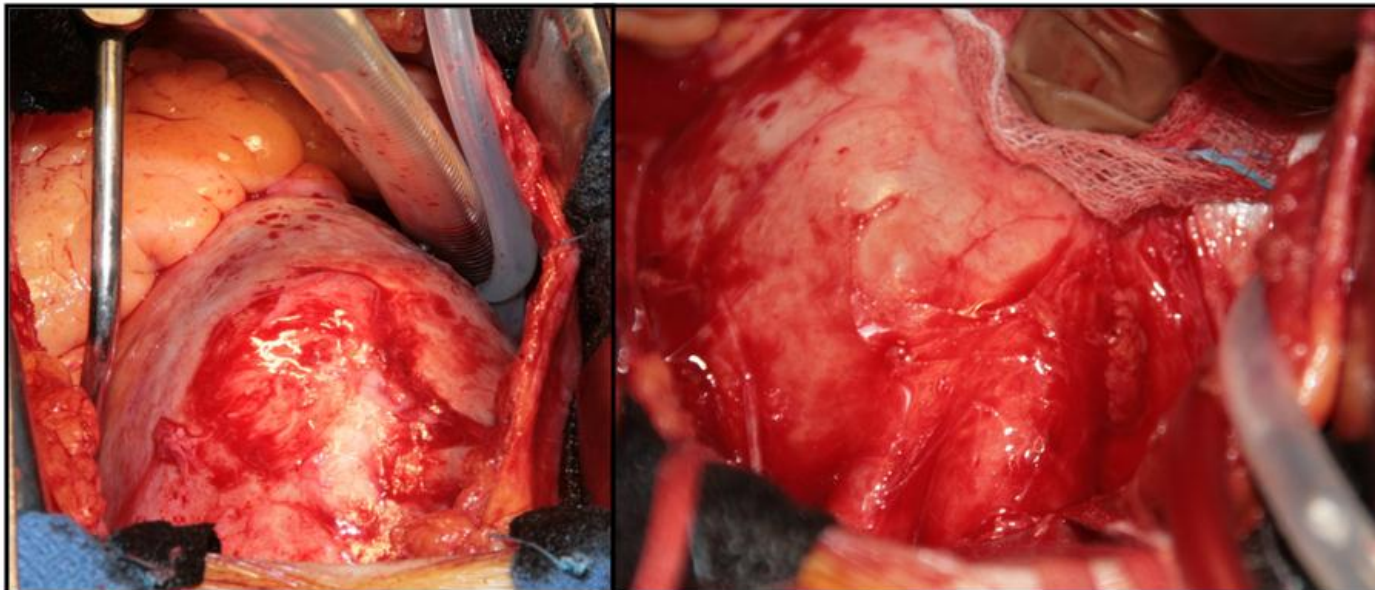
**Blandine Maurel**

*I have **no financial relationships** to disclose.*

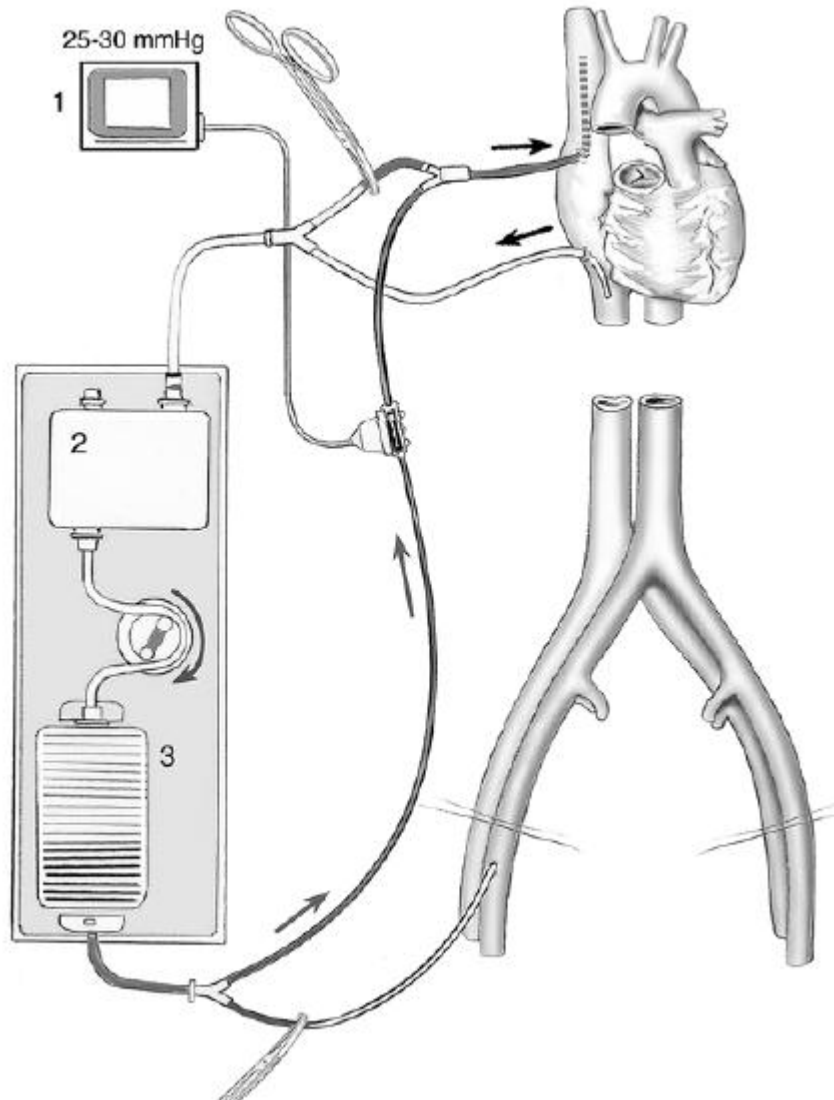


# OPEN REPAIR

- ✓ Median sternotomy & cardio pulmonary bypass
- ✓ Canulation : femoral, iliac, axillary or subclavian
- ✓ Temporary exclusion cerebral blood flow
- ✓ Hypothermic circulatory arrest



