Debate on Surgery or Endovascular Approach for Popliteal Aneurysms

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Relevant Conflicts of Interest

• Consultant, Clinical Investigator, Speaker's Bureau for W. L. Gore and Associates
The most prevalent type of peripheral arterial aneurysm (70%-80%)

50% bilateral

More common in men than women (20:1 ratio)

36%-50% associated with AAA
Clinical Presentation

• 40% are asymptomatic at presentation

• Rupture is rare – More likely to develop lower limb ischemia due to thromboembolism or thrombosis

• Risk factors for acute limb ischemia: Aneurysm > 2 cm, Presence of Mural Thrombus, Poor Distal Run-Off
High Risk!

• Symptomatic PAAs have a risk of major amputation as high as 30% - 40%

• Asymptomatic PAAs, if left untreated, have risk of thromboembolic complications from 24% at 1 year to 74% at 5 years


Is Vascular Surgery Still the Gold Standard?

- Endovascular approach offers:
  - Shorter procedure time
  - Shorter hospital stay
  - Less blood loss
  - Lower risk of infection
  - Faster recovery
Endovascular Approach – Need Favorable Anatomy

Endovascular Repair of Large Aneurysm

Large aneurysm

Good landing zones proximal and distal

Similar vessel diameter proximal and distal to aneurysm

Typically oversize Viabahn endograft to avoid endoleaks
Use of Viabahn for PAA Exclusion (2007)

<table>
<thead>
<tr>
<th>Name</th>
<th>Limbs</th>
<th>1-Year Primary Patency</th>
<th>2-6 Year Primary Patency</th>
<th>Limb Salvage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antonello</td>
<td>21</td>
<td>80.9%</td>
<td>71.4% (6yr)</td>
<td>100%</td>
</tr>
<tr>
<td>Tielliu</td>
<td>73</td>
<td>80%</td>
<td>70% (5yr)</td>
<td>100%</td>
</tr>
<tr>
<td>Rajasinghe</td>
<td>23</td>
<td>93%</td>
<td>_</td>
<td>100%</td>
</tr>
<tr>
<td>Curi</td>
<td>15</td>
<td>100%</td>
<td>83% (2yr)</td>
<td>100%</td>
</tr>
<tr>
<td>Ghotbi</td>
<td>27</td>
<td>_</td>
<td>85% (4yr)</td>
<td>100%</td>
</tr>
</tbody>
</table>

• 53 PAA’s treated at two centers in Italy
• 98.1% males; mean age 73.6 ± 7.8 years
• 22.6% were symptomatic; (8 of 12 patients required thrombolysis)
• Aneurysm diameter: 30.9 ± 10.9 mm (range 17-60 mm)
• 80 stent-grafts deployed

• 30 day mortality and re-intervention rates: 0%
• Mean follow up: 37.4 ± 29.3 months

http://dx.doi.org/10.1016/j.avsg.2015.01.008
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Non-randomized comparison of Surgery vs. Endovascular Repair of PAA (2013)

- Retrospective review of 178 OR vs. 134 EV PAA procedures between Jan 2000 – Dec 2011 (multi-center)
- Surgery group had more symptomatic (higher risk) patients: 64% vs. 34% (p<0.0001) and slightly worse run-off (<2 vessels = 39% vs. 26%, p=0.03)
- Mean duration of follow-up: 30.6 +/- 27.5 months
- Mortality: Similar – 0% surgery, 1.5% endovascular
- Thrombosis: - 3.3% surgery, 9.7% endovascular

Primary Patency and Freedom from TLR

Conclusions

- Popliteal aneurysms > 2 cm need to be repaired due to high risk of acute limb ischemia
- PAA with mural thrombus and/or poor distal run-off may require pre-intervention thrombolysis to reduce risk of thromboembolic procedural complications
- Patients with adequate landing zones (with similar diameter proximal and distal) who are candidates for long-term anti-platelet therapy should be offered an “endovascular first” approach using Viabahn
- Endovascular approach offers shorter procedure time, less blood loss, lower risk of infection, shorter hospital stay and faster recovery as well as intermediate term results very comparable to surgery – WHAT’S NOT TO LIKE?
So when you see this...

THINK THIS!

NOT THAT!!!
Thank you for your attention (and apologies to Dr. Varnagy!)

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