Predictors for good outcomes in large hole access and closure

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Disclosure

Giovanni Pratesi, M.D.

I have the following potential conflicts of interest to report:

✓ Consulting: Abbott, Cook, Cordis, Medtronic, WL Gore & Associates

☐ Employment in industry

☐ Stockholder of a healthcare company

☐ Owner of a healthcare company

☐ Other(s)

☐ I do not have any potential conflict of interest
EVAR and percutaneous access: an ideal combination

- Rapid, safe and effective
- Local anesthesia
- Lower risk of wound-related complications (e.g., seroma, infection, nerve injury)
- Reduced discomfort for the patient
- Early ambulation, shorter hospitalization

- Totally endovascular, minimally invasive procedure
Suture mediated closure devices:
Prostar XL & Proglide
Predictors for good outcomes in percutaneous access
Predicting the learning curve and failures of total percutaneous endovascular aortic aneurysm repair

The complications rate during p-evar decreases significantly with increasing operator experience

Bechara CF et al., J Vasc Surg 2013
1. Preoperative evaluation
2. Ultrasound guided puncture
3. Double Proglide technique

Approved for large bore sheath up to 21 Fr
4. Progressive closure
5. Post-closure duplex and CT follow-up access sites examination
Outcomes of percutaneous EVAR: clinical evidences
The Prostar XL is an effective and safe device for use in percutaneous closure of large femoral artery sites, comparable to open surgical femoral artery cut-down.

Haulon S et al., Eur J Vasc Endovasc Surg 2011
Outcomes of total percutaneous endovascular aortic repair for thoracic, fenestrated, and branched endografts

2009-2014: 102 pts; total percutaneous closure was performed using two Perclose devices in 170 femoral arteries with ≥20F-diameter sheaths in 163 (96%)

- Technical success: 95%
- 3 thrombosis, 1 retroperitoneal hematoma, 1 pseudoaneurysm
- No access-related complications >30 days

The rate of access related complications (5%) is similar to that reported for PEVAR of infrarenal AAAs using smaller-profile devices.

De Souza LR et al., J Vasc Surg 2015
• 2381 femoral access between 2010 and 2014
• Unselected patients
• Technical Success Rate: 96.7% (2303/2381)
## Technical success:

<table>
<thead>
<tr>
<th></th>
<th>TEVAR/f-bEVAR (192/2381)</th>
<th>EVAR (2189/2381)</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>Fr device (mean ± SD)</td>
<td>21.3 ± 2.1</td>
<td>16.7 ± 3.4</td>
<td>.03</td>
</tr>
<tr>
<td>Profile &gt; 20 Fr</td>
<td>54 (43.5%)</td>
<td>482 (21.3%)</td>
<td>.001</td>
</tr>
<tr>
<td>CFA diameter, mm (mean ± SD)</td>
<td>8.4 ± 1.7</td>
<td>8.2 ± 1.4</td>
<td>.15</td>
</tr>
<tr>
<td>CFA &lt; 7 mm</td>
<td>9 (7.2%)</td>
<td>163 (7.2%)</td>
<td>.54</td>
</tr>
<tr>
<td>High CFA bifurcation</td>
<td>2 (1.6%)</td>
<td>64 (2.8%)</td>
<td>.32</td>
</tr>
<tr>
<td>CFA stenosis &gt;50%</td>
<td>6 (4.8%)</td>
<td>66 (2.9%)</td>
<td>.16</td>
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</tbody>
</table>

J Cardiovasc Surg 2015

Vascular Surgery – University of Rome “Tor Vergata”
pEVAR Italian Registry: multivariate regression analysis

<table>
<thead>
<tr>
<th>Conversion</th>
<th>OR</th>
<th>IC 95%</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFA calcifications</td>
<td>1.65</td>
<td>1.01 – 2.68</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Iliac tortuosity</td>
<td>1.62</td>
<td>.99 – 2.65</td>
<td>.052</td>
</tr>
<tr>
<td>&gt; 18 Fr</td>
<td>1.16</td>
<td>.69 – 1.97</td>
<td>.57</td>
</tr>
<tr>
<td>High CFA bifurcation</td>
<td>.94</td>
<td>.22 – 3.91</td>
<td>.93</td>
</tr>
</tbody>
</table>

Pratesi G et al., J Cardiovasc Surg 2015
How to improve outcomes in pEVAR: tips & tricks
pEVAR tips & tricks:
one Proglide up to 14F femoral access
pEVAR tips & tricks:
sheath downsizing during complex f/bEVAR
pEVAR: tips & tricks
pledgets with minor bleeding
pEVAR: tips & tricks
third Proglide if you are not satisfied
Expanding pEVAR applicability: toward a 100% percutaneous closure
Expanding pEVAR applicability: obese patient
Expanding pEVAR applicability: calcified common femoral arteries
Conclusions

• Totally percutaneous EVAR/TEVAR using Proglide is a safe and lower invasive treatment

• Technical success is multifactorial and appropriate learning curve is the strongest predictor for good outcomes

• Tips and tricks are effective in additionally increase applicability and effectiveness
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