How to Prevent and Treat Retrograde Aortic Dissection Occurring with TEVAR

Ali Azizzadeh, MD, FACS
Director, Vascular Surgery
Vice Chair, Department of Surgery
Associate Director, Heart Institute
Cedars-Sinai Medical Center
Los Angeles, CA

'Disclosures

• None

'Uncomplicated' ATBAD

• 59 yo
• CAD, A. Fib
• uiATBAD
• OMT
• CTA @ 1 mo
• 5 cm DTAA

TEVAR

• IVUS
• Dissection @ LSCA
• L CCA SCA Bypass
• CSF Drainage

Proximal Landing Zone

Left CCA
Left SCA

40 mm x 20 cm devices
RTAD

MOTHER Registry
1010 total patients
Data from 5 prospective trials St. George’s Hospital
16 patients (1.6%) with RTAD

Systematic Review
EMBASE, Medline, Cochrane
51 series
174 patients with RTAD

Timing of RTAD: range 0-1825 days
Intra-operatively: 21%
Within 30 days: 50%
Greater than 30 days: 29%

Results of Pooled Analysis
Incidence of RTAD: 1.7% (168/9594)
30-day mortality: 33.6%

RTAD associated with device oversizing > 9% (each 1% oversizing increase lead to increase in OR of RTAD by 1.14, p < 0.0001)

Comparative Kernal density plots of % oversizing

Proximal Stent-Graft Configuration
Incidence of RTAD
Proximal Bare Stent Endografts
2.8%

Non-bare stent Endografts
2.4%
p = 0.5895

Proximal Landing Zone
0: 6.8%
1: 2.4%
2: 4.1%
3/4: 1.9%
Results of Pooled Analysis

Type of Aortic Pathology

Dissection: 4%  Aneurysm: 0.9%  TAI/PAU: 0%


Results of Pooled Analysis

Type of Dissection

Acute: 8.4%  Chronic: 3.1%


2017 Meta-Analysis

- 50 publications
- 8969 pts
- Incidence: 2.5%
- Mortality: 37.1%
- Acute >> Chronic
- Dissection >> Aneurysm
- Proximal Bare Stent >> Non-Bare

Acute vs. Chronic Dissection

RR 1.81

Dissection vs. Aneurysm

RR 5.33
Proximal Bare vs. Non-bare Stent
RR 2.06

Incidence: Proximal Landing Zone

<table>
<thead>
<tr>
<th>Incidence, %</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 0</td>
<td>8.12 (16/197)</td>
</tr>
<tr>
<td>Zone 1</td>
<td>2.57 (7/272)</td>
</tr>
<tr>
<td>Zone 2</td>
<td>2.66 (24/903)</td>
</tr>
<tr>
<td>Zones 3 &amp; 4</td>
<td>0.67 (8/1195)</td>
</tr>
</tbody>
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Shanghai, China Series 2018
- 2005-2013
- 997 pts TEVAR for TBAD
- 852 pts with mean f/u 2.6 years
- No difference b/w Proximal Bare Stent (PBS) vs. Non PBS in incidence of RTAD

Conclusion
- RTAD uncommon complication (1.6-2.5%)
- High mortality rate (33.6%-37.1%)
- Typically occurs within 30 days (70%)
- Associated with acute dissection, oversizing > 9%, and proximal landing zones
- Role of bare metal vs non-bare stents controversial (probably best to avoid)