



BUILDING
ENDOASCULAR
SYNERGIES

Hybrid repair: technique for total debranching

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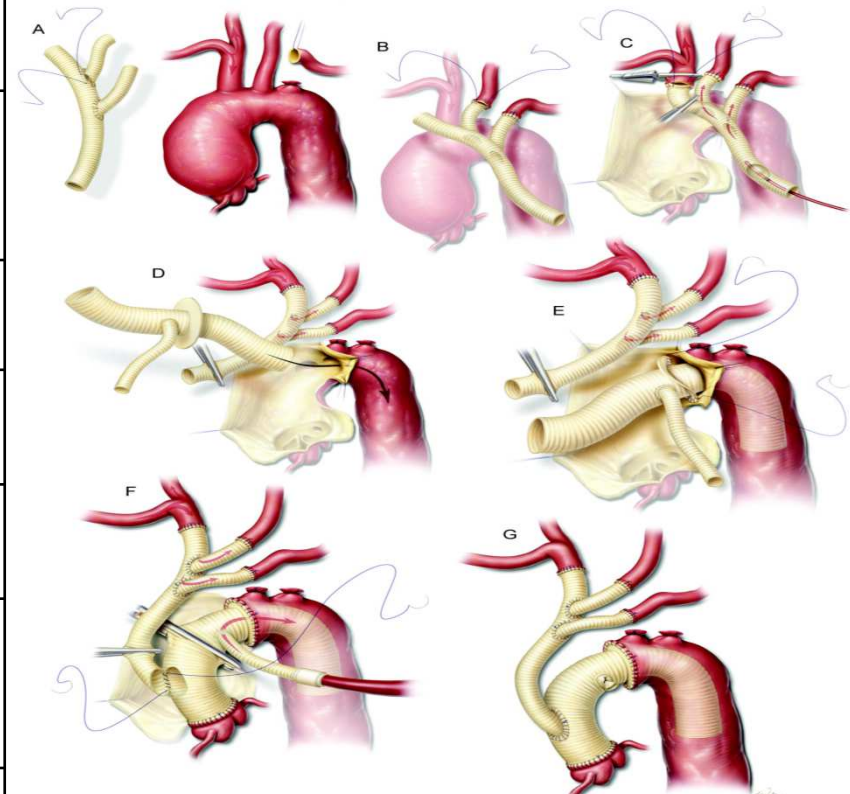
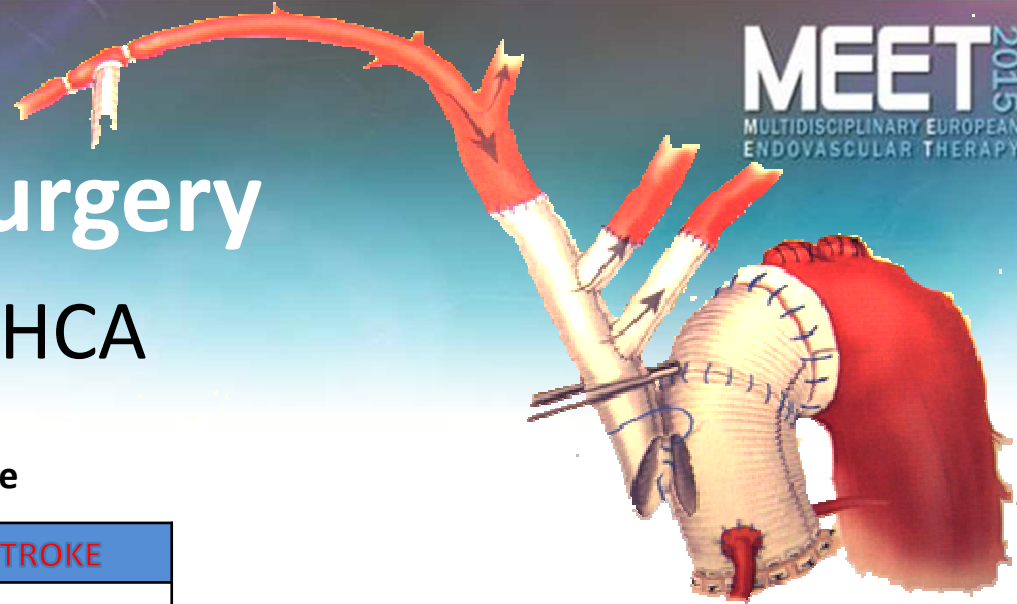
BACKGROUND

