F/B EVAR for Post-Dissection Aneurysms

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Chronic Dissection

• Definition & Indication for Treatment: Post-Dissection Aneurysm

• Extension: Thoraco-abdominal
Post-Dissection TAAA
Specific Anatomical Points of Attention

• Small True Lumen

• Stiff Dissection Flap

• Target Vessels originating from True/False lumen
Post-Dissection TAAA
Specific Planning Problems

• Create/find a Proximal/Distal Landing Zone

• How big to size main graft?

• Choice between branches/fenestrations

• Find a way to change from FL to TL
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
Fenestrated/Branched Repair
The „Inner Branch Option“
Fenestrated and branched endovascular aortic repair for chronic type B aortic dissection with thoracoabdominal aneurysms

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• Cleveland Experience
  – 15 extensive TAAA dissections
  – 15 focal dissections (w/o thoracic aorta involvement)

Conclusions: FEVAR is feasible for patients with chronic dissections and TAAA. Concerns regarding visceral vessel access and graft compression resulting from narrow true lumen diameters were not relevant in our experience. Favorable sac and lumen morphologic changes, coupled with a low mortality and complication risk, makes this an attractive means of handling this clinical problem. (J Vasc Surg 2013;58:625-34.)
Outcomes of Fenestrated/Branched Endografting in Post-dissection Thoracoabdominal Aortic Aneurysms

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Objectives: Fenestrated/branched thoracic endovascular repair (F/Br-TEVAR) is increasingly applied for atherosclerotic thoracoabdominal aortic aneurysm (TAAA); however, use in post-dissection TAAAs is still very limited. Experience with F/Br-TEVAR in the treatment of post-dissection TAAA is presented.

Methods: Data were analysed from prospectively maintained databases including all patients with post-dissection TAAAs that underwent F/Br-TEVAR within the period January 2010 to July 2013 in two vascular institutions. Evaluated outcomes included initial technical success, operative mortality and morbidity, late survival, endoleak, aneurysm diameter regression, renal function, and reintervention during follow-up (FU).

Results: A total of 31 patients (25 male, mean age 65 ± 11.4 years) were treated. Technical success was 93.5% and 30-day mortality 9.6%. Temporary spinal cord ischaemia occurred in four (12.6%) patients, with no case of permanent paraplegia. Mean FU was 17.0 ± 10 months. There were seven late deaths, all aneurysm unrelated. Estimated overall survival rates were 83.9 ± 6.7, 76.4 ± 7.9 and 71.6 ± 8.7% at 6, 12, and 18 months, respectively. Impairment of renal function occurred in two (6.4%) patients. Endoleaks were diagnosed in 12 patients during FU, including six type Ia endoleaks and six type II endoleaks. Reintervention was required in seven (22.5%) patients. Mean aneurysm sac regression was 9.3 ± 8.7 mm, with a false lumen thrombosis rate of 66.7% and 88.2% for patients with a FU longer than 6 and 12 months respectively.

Conclusions: F/Br-EVAR is feasible for patients with a post-dissection TAAA. Although associated with additional technical challenges, and a significant need for reintervention, it leads to favourable aneurysm morphologic changes, and may play a more prominent role in the future for this type of pathology if long-term results confirm the good initial outcome.
Updated Experience (N=68) Nürnberg (N=39)/Regensburg (N=29)

• 51/68 after previous surgery:
  – Proximal stent-grafting for Type B (N=29)
  – Open surgery for Type A (N=22)

• Type of Graft:
  – Combination of Fenestrations/Branches (N=25)
  – Fenestrations only (N=38)
  – Branches only (N=5)
Surgical Outcome

• Technical Success (endovascular): N=64 (94%)
  – 1 Assisted (Retrograde renal catheterisation)
  – 2 RA Catheterization Failure
  – 1 Conversion

• 30-d Mortality: N=4 (5.9%)
  – Cardiac (N=2)
  – MOF (N=1)
  – Caval Vein rupture (post-op Sheldon) (N=1)
Surgical Outcome

- SCI: N=12 (17.6%)
  - Paraparesis (N=9), complete recovery
  - Paraplegia (N=3), improvement to paraparesis
Late Results: Survival
F/U: 21 months (1-66 months)

- 6 Aneurysm unrelated deaths
- No ruptures
Late Results: Reinterventions
F/U: 21 months (1-66 months)

75.4 ± 6.0%  1 Year
59.5 ± 7.5%  2 Years
Late Results: Reinterventions
F/U: 21 months (1-66 months)
N=21 (31%)

- Reinterventions for Endoleak
  - Target vessels N=12 (16 vessels)
  - IBD uni/bilaterally N=5
  - Extension to EIA/Embolization IIA N=1
  - Coil Embolization Type II N=2
  - Lap. Clipping IMA N=1
Type I EL (left renal artery)

Completion angio

Angio one month after CT
Distal landing in dissected CIA
Distal landing in dissected CIA

Complete sealing during F/U:
Distal landing in dissected CIA
Incomplete sealing during F/U:

Intraoperative Endoleak

Persisting endoleak @ 9 months
Reintervention: Bilateral IBD
Sac Diameter Regression during F/U

65.5 ± 10.4 mm → 54.2 ± 13.6mm

(p=0.005)
Conclusions

- F/B grafts are a realistic option to treat “Post-dissection TAAA”
  - Careful planning and technical execution required
- Follow-up seems promising
  - False lumen shrinkage/thrombosis
- Rigorous FU required: Reintervention rate...
  - More oversizing main graft?
  - More (inner) branches?
  - Longer bridging stentgrafts?
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