# OR : CEREBRAL PROTECTION



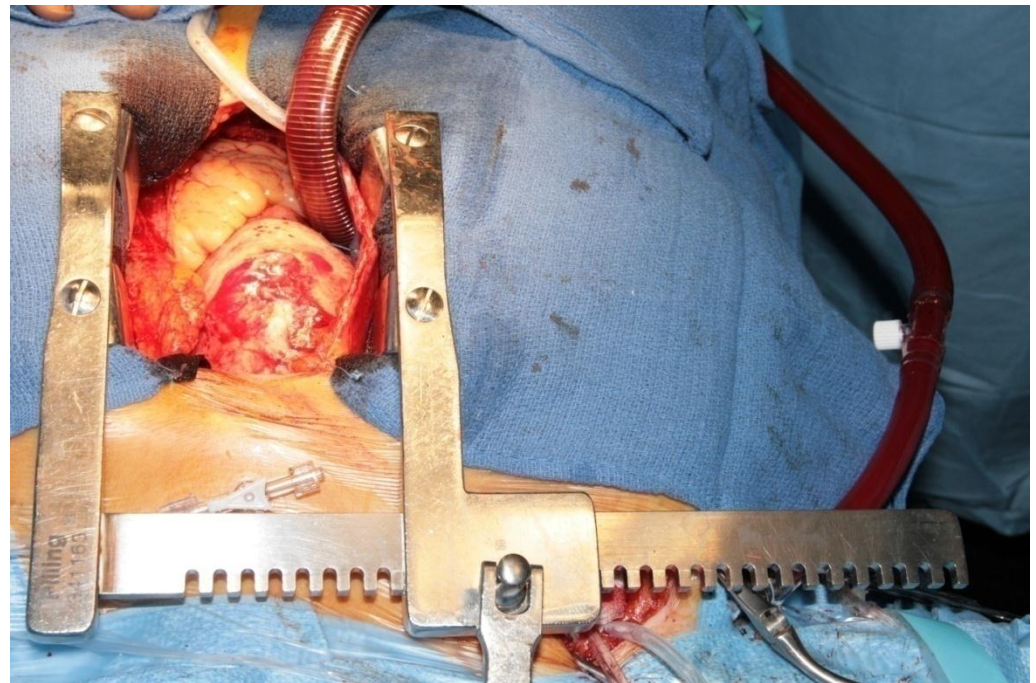
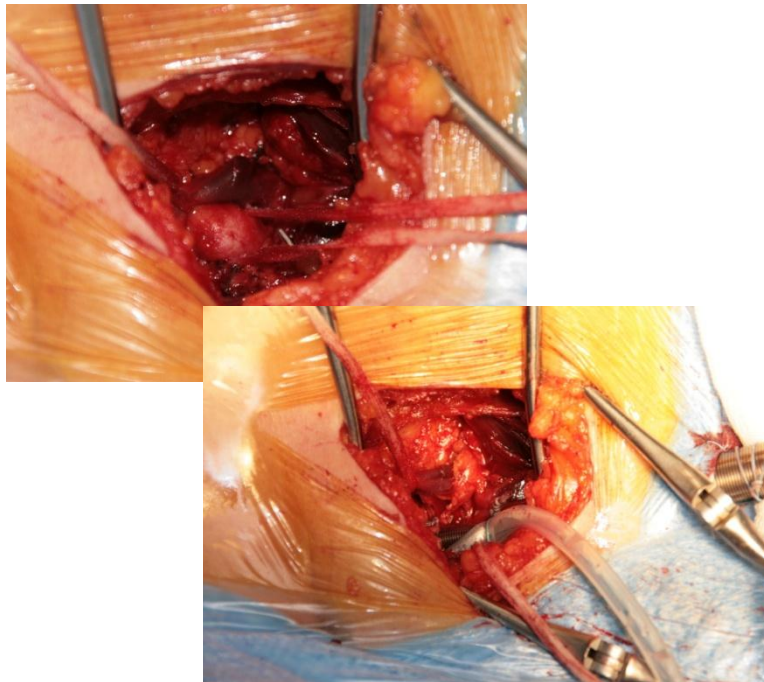
## Continuous retrograde cerebral perfusion