- **Conventional surgery for Arch diseases** remains invasive (ECC, HCA)
- **Hybrid repair** has changed the scope of arch surgery which was limited to cardiac surgeons:
- Thanks to **debranching** and **stentgrafts**, the vascular surgeons were able to adopt the technique
- Total debranching is competing with **Chimps**
- Partial transposition remains reliable and is less invasive ,can be associated to Chimps.

Worldwide Open aortic Arch Surgery

- Conventionally: ECC + HCA
- Current results:
Y-Graft technique Spielvogel in centers of excellence

Author	Pts	MORTALITY	STROKE
Coselli, 2011	55	2%	5%
Spielvogel, 2011	206	6.8%	3.4%
Sundt, 2008	50	6%	6%
	-347		
Kazui, 2007	266	4.1%	3.2%
Pacini, 2006	250	11.6%	8.8%
Della Corte, 2006	202	12.9%	9.3%
Total	1029	7.23%	5.95%



Courtesy of Dr Coselli

Drawbacks of current open surgery

- HRP are often excluded
- High mortality if operated in low volume centers
(in our center with 5 surgeons' experience stroke death rate was 20%)

**This observation made us change our approach
avoiding HCA for both:**

Acute type A dissections

Regular arch aneurysm repair

Thanks to hybrid surgery

2014 ESC Guidelines on the diagnosis and treatment of aortic diseases

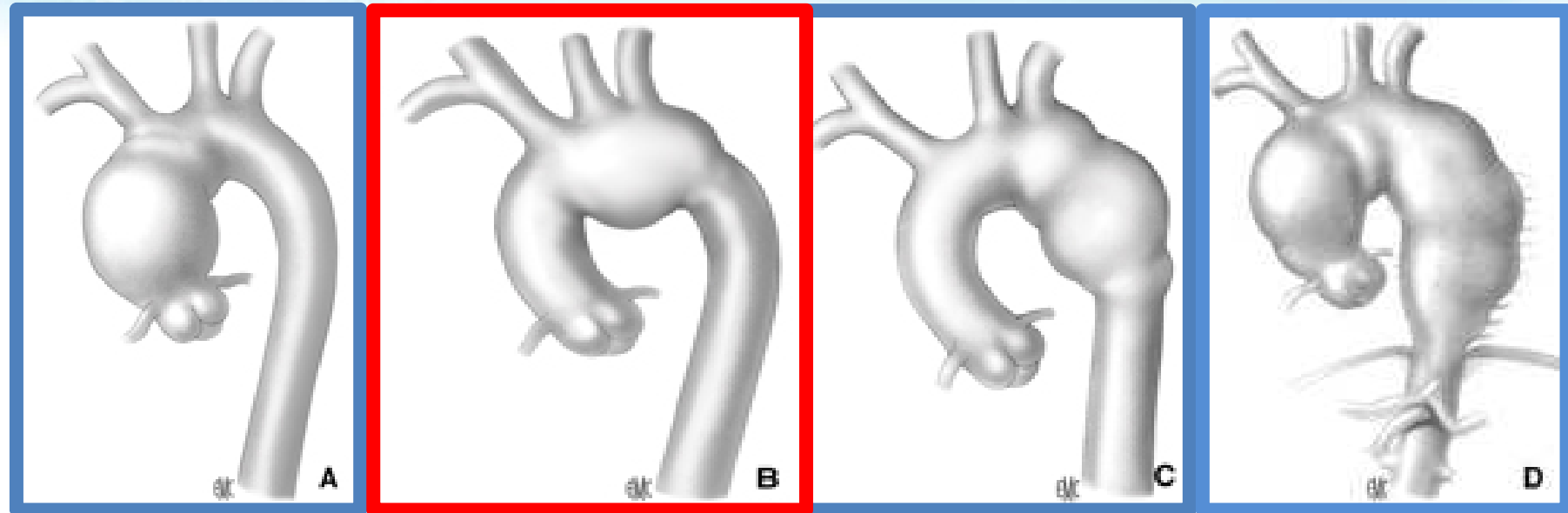
Recommendations	Class ^a	Level ^b	Ref. ^c
In patients with acute Type A AD and organ malperfusion, <u>a hybrid approach</u> (i.e. ascending aorta and/or arch replacement associated with any percutaneous aortic or branch artery procedure) <u>should be considered</u> .	IIa	B	2,118, 202–204, 227

