Ascending Aortic TEVAR: Where is it and What is its Future Potential

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Indication for Ascend Grafts

- Lesions post surgery:
- Pseudoaneurysm
- Postsurgery bleeding
- Residual Dissection
- Lost TAVI
- Type A dissection
- Ascending aneurysm

Ascending TEVAR Hamburg Experience 2010-2017:
- Cases: 24
- Dissection: 15
- Pseudoaneurysm: 5
- Dislocated TAVI: 2
- Other: 2
- Urgent/emergent: 14
- Access:
  - Transfemoral: 18
  - Transapical: 4
  - Transsubclavian: 2
- 30d mortality: 5 (21%)
- 1y mortality: 6 (25%)
- Stroke: 3 (13%)

Tsilimparis et al. 2018; J Vasc Surg accepted

Acute Type A Dissection

The first endovascular repair of an acute type A dissection using an endograft designed for the ascending aorta


Endograft Choice

- Length: measure at outer curve 6-10cm
- Diameter: measure on Centerline
- Tapered grafts
- Reverse tapering
- On-table customization
Ascending TEVAR for TAAD

Outcomes of Endovascular Repair of Ascending Aortic Dissection in Patients Unsuitable for Direct Surgical Repair

- 2009-2011 n=15
- Interval: 26 days
- Technical success: 15
- Open conversion: 1
- Mortality: 0

Li et al. 2016; J Am Coll Cardiol 68:1944-54

Oversizing

- Native aorta or graft
- Gated or non-gated CT
- Systolic or diastolic
- Age
- Bloodloss....
- Generally: 15-25%

Pulsatility

Chronic TAAD

Chronic TAAD
Chronic TAAD

Inner Curve Apposition

Cook Zenith TBE ProForm

77-81mm

Gore ARISE Study

Early human feasibility trial
- Acute TAAD
- Staged release
- Active control system
- 7/10 patients included

In situ bending of thoracic stent grafts: Clinical application of a novel technique to improve conformance to the aortic arch

Kölbel et al. 2008; J Vasc Surg 49:1613-4

Case series of 3
Bowden-cable


Presented at Veith Symposium 2008
Medtronic Ascending SG
- Physician sponsored IDE
- 11 patients enrolled
- No 30d mortality
- Stroke 1/11
- Mean FU 30m:
- 2 late unrelated deaths

Combined Ascend + Branched Arch Endograft in acute TAAD
- Acute Type A Aortic Dissection Treated Using a Tubular Stent-Graft in the Ascending Aorta and a Multibranched Stent-Graft in the Aortic Arch

Combined Ascend + Branched Arch
- Case series n=5
- Technical success 5/5
- 1y mortality 2/5 (aTAAD)

Transapical bridging stents

Transapical bridging stents
Summary

- Endovascular Treatment of ascending aorta beneficial in selected patients.
- Postsurgery lesions and Type A dissection work.
- Ascending aneurysms in native vessel do not.
- Transfemoral delivery challenging, transapical access route potentially easier.
- Significant progress in device development recently.