My algorithmic approach to management of chronic Type B aortic dissection: Technical tips

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Disclosure

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I have the following potential conflicts of interest to report:

☑ Consulting: Spectranetics, Biomet, Endologix, TVA Medical
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☒ Other(s): VIVA Physicians Board Member

☐ I do not have any potential conflict of interest
First Step

Understand Current Outcomes
Systematic review of mid-term outcomes of TEVAR for chronic TBAD

- 17 studies of 567 patients
- Technical success rate 89.9% (range 77.6-100)
  - Mid-term mortality was 9.2% (46/499)
  - Survival 59.1-100%, median f/u 24 mos
- 8.1% (25/309) patients developed endoleak
  - Predominantly type I
- 7.8% (26/332) patients
  - Developed aneurysms of distal aorta or continued false lumen perfusion with aneurysmal dilatation.

TEVAR Rare Complications

• Delayed retrograde type A dissection (0.67%)
• Aorto-esophageal fistula (0.22%)
• Neurological complications
  • Paraplegia 2/447, 0.45%
  • Stroke 7/475, 1.5%

FEVAR/BEVAR for Chronic Type B AD with Thoracoabdominal Aneurysms

- FEVAR 30 chronic dissections with arch aneurysm or TAAAs, or both
- Group A, 15 patients (mean age, 58 years) with extensive dissections extending from the arch through the visceral segment
- Group B, 15 patients (mean age, 74 years old) with focal dissections and no extension into the thoracic aorta
FEVAR/BEVAR for Chronic Type B AD with Thoracoabdominal Aneurysms

- No perioperative deaths
- One aortic-related death occurred at 87 days due to progression of a pre-existing untreated arch dissection
- Stent grafts expanded to their nominal diameters after implantation without any blood flow disturbance of branched visceral vessels and distal aorta. No graft compression occurred

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FEVAR/BEVAR for Chronic Type B AD with Thoracoabdominal Aneurysms

• Post-FEVAR growth was noted in two patients, related to type II endoleaks
• Sac regression was similar (-6.8 vs -11.4 mm; \( P = .43 \)), but early endovascular reinterventions were more common in group A (8 patients)
• Patients with extensive dissection were younger, and the dissection more likely to be associated with a defined connective tissue disease

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## What is the Size of the Aorta?

<table>
<thead>
<tr>
<th>Artery</th>
<th>Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoracic aorta</td>
<td>5cm, 5.5cm, 6cm</td>
</tr>
<tr>
<td>Thoracoabdominal aorta</td>
<td>5cm, 5.5cm, 6cm</td>
</tr>
<tr>
<td>Abdominal aorta</td>
<td>5cm, 5.5cm, 6cm</td>
</tr>
<tr>
<td>Common iliac artery</td>
<td>3cm, 3.5cm, 4cm</td>
</tr>
</tbody>
</table>
Considerations

• Aneurysmal disease extent
  • Thoracic aorta
  • Thoracoabdominal aorta
  • Abdominal aorta
  • Iliac arteries

• Connective Tissue Disorder
  • Marfans
  • Loeys-Dietz
Proximal Landing Zone

- Proximal extent of coverage
  - Zone 0, 1, 2
    - Arch vessel coverage
    - Debranching vs Branch vessel vs Chimney
- Angulation in the arch
  - How will the device sit
- Diameter differences
  - Proximal to landing zone
  - Distal to landing zone
Proximal Concerns

- Cerebral revascularization
  - PICA off Vert?
  - LIMA off LSCA
- Risk of seal failure
- Bail out strategy
Distal Seal Zone

- Diameter relative to proximal
- False lumen flow at seal zone
- Reentry locations and numbers and sized
Ability to Exclude Distal Reentries

- Possible at first operation
- Reevaluate after TEVAR
Diameter of the True Lumen

- Is there room for a FEVAR device?
- Can the visceral and renals be cannulated and is there enough room for the device to open and connect to them?
Conclusions

- Open surgery for some
- TEVAR for some
- Staged Repair
- FEVAR for Some
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