The utility of the retrograde proximal anterior tibial access for challenging femoropopliteal occlusions

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Disclosure

Speaker name:
Michael Piorkowski

I have the following potential conflicts of interest to report:

☐ 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
The challenges complex of femoropopliteal occlusions

- long lesion length
- often severe calcification
- underlying aneurysmatic disease
- genicular arteries originating at the occlusion
- occlusion reaches to origin of the anterior tibial artery or further down
The challenges complex of femoropopliteal occlusions
The retrograde access via the proximal anterior tibial artery

- gives close access to the lesion
- can take a 4F sheath for angled catheters, 0.035” wires and balloons for advanced recanalization techniques
- preserve the origin of ATA and TTF
Material

- 21 Gauge 7cm needle (Cook)
- 0.018” guide wire (e.g. V18 control or Connect)
- sheathless: followed-up by a support catheter or a balloon
- sheath: 4F pediatric introducer (7cm, 0.025” GW).
Retrograde proximal ATA-puncture

ipsilateral oblique
contralateral oblique
The „Leipzig transtibial registry“

- between 11/2006 and 08/2014
- 554 peripheral interventions with an additional crural retrograde access in order to cross an infrainguinal occlusion
- 159 patients have been treated with a retrograde proximal tibial puncture
- mean age 70.3 ± 10.0 years
- 37.7 % female patients
The „Leipzig transtibial registry“
- patients characteristics -

<table>
<thead>
<tr>
<th>Rutherford-Becker</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>68</td>
<td>34</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>(0.6 %)</td>
<td>(42.8 %)</td>
<td>(21.4 %)</td>
<td>(23.3 %)</td>
<td>(11.9 %)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previous treatment</th>
<th>none</th>
<th>TLimb</th>
<th>Tlesion</th>
<th>bypass</th>
<th>TEA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>96</td>
<td>17</td>
<td>13</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>(60.4 %)</td>
<td>(10.7 %)</td>
<td>(8.2 %)</td>
<td>(15.1 %)</td>
<td>(5.7 %)</td>
</tr>
</tbody>
</table>
The „Leipzig transtibial registry“  
- lesions characteristics -

- lesion length: 150 mm (80mm; 350mm)
- BTK vessel pre intervention: 2 (1;2)

<table>
<thead>
<tr>
<th>Location</th>
<th>SFA</th>
<th>SFA/A.pop</th>
<th>A.pop</th>
<th>SFA/A.pop/BTK</th>
<th>A.pop/BTK</th>
<th>ATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 (5.0%)</td>
<td>90 (56.6%)</td>
<td>30 (18.9%)</td>
<td>8 (5.0%)</td>
<td>15 (9.4%)</td>
<td>8 (5.0%)</td>
</tr>
</tbody>
</table>
The „Leipzig transtibial registry“
- lesions characteristics -

<table>
<thead>
<tr>
<th>Calcium</th>
<th>Aneurysma</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>mild</td>
</tr>
<tr>
<td>24 (15.1 %)</td>
<td>28 (17.6 %)</td>
</tr>
<tr>
<td>24 (15.1 %)</td>
<td>28 (17.6 %)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>perforation</th>
<th>no entry proximal</th>
<th>no re-entry distal</th>
<th>incomplete passage</th>
</tr>
</thead>
<tbody>
<tr>
<td>37 (23.3 %)</td>
<td>25 (15.7 %)</td>
<td>43 (27.0 %)</td>
<td>54 (34.0 %)</td>
</tr>
</tbody>
</table>
The „Leipzig transtibial registry“
- retrograde puncture -

• success in 96.9% of the cases
• access to vessel was gained mainly with a support catheter (61.0%) or with a 4F sheath (33.3%)

<table>
<thead>
<tr>
<th>simple passage</th>
<th>double balloon</th>
<th>CART</th>
<th>re-entry in balloon</th>
</tr>
</thead>
<tbody>
<tr>
<td>82 (51.9 %)</td>
<td>29 (18.4 %)</td>
<td>38 (24.1 %)</td>
<td>9 (5.7 %)</td>
</tr>
</tbody>
</table>
The „Leipzig transtibial registry“ - lesion treatment -

• 60.4% POBA
• 62.3% BMS (56.6% full lesion coverage, due to residual stenosis 65.4%)
• 85.9 % with no residual stenosis
• mean procedure time: 113.8 ± 46.5min
• mean fluoro time: 42.1 ± 24.3 min
• ABI improvement from 0.45 ± 0.24 to 0.90 ± 0.24
The „Leipzig transtibial registry“
- distal puncture site -

<table>
<thead>
<tr>
<th>at the end of the procedure</th>
<th>spasm</th>
<th>dissection</th>
<th>thrombus</th>
<th>av-fistula</th>
<th>bleeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(7.5 %)</td>
<td>(0.6 %)</td>
<td>(2.5 %)</td>
<td>(1.3 %)</td>
<td>(1.3 %)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>During FU (148 days [72;312]) 108 patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>nothing</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>105</td>
</tr>
<tr>
<td>(97.2%)</td>
</tr>
</tbody>
</table>
The „Leipzig transtibial registry“
- clinical outcome -

• 12 patients died within the first year
  (22 whole cohort)
• 5 major amputations within in the first year
  (6 whole cohort)
• Primary patency after 1 year 53.2 ± 5.4%
  (64.6 ± 7.2 % vs. 41.3 ± 7.6 %; claudicants vs. CLI)
• Freedom from TLR 67.3 ± 4.4%
Proximal anterior tibial artery access
- summary -

• the proximal tibial artery access is a safe and feasible method to overcome challenges of complex femoro-popliteal lesions

• close follow-up and additional treatment with drug eluting devices might improve future outcome
Thank you
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