Aortic arch aneurysms

Arch vessel transposition (debranching) and TEVAR might be considered as an alternative to conventional surgery in certain clinical situations, especially when there is reluctance to expose patients to hypothermic circulatory arrest

Aortic arch aneurysm (AArA)

A, B, C, D



Type A and D can be treated by ECC without HCA

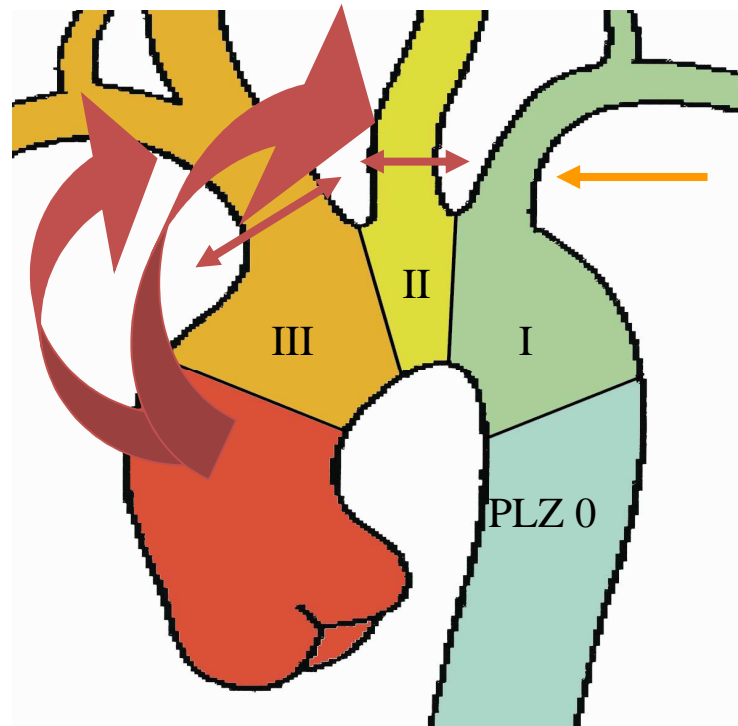
Type C can be treated by partial debranching or chimps

Type B can be treated by chimps or total debranching

TECHNIQUE

1st Step: surgical transposition (Sternotomy)

