Fenestrated and Branched EVAR to Treat PDTAAA: Technical Tips, Results and Limitations

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Chronic Dissection

- Definition & Indication for Treatment: Post-Dissection Aneurysm
- Extension: Thoraco-abdominal
- Type: not only Type B

Disclosures

- William Cook Europe/Cook Inc.
  – Consultant & Research grants
- Getinge
  – Consultant
- Bentley
  – Consultant

Lay-out

- Technical Issues/Tips/Limitations
- Results of F/B EVAR
Lay-out

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Post-Dissection TAAA
Specific Anatomical Points of Attention

- Small True Lumen
- Target Vessels originating from True/False lumen
- Lack of Distal Landing Zone
- Access in Dissection

Feasibility

- We can work in a **small** True Lumen
- **Fairly Easy** to switch from True/False lumen
  - Many entries/re-entries...
- **Additional technical challenges** **← unfriendly anatomy**

Access in PDTAAA Patient

- **79 YO Male**
- **Post-Dissection Aneurysm**
  - Arch + Thoracic Aorta
- **2006**: Asc. Conduit + Valve
- **2018**: Iliac Stent right
  - Occluded
- **Co-Morbidity**
  - Renal Insufficiency (Cr: 1.9mg/dl)
  - Claudication/Femoral Pules present

Upper Access
Catching Wire in TL

Test Run with Sheath

Arch Branch Device

PDTAAA with RRA originating from FL

• 80 YO Male

• Post-Dissection TAAA
  – Dmax 5.9cm
  – TEVAR 4 months after acute dissection

Point of Attention

• RRA from False Lumen
  – No entry tear...

Plan

TEVAR + 4x FEVAR
Procedure

- RRA not contrasted
  - Originates from False Lumen...
  - No Entry Tear

- Dissection Flap Perforation
  - Back of a wire

- Dilation with the sheath dilatator
Updated Experience from Nürnberg (N=54)

- 40/54 after previous surgery:
  - Proximal stent-grafting for Type B (N=29)
  - Open surgery for Type A (N=11)

- Type of Graft:
  - Combination of Fenestrations/Branches* (N=18)
  - Fenestrations only (N=31)
  - Branches only (N=5)

*Surgical Outcome

- Technical Success (endovascular): N=53 (96.3%)
  - 1 Assisted (Retrograde renal catheterisation)

- 30-d Mortality: N=2 (3.7%)
  - Cardiac (N=1)
  - MOF (N=1)

Lay-out

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Surgical Outcome

- SCI: N=7 (13%)
  - Paraparesis (N=6), complete recovery
  - Paraplegia (N=1)

Late Results: Survival

F/U: 21.3 months (1-78 months)

- 9 Aneurysm unrelated deaths
- No rupture
Late Results: Target Vessels
F/U: 21.3 months (1-78 months)

98.1 ± 1.2% at 1 Year  
95.4 ± 3.1% at 3 Years

• Target vessel occlusion: N=6  
  (3x RRA, 2x SMA, 1x CA)
  – 5 Patients asymptomatic (3x RRA, 1x SMA, 1x CA)
  – 1 SMA Thrombectomy + Patchplasty

Late Results: Reinterventions
F/U: 21.3 months (1-78 months)

85.3 ± 5.6% at 1 Year  
62.7 ± 8.8% at 2 Years

• Reinterventions due to Endoleak
  – Target vessels N=6 (8 vessels)
  – IBD uni/bilaterally N=2
  – Extension to EIA/Embolization IIA N=1
  – Stent-grafting (Type III Endoleak)* N=1
  • Disconnection of Thor. & Abd. components

Type I EL (left renal artery)

Distal landing in dissected CIA
Complete sealing @ 12 months

Persisting endoleak @ 9 months

Intraoperative Endoleak

Sac Diameter Regression during F/U

65.5 ± 10.4 mm → 53.2 ± 13.6mm

(p=0.005)

Conclusions

• F/B grafts to treat PDTAAA work
  – Careful planning and technical execution required

• Follow-up seems promising
  – Mid-term Results (up to 9 years)
  – False lumen shrinkage/thrombosis
  – No ruptures during FU