- ✓ through the superior vena cava
- ✓ deep hypothermic arrest

# OR : CEREBRAL PROTECTION

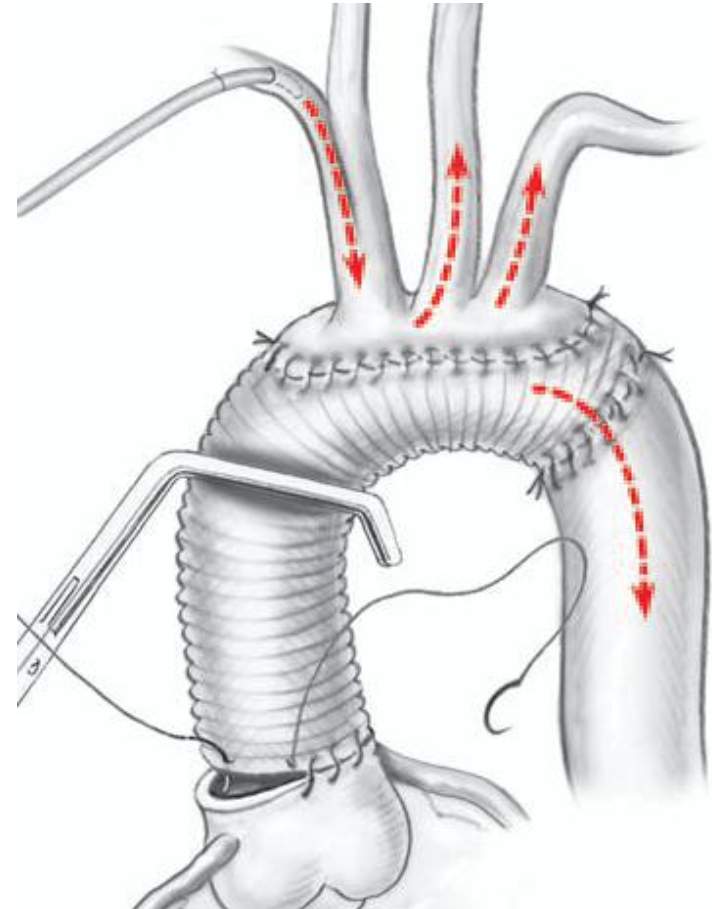
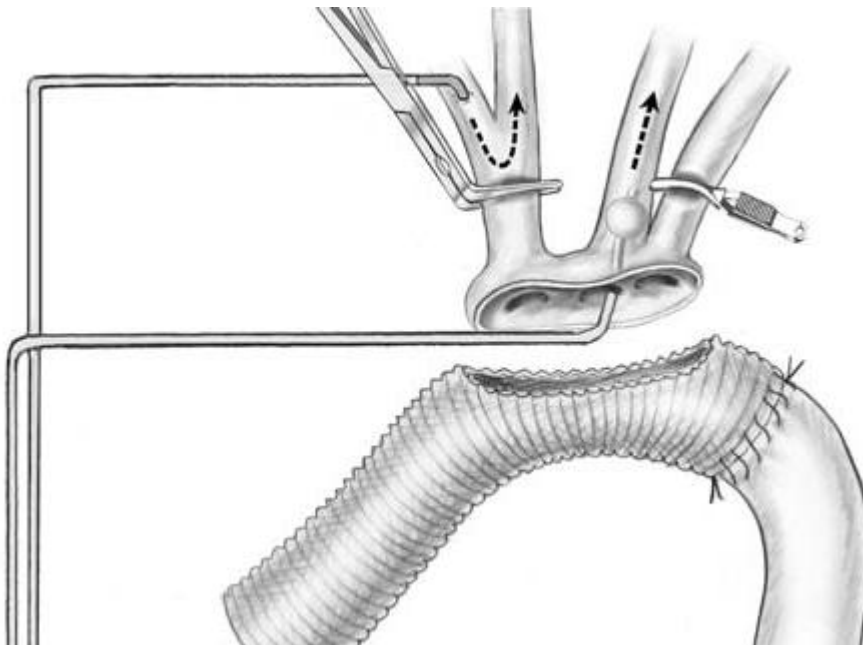
## Antegrade selective cerebral perfusion (ASCP)

- ✓ moderate hypothermia
- ✓ risk of cerebral emboli
- ✓ +++ right axillary canulation