**Total-arch
transposition
(relocation of the
left CCA + IA)
+/- Subclavian
bypass**



2nd Step: endovascular arch exclusion +/- SCA

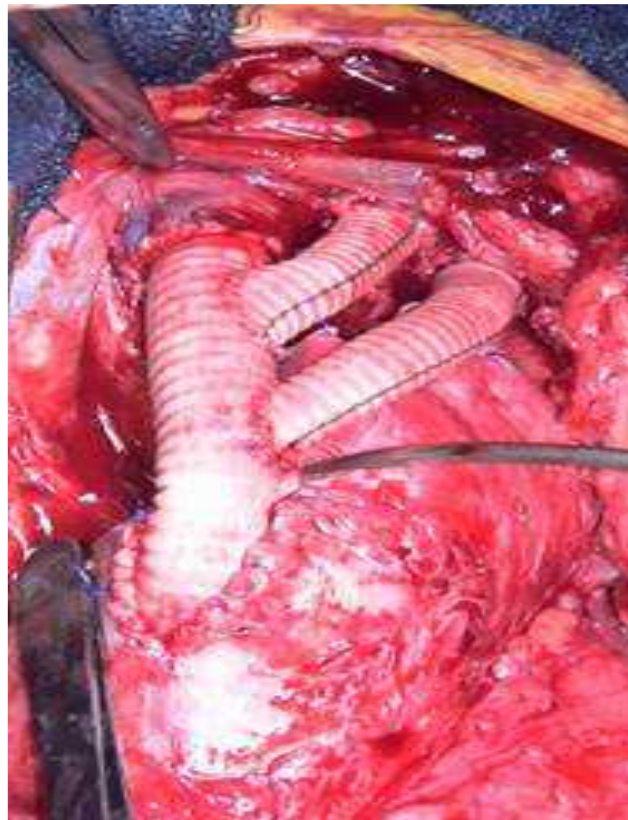
Technique for total debranching

1 or **2 steps**

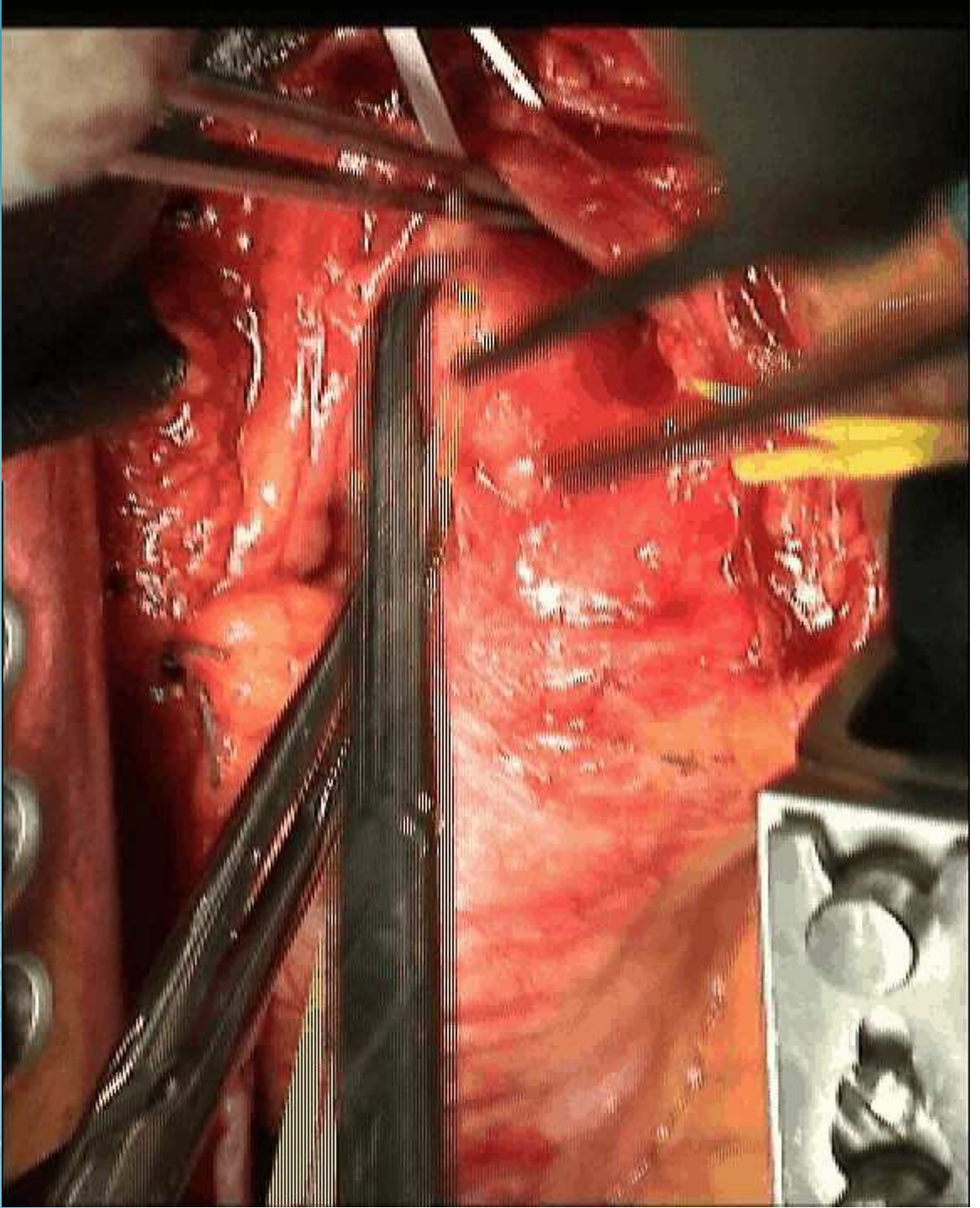
1) Debranching (sternotomy)

