Open TAAA Repair After Failed TEVAR Or Endovascular TAAA Repair: Technical Advances And Results: Who Should Do these Redo Procedures

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Disclosure
- PI/Co-PI for several thoracic and abdominal aortic stent graft trials (Cook, Inc, Cordis® Corporation, Bolton Medical)
- Proctor and participated as a lecturer at symposia hosted by Cook, Inc., Bolton, W.L. Gore and Associates, Jotec and Medtronic, Inc.

Reinterventions after TEVAR
- Endo relining
  - 113 (55%)
- Open conversion
  - 81 (39%)
- Hybrid approach
  - 12 (6%)

Open conversion after TEVAR
San Raffaele experience 1995-2019
81 pts

Open conversion after TEVAR
San Raffaele indications to conversion (n = 81 pts)

1. Progression
   A - Endoleak IA 12
   B - Endoleak IB 14
   C - SINE 5
   D - Distal progression 22

2. Acquired
   A - Endograft failure 5
   B - Infection / Fistula 17
   C - Retrograde Aortic Dissection 6
1. A - Endoleak IA

Surgical conversion with Frozen Elephant Trunk

Distal progression

- 1.B - Endoleak IB
- 1.C - SINE
- 1.D - Distal aneurysmatic evolution

Distal progression

Surgical tips

- Stent-Graft clamping
- Stent-Graft partial removal
- Proximal anastomosis: “Triple layer technique”

2. Acquired

2.A - Endograft failure

Complete graft removal for intra-graft thrombosis

2.B - Infection / Fistula

Surgical tips

- Graft complete removal
- Repair with Silver-Triclosan
- Associated GE / Bronchial repair
2.B - Infection / Fistula

“In situ” repair with silver-triclosan graft (Synergy)

Evidence of AEF

2.B - Infection / Fistula

Esophageal repair with with intercostal muscle interposition

2.C – Retrograde Aortic Dissection

Ascending aorta repair with “Y-graft” reimplantation

TEVAR conversions - results

Open conversion

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Mortality (30-days)</th>
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<tbody>
<tr>
<td></td>
<td>81</td>
<td>11 (13%)</td>
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<tr>
<td>Major morbidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>20 (24%)</td>
<td>5 (20%)</td>
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<tr>
<td>Renal failure</td>
<td>11 (13%)</td>
<td>2 (20%)</td>
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<tr>
<td>Paraplegia</td>
<td>6 (7%)</td>
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Results depend on cause of conversion

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<thead>
<tr>
<th></th>
<th>30-day mortality</th>
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<tbody>
<tr>
<td></td>
<td>n (%)</td>
</tr>
<tr>
<td>Progression</td>
<td></td>
</tr>
<tr>
<td>Endoleak IA</td>
<td>(12)</td>
</tr>
<tr>
<td>Endoleak IB</td>
<td>(14)</td>
</tr>
<tr>
<td>SINE</td>
<td>(5)</td>
</tr>
<tr>
<td>Distal progression</td>
<td>(22)</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>1 (8.3%)</td>
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<tr>
<td></td>
<td>1 (7.1%)</td>
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<tr>
<td></td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>1 (4.5%)</td>
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<tr>
<td>Aquired</td>
<td></td>
</tr>
<tr>
<td>Endograft failure</td>
<td>(5)</td>
</tr>
<tr>
<td>Infection / Fistula</td>
<td>(17)</td>
</tr>
<tr>
<td>RAD</td>
<td>(4)</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>1 (20%)</td>
</tr>
<tr>
<td></td>
<td>5 (30%)</td>
</tr>
<tr>
<td></td>
<td>2 (33%)</td>
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</tbody>
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Conclusions

• Close follow-up after TEVAR
• Open conversion
  - Technical challenge
  - Acceptable results in High Volume Centers
• Increased mortality in case of retrograde dissection and infection