# OR : CEREBRAL PROTECTION

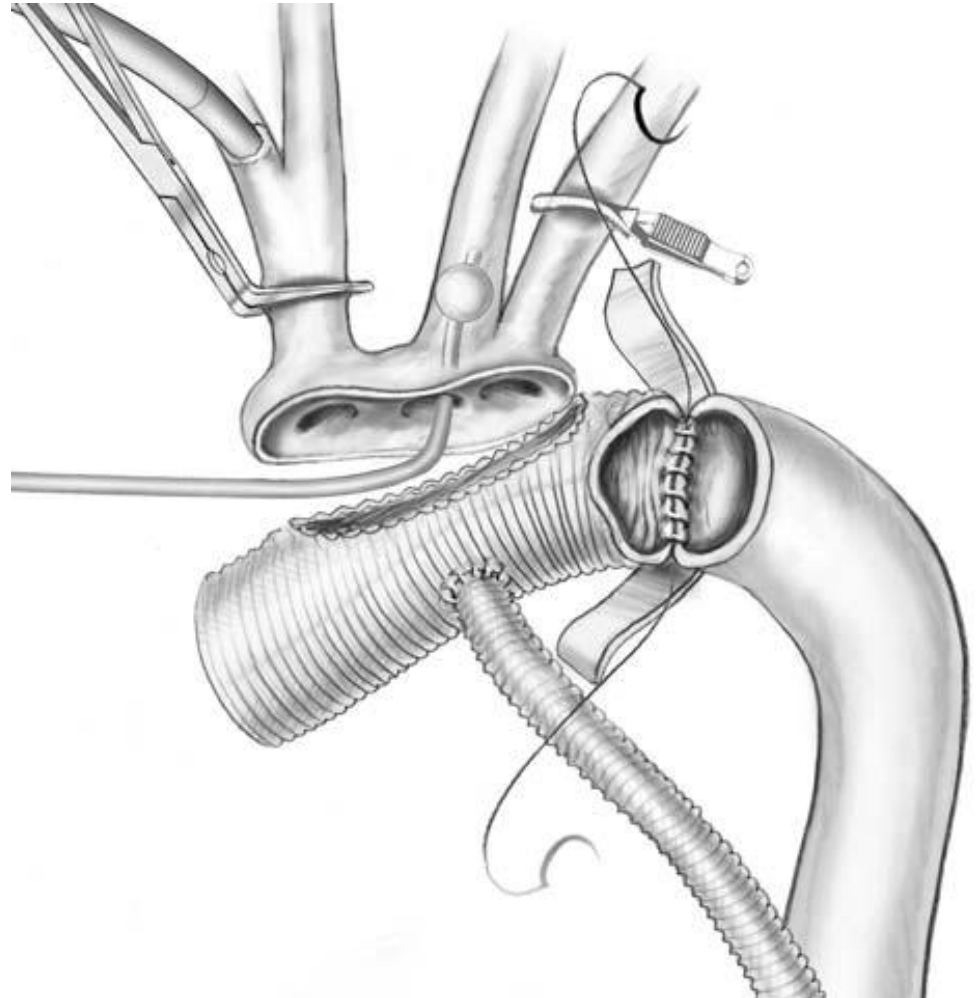
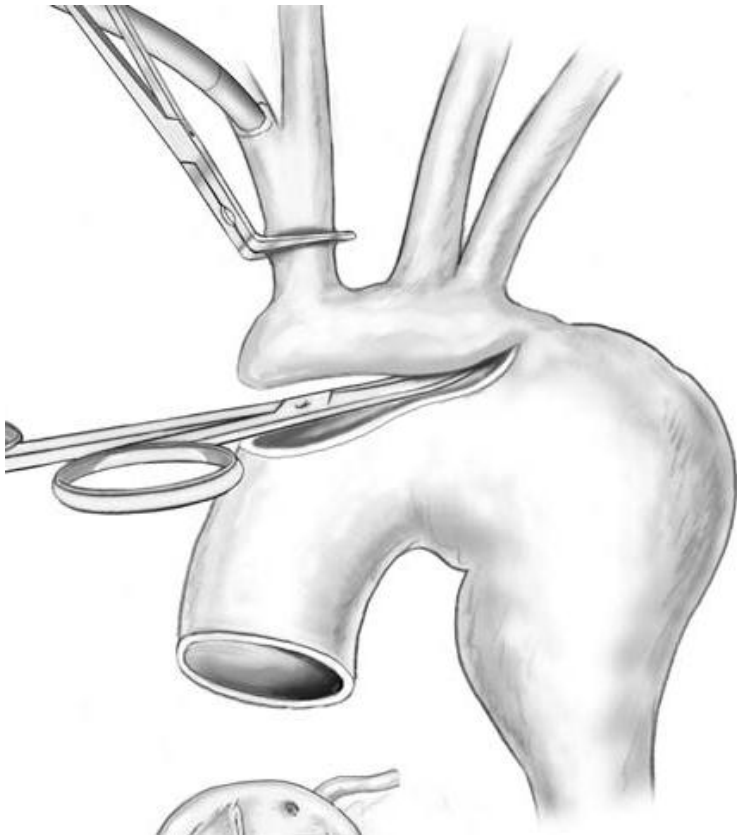
- ✓ bilateral antegrade cerebral perfusion  
(*recommended when repair time > 50 min*)