2) Stentgrafting (groin approach)

3 branches



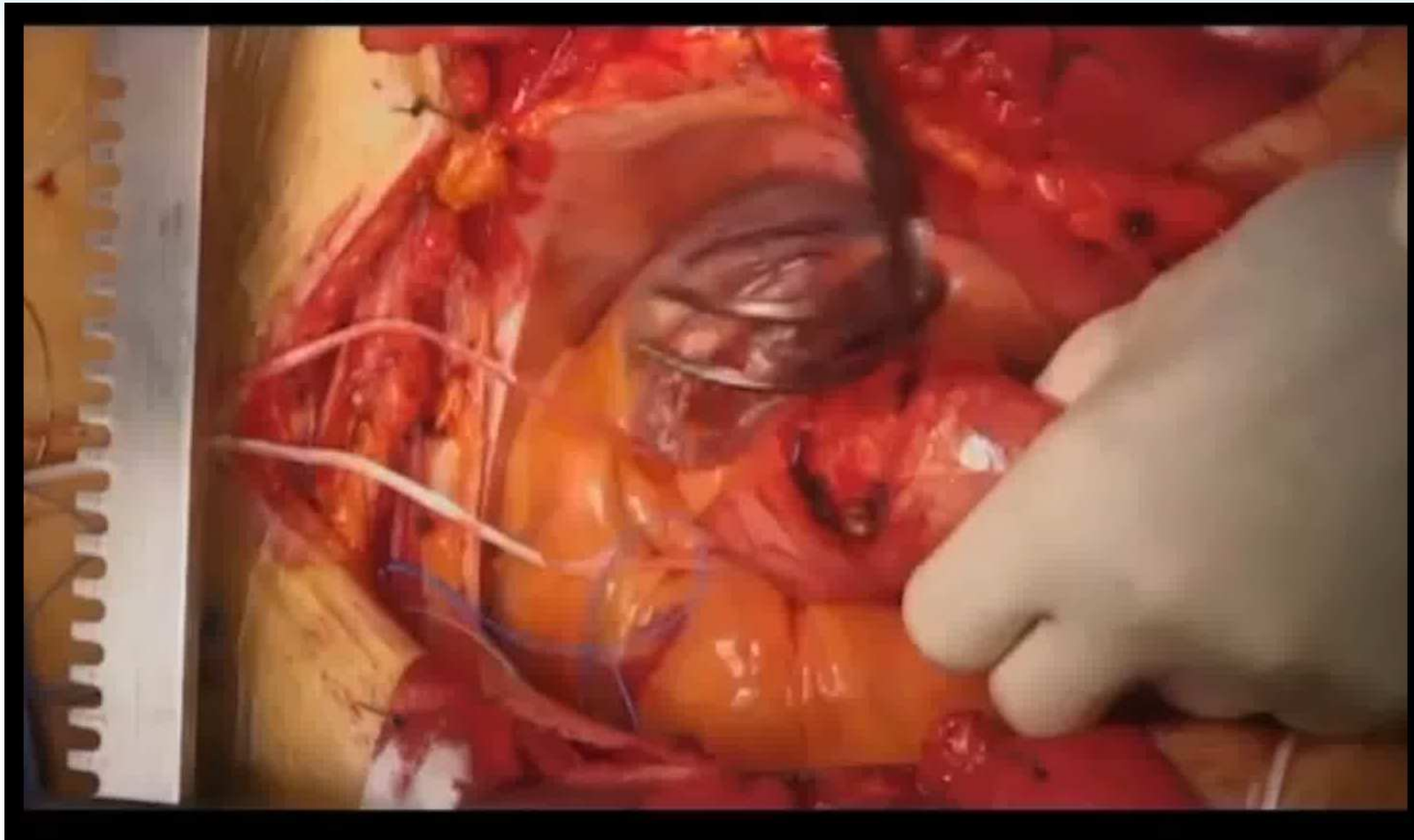
2 branches +
Carotido subclavian
bypass during SG



