Branched Grafts are the best Endovascular Method to treat Arch Aneurysms

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Veith 2015, NYC

Disclosures

• Research support, Consulting
  – Cook Med, GE Healthcare

OPEN SURGERY

ELEPHANT TRUNK

PROXIMAL SEAL
No Compromise!

• Asc Aorta diam<38mm
• Prox neck length>25mm
• Type B dissections
Aortic arch aneurysms

Prevalence of thoracic aneurysms: 10.4 for 100,000 persons/year
Aortic arch aneurysm = 10% of thoracic aneurysms

<table>
<thead>
<tr>
<th>Type</th>
<th>Mortality rate</th>
<th>Stroke rate</th>
<th>Type 1 EDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN SURGERY</td>
<td>2% - 16.5%</td>
<td>2% - 18%</td>
<td>-</td>
</tr>
<tr>
<td>HYBRID REPAIR</td>
<td>0 - 15%</td>
<td>0 - 11%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Moon et al., 2007
Clough et al., 2013
Melissano et al., 2007

Durability of branches in branched and fenestrated endografts

Tara M. Masson, MD, Roy K. Greenberg, MD, Matthew J. Sallot, MD, and Adrian Y. Hernandez, MD
Cleveland, OH

Branched and fenestrated grafts may be chosen to improve antegrade or retrograde perfusion. However, the long-term durability of these techniques and their potential for endoleak formation has been a concern. Therefore, the objective of this study was to evaluate the durability and clinical outcomes of branched and fenestrated endografts in the thoracic and abdominal aortic aneurysms.

Methods: We performed a review of the literature from the PubMed database to identify studies that reported on the durability and clinical outcomes of branched and fenestrated endografts.

Results: Of the 10 studies identified, the follow-up duration ranged from 1 month to 5 years. The cumulative follow-up interval was 10 years. The majority of the studies used the Boston Scientific Evolute and the Medtronic Valiant grafts. The overall technical success rate was 98%. The overall survival rate was 95%. The cumulative event rate, which included death and major adverse events, was 9%.

Conclusions: Branched and fenestrated endografts are effective in the treatment of complex aortic aneurysms. However, the long-term durability and clinical outcomes of these techniques remain to be determined.

Preoperative measurements with CPR on workstation

Access Tortuosity/Calcification

Arch Branch Device Evolution
### Ascending Aorta and Arch

<table>
<thead>
<tr>
<th></th>
<th>Length (L)</th>
<th>Angle (θ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moon et al.</td>
<td>70.5 ± 1.8 mm</td>
<td>N/A</td>
</tr>
<tr>
<td>Sobocinski et al.</td>
<td>80.5 mm</td>
<td>N/A</td>
</tr>
<tr>
<td>TAA patients</td>
<td>7.8 ± 0.8 mm</td>
<td>41.1 ± 6.1°</td>
</tr>
</tbody>
</table>

- **Ascending Aorta**
  - Short
  - Angulated
- **Branch Vessels**
  - Dire consequences of inaccurate deployment
- **Aortic Valve**
  - Wire and delivery system tip must traverse aortic valve

2. Sobocinski et al. EJVES 2011
3. Cook internal data
4. GE DISCOVERY IGS 730
Post-operative CT  
2-year control

Update  
ESVS 2015, Porto

- Aortic Centre, CHRU Lille, France
- Vascular Surgery, Jikei University, Tokyo, Japan
- Klinik und Poliklinik für Gefäßmedizin, Universitäres Herzzentrum Hamburg, Hamburg, Germany

ESVS 2015

- 27 patients
- Technical success always achieved
- No patients died during the 30-day postoperative period
- Early neurologic events:
  - 2 major and one minor strokes (11%)
  - Transient spinal cord ischemia with full recovery was observed in 2 patients (7%).
CONCLUSION

- Conventional surgery: «gold standard» but not in «high risk patients»
- Hybrid technique / parallel grafts:
  - Seal in Ascending Aorta?
  - Iatrogenic type A dissection?
- Total endovascular repair:
  - Seal in Ascending Aorta?
  - Type A dissection Follow-up
  - Patients unfit for redo sternotomy