Sandwich (Parallel) Grafts Work For TAAAs: HowMuch Oversizing Of The Main Endograft AndOverlap Of The Branch Grafts Are Required

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• Conflict of interest: Consultant
Medtronic
Trivascular
Silkroad Medical

How to avoid gutters
Sandwich Technique

1. Deployment of Thoracic Endograft
Celiac trunc
12x9mm Amplatzer
Superior Mesenteric Artery
x100 mm + 13x100 mm Viabahn

2. Deployment of visceral and renal covered stents
Deployment of Bifurcated Endograft

3. Deployment of Bridging Endograft
Sandwich Technique: 3 Snorkels

2 Snorkels: 1 Chimney + 1 Periscope

Technical Issues

The Best Conditions for Parallel Stenting during EVAR: An In Vitro Study

20% + ½ of the Diameter of the Chimney Graft (in mm)
Aortic Arch Endo Debranching - Sandwich

• ViaBahn graft in left common carotid
• ViaBahn graft in Innominate artery

Endo Debranching Sandwich

Sandwich

Bridging Stent

No gutter

Mid term results Sandwich Grafts

Experience with the sandwich technique in endovascular thoracoabdominal aortic aneurysm repair

No difference between Chimneys and Periscopes

N = 32

Patient Data

No of patients: 32
Mean follow up (months): 18.7(12 - 36)
Age (Years): 72(49 - 91)
Evidence: 48(0 - 1)
TAAs (N): 16(12)
TAAs (F): 17(4)
Innominate (N): 10(8)
Internal iliac (N): 10(9)
Acute Aneurysms (N): 16(12)
> 50% Acute or ruptured Aneurysm Cases
Sandwich Grafts Reduction in Diameter

<table>
<thead>
<tr>
<th>Diameter group</th>
<th>3-Diameter 1</th>
<th>3-Diameter 2</th>
<th>4-Diameter 3</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Main</td>
<td>8.6</td>
<td>10.1</td>
<td>13.29</td>
<td>0.09</td>
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<tr>
<td>Diameter group</td>
<td>4.87</td>
<td>6.31</td>
<td>8.47</td>
<td>0.01</td>
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<td>operation time</td>
<td>2.5</td>
<td>4.4</td>
<td>5.21</td>
<td>0.47</td>
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<tr>
<td>Resection time</td>
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<td>3.2</td>
<td>4.61</td>
<td>0.44</td>
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<tr>
<td>Custom time</td>
<td>188.3 ± 15.3</td>
<td>140.1 ± 10.6</td>
<td>173 ± 28.2</td>
<td>0.02</td>
</tr>
<tr>
<td>Stenosis</td>
<td>188.3 ± 15.3</td>
<td>140.1 ± 10.6</td>
<td>173 ± 28.2</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Reduction in Diameter Related to Number of Chimney Grafts

Technical Issues: Low Flow – High Flow Gutters

...and how to take care of them

Deployment of coils – immediate sealing

Sandwich TAAA (m) 8 weeks later
Bare metal Chimneys
Rapid Gutter Thrombosis - Flow Modulation

Chimney + Aptus => Active Gutter Elimination

Shift of Paradigms?