Surgeon Modified Endografts For Treatment Of Ascending And Arch Aneurysms And Dissections: Value Of A Transapical Approach

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Disclosure

• Medtronic:
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• Patents:
  • Extensible ascending aortic stent-graft
  • Double fenestrated stent-graft

Homemade proximal scalloped stent graft for zone 2 TEVAR

• Zone 2
• Large proximal scallop
• 10 cases
• 100% of sealing


Homemade proximal scalloped stent graft via a transapical approach

• Accurate deployment
  • Proximal
  • In the arch
  • Pericardial effusion

Experimental study

• Six cadaveric human heart, ascending aorta, aortic arch
• Trans apical approach
• Distal fenestrated Stent-graft

Gandet T, Canaud L. Experimental evaluation of home made distal stent graft fenestration TEVAR of type A dissection via a transapical approach. JVS. 2018.
Clinical case

Combined ascending and arch repair is required

Options for the aortic arch

Custom-made: total endovascular repair

- **Cook**: 3 high volume centers: 1.5 years
  - N: 27
  - Mortality: 4.3%
  - Stroke: 15.5%
  - Endoleak: 7.4%
  - Reintervention: 7.4%
  - Price: Time to manufacture

  Spear et al. Subsequent Results for Arch Aneurysm Repair with Inner Branched Endografts. EJVES. 2016.

- **Bolton**
  - N: 8, 3 years...
  - Non negligible risk of mortality and stroke
    - Mortality: 14%
    - Stroke: 14%

  Cao et al. Endovascular arch replacement with a dual branched endoprosthesis. ACS. 2018.

Total arch repair

• To Avoid carotids manipulations
Total arch repair

- with the proximal fenestrations being directed to the orifices of the BT and LCCA automatically
- when LSA fenestration is catheterized and secured by covered stent placement

• To Avoid carotid arteries manipulations

Double fenestrated stent-graft

• Technique
  - The proximal large fenestration for the BT and the LCCA of appropriate size (4 mm larger laterally than that of the BT and LCCA orifices)
  - The distal circular fenestration for the LSA: 8 mm

Total arch repair

- 22 patients: June 2017 - September 2018
- Stent graft modification: 19 minutes (range 16-20)
- Endovascular exclusion: 100% No type I endoleak was observed.
- 2 LSA catheterization failed:
  - Carotid axillary bypass
  - LSA transposition and LCCA stenting
- One patient had a stroke without permanent sequelae: 4.5%
- Overall mortality was 0%
- One patient with a type II endoleak
- During a mean follow up of 9 ± 2 months, there were no conversions to open surgical repair, aortic rupture, paraplegia, retrograde dissection.


Clinical case

Ready for the ascending aorta and the aortic arch?
Clinical case


Clinical case


Clinical case

Springback effect
Discussion

• Dedicated stent-graft
• Team work: vascular and cardiac surgeon
• Hybrid suit: high resolution
• Treatment of the arch ++++
• Follow-up is needed

Conclusion