Kazui, Ann Thorac Surg, 2007 83(2) p.S796  
EMC, Chirurgie Cardiaque, 42-742-B

# OR : ARCH RECONSTRUCTION

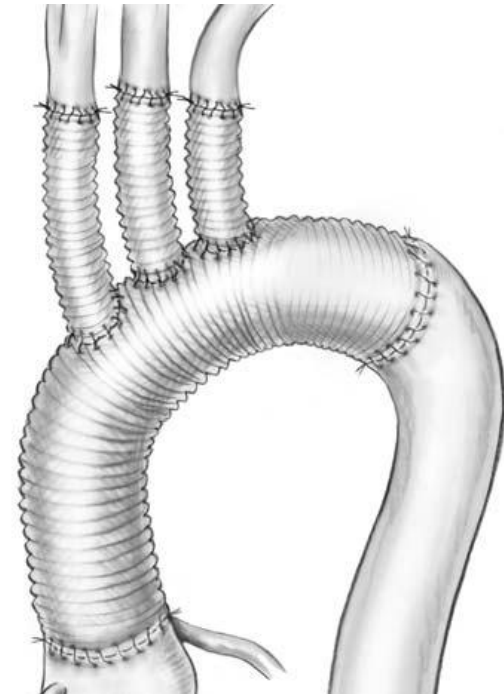
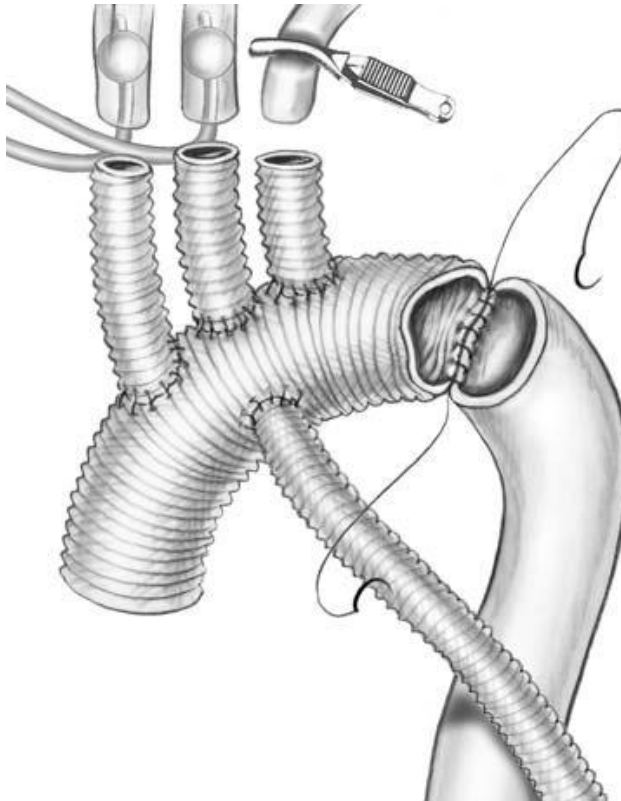
## The “en bloc” repair



# OR : ARCH RECONSTRUCTION

## The “separated graft” technique

- ✓ to minimize ischemic lesions
- ✓ aortic graft with multiple prefabricated side-branches

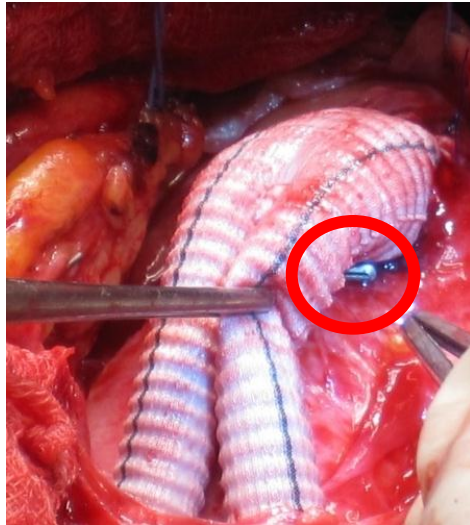


# ELEPHANT TRUNK

- ✓ Extensive aneurysms (ascending Ao, arch, descending Ao)
- ✓ Second step by thoracotomy or endovascular approach

