Failure Modes for Pedal Access Endovascular Interventions

Rabih A. Chaer MD, MSc
Professor of Surgery
Residency Program Director
Site chief, Presbyterian campus
Division of Vascular Surgery, UPMC

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DISCLOSURES

• Nothing to disclose

Background

• Crossing complex arterial occlusions can be a limitation for the endovascular treatment of chronic limb ischemia
• Retrograde infra-geniculate access is an alternative strategy for patients who failed a standard antegrade intervention

Objectives

• Single institutional series
• Examine the outcomes and modes of failure of retrograde intervention in the treatment of chronic lower extremity ischemia
• Compare the outcomes to a control group treated via femoral access

Methods

• Retrospective review
• Chronic lower limb ischemia patients, UPMC, 2012-2014
• Retrograde infra-geniculate access to recannalize TASC-D occlusions that could not be treated via the antegrade approach
• Control group of 100 CLI patients matched by TASC classification and Rutherford category of ischemia treated via the transfemoral approach

Patient characteristics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Age (mean ± SD)</td>
<td>71.7 ± 12.1</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>22</td>
<td>51%</td>
</tr>
<tr>
<td>Severity of the ischemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rutherford 6</td>
<td>4</td>
<td>9%</td>
</tr>
<tr>
<td>Rutherford 5</td>
<td>30</td>
<td>68%</td>
</tr>
<tr>
<td>Rutherford 4</td>
<td>3</td>
<td>7%</td>
</tr>
</tbody>
</table>
Access site

- DP: 12 (28%)
- Peroneal: 11 (26%)
- AT: 8 (19%)
- PT: 11 (26%)
- Pop: 1 (2%)

- Fluoroscopic or ultrasound guidance
- Recanalization attempted via retrograde and antegrade access using different techniques, sub-intimal dissection, CART double balloon technique, etc

Technical Outcome

- Infragenicular access N
  - Failed access: 10%
  - Failed recanalization: 35%

<table>
<thead>
<tr>
<th>No. of pts.</th>
<th>Fate of failed retrograde access</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Successful PTA via the antegrade access</td>
</tr>
<tr>
<td>8</td>
<td>Successful bypass surgery</td>
</tr>
<tr>
<td>4</td>
<td>Major amputation</td>
</tr>
<tr>
<td>2</td>
<td>Continued on expectant treatment</td>
</tr>
</tbody>
</table>

Complications

- No access site complications
- No pseudoaneurysms
- No loss of tibial access vessels
- No compartment syndrome

Survival

- Survival
  - Infrag: 97 76 53 31 12 4 3 1 0
  - Femoral: 44 22 16 12 8 3 2 1 0

Primary Patency

- 62% vs 57% @ 1yr
  - p = 0.039

Secondary Patency

- 94% vs 76% @ 1yr
  - p = 0.003
Limb salvage rate

Conclusions

- Retrograde infra-geniculate endovascular intervention can result in similar limb salvage and patency rates as the antegrade approach, without compromising the access site.
- Infra or supramalleolar access is equally feasible with ultrasound or fluoroscopic guidance.
- Technical failure is common, mostly due to failed recanalization rather than failed access.
- Recanalization from a repeat antegrade approach is feasible after a failed retrograde interventions.

THANK YOU. chaerra@upmc.edu