Total debranching performed by Pr Chiesa (Milan)

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MULTIDISCIPLINARY EUROPEAN
ENDOVASCULAR THERAPY

MULTIMEDIA MANUAL OF
CARDIOTHORACIC
MMCTS SURGERY



Aortic Clump Type

COBRA



MULLER



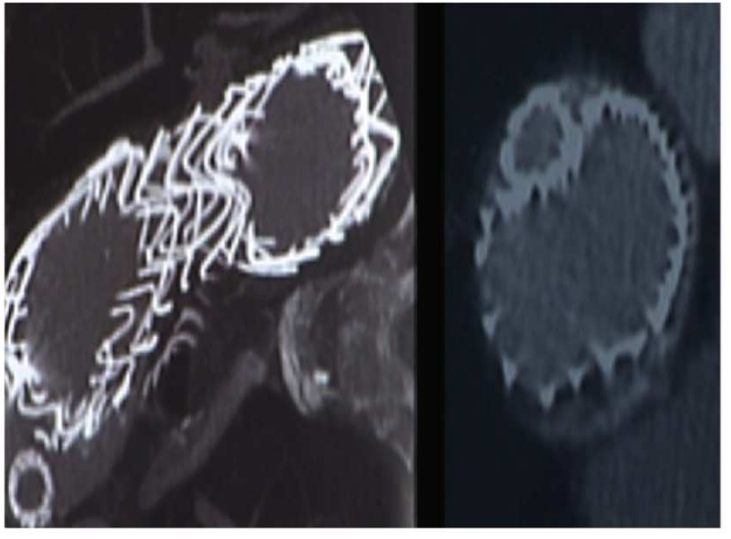
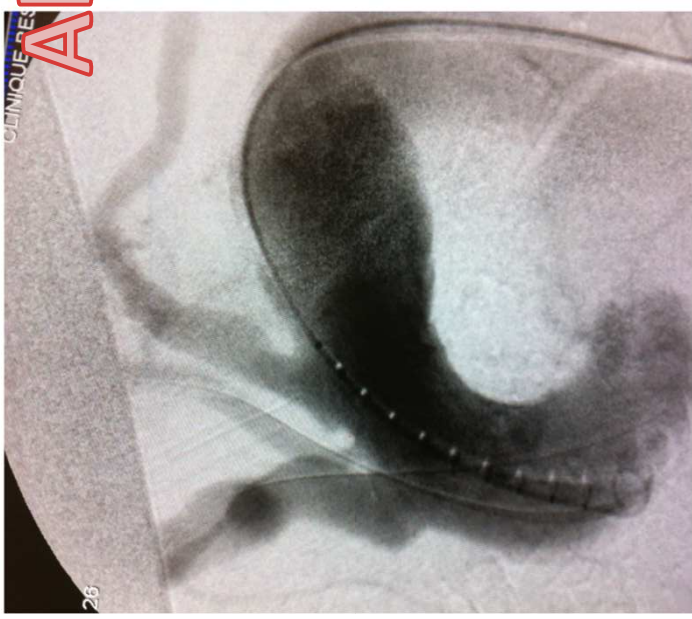
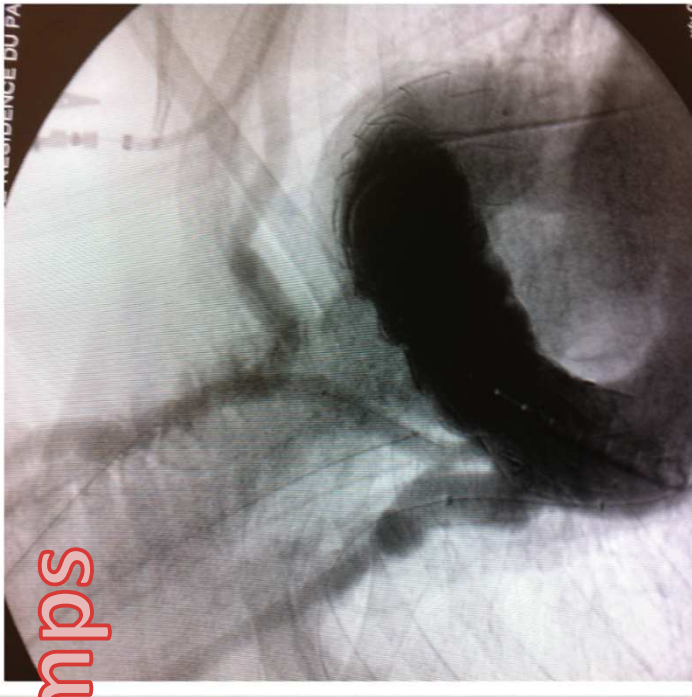
Long term RESULTS of Total Hybrid

