Hybrid repair: technique for total debranching

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• 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

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<th>Author</th>
<th>Pts</th>
<th>MORTALITY</th>
<th>STROKE</th>
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<td>Spielvogel, 2011</td>
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<td>Della Corte, 2006</td>
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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
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.
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
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)
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