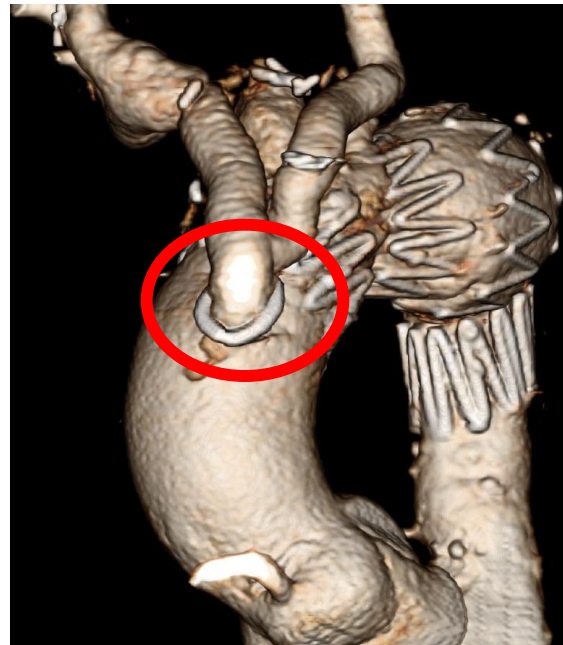
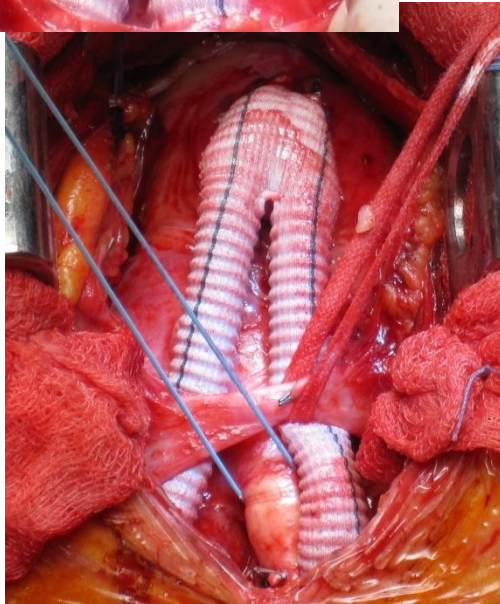


# HYBRID REPAIR :



**Zone zero :** debranching IA & LCCA & LSA

- ✓ Bifurcated, trifurcated or 2 tubular grafts
- ✓ Ligation of the origine
- ✓ Clip or « RING »



