How To Manage EVAR With Small Distal Aortas: When Are Bifurcated Grafts OK And When Is An Aorto-Uni-Iliac Device Needed

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The Narrow Aortic Bifurcation

Traditional View: AUI and Fem-Fem

- Avoids Potential Gate Cannulation Issues.
- Avoids Limb Compression from Competition for Domain.

Downside to AUI and Fem-Fem?

- Comparative studies have shown improved patency with inline reconstruction.
- Limits options if future intervention is necessary.
- Potential for graft infection.
- Excludes hypogastric flow in cases of external iliac occlusion.

What is the Optimal Management of the Narrow Aortic Bifurcation?
What is Narrow?

Narrow bifurcations
Prevalence (M2S database)
Data: ~35,000 EVAR patients (AAA> 4.5 cm, Proximal diameter 18-32mm)

~60% of distal aortic diameters are ≤ 20mm
~30% of distal aortic diameters are ≤ 16mm

Can Bifurcated Grafts Safely Be Used in the Narrow Distal Aorta?

The Narrow Distal Aorta

- Pooled analysis of results from 3 prospective multicenter trials with Endologix ELG.
- 157 Patients
- Approximately 2/3 had distal aortic diameters < 20 mm
- Two Limb Occlusions (1.27%)


Optimal Design for Tight Distal Anatomy?

- Obviates gate cannulation
- Eliminates limb competition
- Preserves native bifurcation for subsequent infragastrual PAD interventions
- In-fold resistant ActiveSeal™ Technology

What about other designs?

The Narrow Distal Aorta

Is Limb Compression an Issue?

Reviews of Limb Occlusions

Limb occlusion after endovascular repair of an abdominal aortic aneurysm: beware the narrow distal aorta

- Case Report
  - Zenith device
  - 16 mm limbs
  - 20 mm distal aorta
- Recurrent limb occlusion after reinforcement with Wall Stent (16 x 40 mm)

Parallel Endografts
Calculating Size for Double-D Configuration

\[ \pi \cdot D_{\text{parallel}} = \frac{1}{2} \pi \cdot D_{\text{main}} + D_{\text{main}} \]

\[ D_{\text{parallel}} = \frac{(\pi+2)}{(\pi \cdot 2)} \cdot D_{\text{main}} \]

\[ D_{\text{parallel}} \approx 0.82 \cdot D_{\text{main}} \]

Parallel Endografts

14 mm

12 mm

12 mm

\[ 14 \times 0.82 = 11.62 \text{ mm} \]

The Effect of Angioplasty

Experience in Treating Narrow Distal Aortas in the TriVascular Ovation™ Global Pivotal Trial

**TREATMENT OF PATIENTS WITH NARROW DISTAL AORTAS**

Ovation™ White Paper

Experience in Treating Narrow Distal Aortas in the TriVascular Ovation™ Global Pivotal Trial

**RESULTS**

<table>
<thead>
<tr>
<th></th>
<th>Study Population</th>
<th>Narrow Distal Aorta Subgroup, n=46 [No. %]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Adverse Events, 0-30 days</td>
<td>3.9% (2)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Device-Related Major Adverse Events, 0-366 days</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
</tr>
<tr>
<td>Link Occlusion Rate, 0-366 days</td>
<td>1.3% (3)</td>
<td>1.4% (3)</td>
</tr>
</tbody>
</table>

*Major adverse events based on Clinical Events Adjudication Committee data.
Bifurcated Aortic Stent Grafts Are Safe and Effective for Endovascular Repair of Aortic Aneurysms in Patients With Narrow Distal Aortic Bifurcations: Aorto-Iliac Converters Are Rarely Needed in the Current Era

• Abstract from SCVS 2013
• 106 patients with distal aorta 18 mm or less treated with bifurcated grafts and kissing balloon angioplasty
• No retroperitoneal hematomas or ruptures
• 5 patients required re-intervention for stenosis/occlusion

Conclusions

• The narrow aortic bifurcation is a common clinical scenario
• The Anatomic Fixation design has theoretical advantages and proven results
• However, other designs should succeed with appropriate sizing and standard endovascular techniques
• AUI and fem-fem may still be appropriate in some cases, but is just often not necessary

The Narrow Aortic Bifurcation

Never Say Never