Pitfalls of Percutaneous EVAR And How To Avoid Them

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Percutaneous EVAR

- Preclose technique
  - Prostar
  - Double ProGlide
- Local anesthesia
- Decreases
  - OR time
  - Time to ambulation
  - Wound complications
  - LOS

Disclosure

- W LGore – Clinical Trials
- Bolton – Clinical Trials

Percutaneous AAA Repair: Is it Safe?

Total percutaneous access for endovascular aneurysm repair (“Preclose” technique)

- Failures are all observed and addressed in the OR
- No late failures

Perclose ProGlide

- The original device was FDA approved 1997
- The extended indications were FDA approved 2018
  - PRECLOSE TECHNIQUE
    - Large bore catheters

A multicenter, randomized, controlled trial of totally percutaneous access versus open femoral exposure for endovascular aortic aneurysm repair (the PEVAR trial)


20 Centers, 2010-2012, Endologix
Proglide (n=50), Prostar (n=51), Cutdown (n=50)
Procedural Success: 94% (PG) vs. 88% (PS) vs. 98% (FE)
PG noninferior to FE, but not PS
EVAR 2012-2016

- Percutaneous access first policy 2012
- 272 elective EVAR
- PEVAR attempted in 260 (96%)
- Successful (S-PEVAR) 238 (92%)

EVAR 2012-2016

<table>
<thead>
<tr>
<th>Operative Time and Post-op LOS</th>
<th>S-PEVAR vs. F-PEVAR</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Time (minutes)</td>
<td>160 ± 60</td>
<td>242 ± 79</td>
</tr>
<tr>
<td>Post-op LOS (hours)</td>
<td>34 ± 34</td>
<td>56 ± 42</td>
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EVAR 2012-2016

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<tr>
<th>Major adverse operative events (MAOE)</th>
<th>S-PEVAR vs. Failed PEVAR (F-PEVAR)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Thrombosis</td>
<td>S-PEVAR: 0.4%</td>
<td>F-PEVAR: 14%</td>
</tr>
<tr>
<td>Blood loss &gt; 500 cc and/or transfusion</td>
<td>S-PEVAR: 2%</td>
<td>F-PEVAR: 23%</td>
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EVAR 2012-2016

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<tr>
<td>Operative Time (minutes)</td>
<td>F-PEVAR: 242 ± 79</td>
<td>Cut-Down: 270 ± 45</td>
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<tr>
<td>Post-op LOS (hours)</td>
<td>F-PEVAR: 56 ± 42</td>
<td>Cut-Down: 107 ± 120</td>
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Predictor of ProGlide Failure

- Small (<6.5 mm) CFA
- >50% CFA calcification
- Anterior wall calcification
- Prior cut-down/scarring
- High bifurcation (<2 cm segment for access)
- Large bore sheath (>18F)
- Morbid obesity
Access is Essential to Avoid Problems!

- Fluoroscopy
- U/S guidance
- Micropuncture kit
- Access angiogram

Lack of Hemostasis

- Use no more than 3 ProGlide
- AngioSeal
- Pack the access site with Gelfoam/thrombin
- Pull and clamp technique

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Conclusions

- PEVAR first approach is strategy successful in >90% – Reduced operative time and postoperative LOS
- Failure occurred more commonly when PEVAR was completed outside of IFU
- No difference in outcomes between FPEVAR and planned femoral cut-down