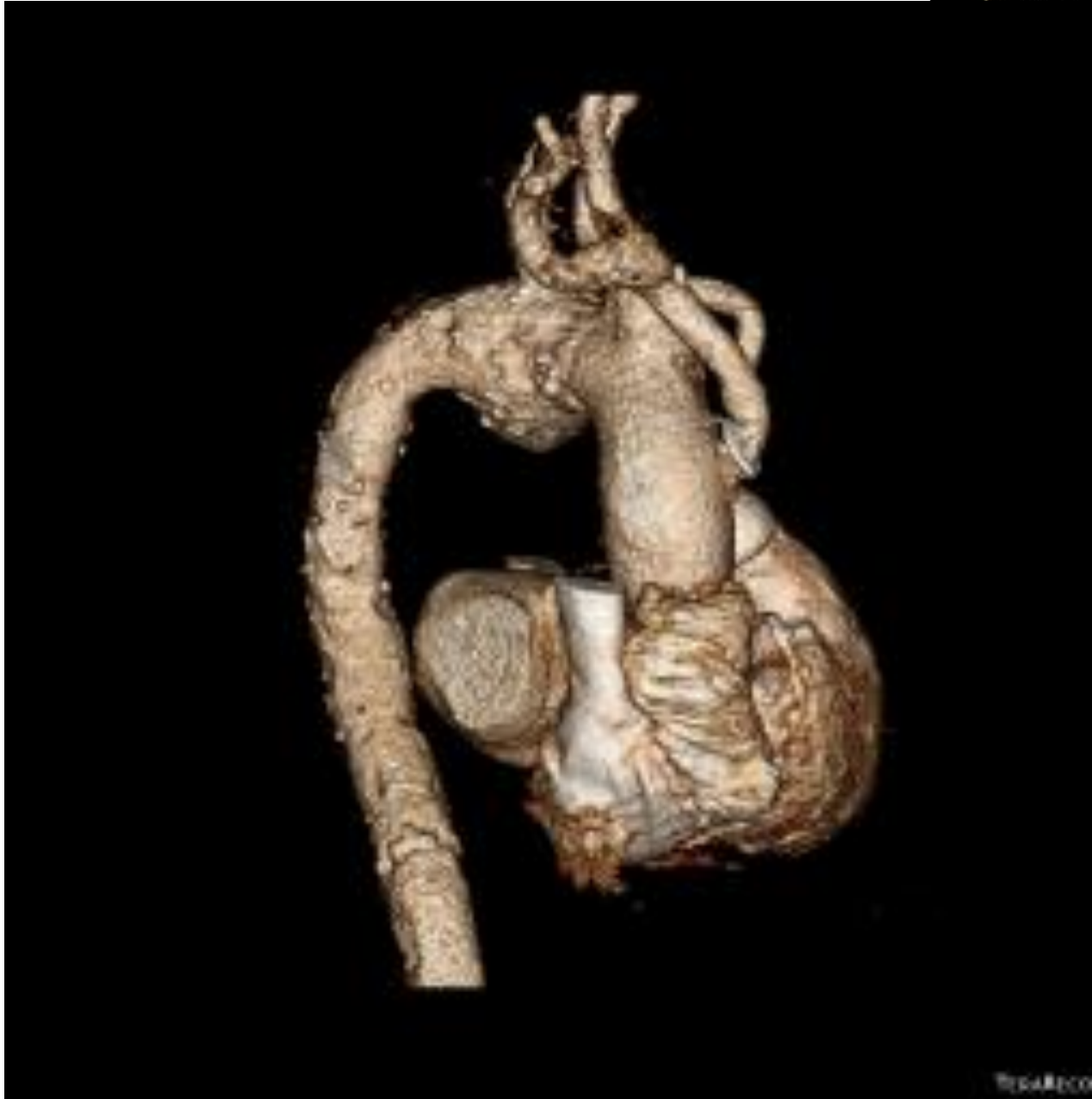
# HYBRID REPAIR :



# HYBRID REPAIR :



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# HYBRID REPAIR :



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# HYBRID REPAIR :

## ZONE ONE :

- ✓ right to left CCA crossover bypass (*preferentially placed in retro esophageal position*)

**OR**

- ✓ transposition of the LCCA to the IA

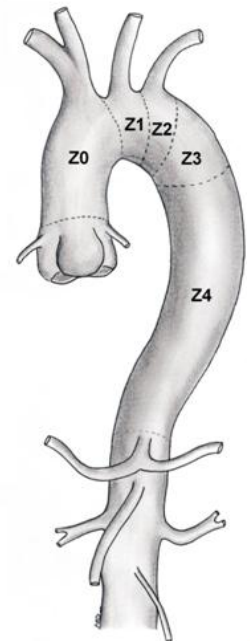


# HYBRID REPAIR :



## ZONE TWO :

- ✓ coverage of the LSA origin
- ✓ higher rate of stroke and paraplegia without revascularization
- ✓ late development of symptoms (up to 26 m)



# RESULTS ARCH ANEURYSMS REPAIR

## OPEN REPAIR :

- ✓ Mortality rate : from 2 to 15%
- ✓ Stroke rate : from 1% to 10%

## HYBRID REPAIR :

*”minimally invasive” procedure?*

- ✓ Mortality : from 0 to 20%
- ✓ Stroke rate : 0 to 12%
- ✓ Proximal type I endoleak : 0 to 20 %

# CONCLUSION :

- ✓ **Conventional surgery : « gold standard » but high rates of mortality, especially in the elderly**
- ✓ **Hybrid technique : less invasive but still carries high morbi-mortality**
- ✓ **New totally endovascular approach :**
  - ✓ **currently possible**
  - ✓ **will probably extend the range of arch pathologies that can be treated**

