Different Patterns Of AAA Neck Dilatation After OR And EVAR With Various Self-Expanding Or Polymer Sealing Devices: Why It Matters And Which Is Best With Short Sealing Zones

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Disclosures

• Consulting: Endologix, Cook

Pattern of Neck Dilation after Open Repair

Natural Progression of Disease

What About EVAR?

Case Report

Post-op 4 Years
Post-op 9 Years

Natural Progression of Disease?

Pattern of Neck Dilation after EVAR

Pattern of Neck Dilation after Open Repair

The Science of Seal

Why?

The Science of Seal

- Seal Achieved/Maintain by Chronic Outward Radial Force
- Exerts approximately 18-36 mmHg of additional MAP
- Can exert as much as 70-100 mmHg of additional MAP depending on oversizing

Self Expanding Stent Graft
Late Proximal Neck Failure

EVAR Accelerated Neck Dilation

Do Abdominal Aortic Aneurysm Necks Increase in Size Faster after Endovascular than Open Repair?

- Analysis of Post-op Aortic Dilation at 2 years in EVAR1 Trial (Open vs EVAR)


• At SMA
  - Open = 0.15 cm²/year
  - EVAR = 0.33 cm²/year

• At Lowest Renal
  - Open = 0.14 cm²/year
  - EVAR = 0.83 cm²/year

• At 15 mm Infrarenal
  - Open = 0.07 cm²/year
  - EVAR = 0.85 cm²/year


Stable Dilated Pattern of Neck Dilation after EVAR


Stable Dilated Pattern of Neck Dilation after EVAR
**Why Does it Matter?**

Endovascular versus open repair of abdominal aortic aneurysm in 15-years’ follow-up of the UK endovascular aneurysm repair trial 1 (EVAR trial 1): a randomised controlled trial

What is the Best Treatment with Short Sealing Zones?

Influence of Infrarenal Neck Length on Outcome of Endovascular Abdominal Aortic Aneurysm Repair

- EUROSTAR analysis of 3499 patients treated with Zenith or Talent endografts
  - 2822 with Prox Neck > 15 mm
  - 485 with Prox Neck 10-15 mm
  - 192 with Prox Neck < 10 mm


Freedom From Proximal Endoleak in Grafts with Transrenal Fixation

- Group A: Neck > 15 mm
- Group B: Neck 11-15 mm
- Group C: Neck < 11 mm

Engage Short Neck Analysis 5 Years (Cumulative)

<table>
<thead>
<tr>
<th>Cumulative through 5-Years</th>
<th>Neck &gt; 15 mm (n=123)</th>
<th>Neck 11-15 mm (n=1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF Secondary Endovascular Procedure*</td>
<td>94.5%</td>
<td>84.4%</td>
</tr>
<tr>
<td>FF ARH*</td>
<td>97.6%</td>
<td>97.8%</td>
</tr>
<tr>
<td>FF Type I Endoleak†</td>
<td>90.0%</td>
<td>96.0%</td>
</tr>
<tr>
<td>FF Rupture*</td>
<td>96.6%</td>
<td>98.7%</td>
</tr>
<tr>
<td>FF Conversion*</td>
<td>98.5%</td>
<td>98.0%</td>
</tr>
</tbody>
</table>

http://www.medtronic.com

What is the Best Treatment with Short Sealing Zones?
Prolene

Average Market Life Cycle of Medical Devices is 18 to 24 months

Options for More Seal
- FEVAR
- Parallel Grafts

Option for More Fixation
- Endo Anchors

Option for Better Seal
- Insulating Effect
- O-Ring Sealing Technology

Hostile Proximal Neck