- From 2000 to 2011 : **60 Pts** (24 TAD ; 34 AArA; 1 IMH; 1 False aneurysm) Mean age 71 (54-88)
- **Mortality rate = 8.3%, morbidity = 8.3%** No paraplegia, 1 delayed unilateral lower limb deficit resolved by CSF drainage
- Mean Follow-up period: 34+/-17.6 months (3-65)

Global mortality = **22.2%**

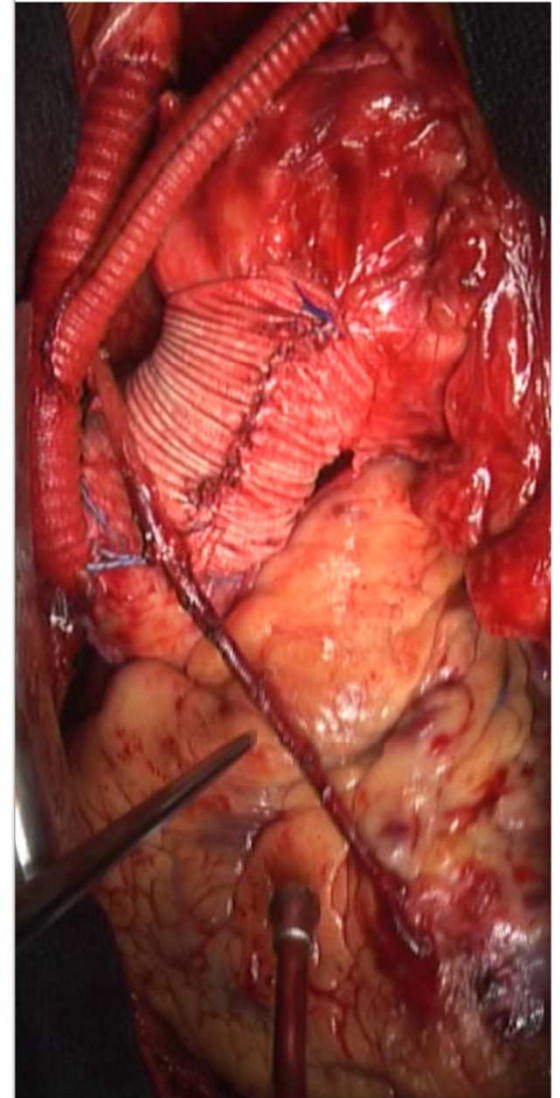
- **New endoleaks**
 - 1 distal type 1 endoleak on TAA (SG extension)
- No broken-up stentgraft
- No stentgraft related complication

Survival rate: **77.8%**
Sac Exclusion rate: **98%**



Alternative chimps

Other Indications



CONCLUSION

- Total hybrid repair allows arch surgery without ECC, it appears reliable, **allowing easy SG sealing.**
- Accessible to vascular, non cardiac surgeons
- Indicated for High risk patients
- Can be replaced by chimps when sternotomy must be avoided; **limitations from Gutters.**
- The place for in situ fenestration and total branched stentgraft is still to be defined