- Low profile devices for EVAR -
Value and trade-offs from a surgical viewpoint

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Disclosure

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I have the following potential conflicts of interest to report:

- [x] Consulting
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [ ] I do not have any potential conflict of interest
Iliac artery rupture
Morphology of access vessels as limitation for EVAR

30% for tight iliacs  

70% for severe tortuosity

Tight or tortuous iliacs

- Improved flexibility and trackability for tortuous anatomies
- Small crossing profiles
Advantages of lower profile

- less trauma
- less bleeding
- less complications
- less discomfort
- increased applicability
- percutaneous access
- local anesthesia
- early discharge
The Impact of Profile

Based on 45,000 M2S files of patients with aneurysmal disease
<table>
<thead>
<tr>
<th>Brand</th>
<th>Manufacturer</th>
<th>Type</th>
<th>Inner-to-inner diameter</th>
<th>Outer-to-outer diameter</th>
<th>Active Diameter</th>
<th>Delivery</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fortevo Endograft With HeliFX EndoAnchors&lt;sup&gt;b&lt;/sup&gt; (Aptus Endosystems, Inc.)</td>
<td></td>
<td>Inner-to-inner diameter</td>
<td>22–32 mm (19–29 mm)</td>
<td>11–22 mm (9–20 mm)</td>
<td>16–18 F</td>
<td>Active endo-anchor infrarenal</td>
<td>Nitinol/polyester</td>
</tr>
<tr>
<td>Ovation&lt;sup&gt;a&lt;/sup&gt; (TriVascular, Inc.)</td>
<td></td>
<td>Inner-to-inner diameter</td>
<td>20–34 mm (16–30 mm)</td>
<td>10–22 mm (8–20 mm)</td>
<td>14–15 F</td>
<td>Active suprarenal; infrarenal sealing rings</td>
<td></td>
</tr>
<tr>
<td>Incraft (Cordis Corporation)</td>
<td></td>
<td>Outer-to-outer diameter</td>
<td>22–34 mm (17–31 mm)</td>
<td>10–24 mm (7–22 mm)</td>
<td>13 and 15 F</td>
<td>Active suprarenal</td>
<td>Nitinol/polyester</td>
</tr>
<tr>
<td>Treovance (Bolton Medical, Inc.)</td>
<td></td>
<td>Outer-to-outer diameter</td>
<td>20–36 mm</td>
<td>8–24 mm</td>
<td>18–19 F</td>
<td>Active suprarenal and infrarenal</td>
<td>Nitinol/polyester</td>
</tr>
<tr>
<td>Nellix (Endologix, Inc.)</td>
<td></td>
<td>N/A</td>
<td>16–36 mm</td>
<td>8–35 mm</td>
<td>17 F</td>
<td>Complete aneurysm sac sealing</td>
<td>Cobalt: chromium/biostable PEG-filled sacs</td>
</tr>
</tbody>
</table>

From: Yassa Endovascular today 2012
Methods for reducing profile

- Change to Tri-Fab
- Modifications to the deployment system
- Nitinol instead of stainless steel
- Lasercut Nitinol tube
- Packaging
- Different stent design
- Change of the Dacron weave
- Thinner Dacron Polyester Fabric
- Decrease overlap of stents
Is there a trade-off with low profile stentgrafts?

• Will lighter fabrics and stent material decrease EVAR durability?

• Will the rate of type III/IV endoleak increase in the future?

• Will the reduced limb support in small/calcified iliacs increase the limb occlusion rate? Also because of the more liberal indication in demanding anatomies?

• Will the need for secondary procedures increase in the future?
The Cordis AAA stent-graft system (INCRAFT) is broadening EVAR eligibility without compromising ease of use and durability.
## Operative and 3-year outcomes

<table>
<thead>
<tr>
<th></th>
<th>Operative</th>
<th>3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freedom from Endoleak</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type I</td>
<td>98.3% (59/60)*</td>
<td>96%†</td>
</tr>
<tr>
<td>Type III</td>
<td>100% (60/60)</td>
<td>100%</td>
</tr>
<tr>
<td>Type IV</td>
<td>93.3% (56/60)</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Freedom from Major Adverse Events</strong> (death, QMI, CVA, renal failure)</td>
<td>100%</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Stent Graft Patency</strong></td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td><strong>Freedom from Fracture</strong></td>
<td>NA</td>
<td>98%</td>
</tr>
</tbody>
</table>

* Type I endoleak due to severe calcification in aortic neck, resolved after additional endovascular intervention on day 61.
† Second Type I endoleak was present at 30 day follow-up and resolved after additional endovascular intervention on day 278.
Take home message

- Access complications are not rare
- Important risk factors are calcifications, tortuosity and female gender
- Low profile endografts can reduce the rate of such complications and increase EVAR applicability
- After 3 years no durability issues after INCRAFT
Thank you!

homepage: www.gefaesschirurgie-muenster.de
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