Thrombectomy Options in the SFA and Popliteal Artery

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Disclosures

- Consultant/Speaker
  - Abbott Vascular
  - Asahi
  - Bard
  - Cook Medical
  - Cordis
  - CSI
  - Daiichi Sankyo
  - Gore
  - Lake Region Medical
  - Medtronic
  - Penumbra
  - Terumo
  - Volcano

- Research
  - Abbott Vascular
  - Bard
  - Boston Scientific
  - Cook Medical
  - CloSys
  - CSI
  - Daiichi Sankyo
  - Gore
  - Medtronic
  - Penumbra
  - Volcano
Thrombus Epidemic

- STEMI: 250,000 Americans per year
- DVT/PE: 300,000 to 600,000 Americans per year
- CVA: 795,000 Americans per year
- Acute Limb Ischemia: 45,000 Americans per year

Fact

The incidence of clinically significant embolization for peripheral arterial interventions has been estimated at 1% to 5%.
Embolic Signal with Different SFA Interventions

Only one patient with a clinically significant occlusion

FIG. Mean embolic signal frequency during different phases of intervention.

Rate of Embolization with Percutaneous Intervention of the Fem/Pop

The incidence of embolic debris following:
- Angioplasty and Stent:         0-25%
- Thrombolytic therapy:         3.8-37%
- Rheolytic thrombectomy:       25-65%

**TABLE 1**
Reports of Embolization During Angioplasty/Stent Procedures and Thrombolytic Therapy for Treatment of Peripheral Artery Occlusive Disease

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Distal Embolization</th>
<th>Additional Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lin^{10}</td>
<td>493</td>
<td>8 (1.6%)</td>
<td>Surgical revision</td>
</tr>
<tr>
<td>Jahnke^{15}</td>
<td>328 (226 OTW, 102 RX)</td>
<td>4 (1.8%) OTW</td>
<td>Aspiration</td>
</tr>
<tr>
<td>Matsi^{17}</td>
<td>295</td>
<td>11 (2.7%)</td>
<td>NA</td>
</tr>
<tr>
<td>Wholey^{20}</td>
<td>237</td>
<td>9 (3.8%)</td>
<td>2 amputations</td>
</tr>
<tr>
<td>Matchett^{13}</td>
<td>80</td>
<td>15 (19%)</td>
<td>4 amputations</td>
</tr>
<tr>
<td>Uher^{12}</td>
<td>76</td>
<td>2 (2.6%)</td>
<td>Surgical revision</td>
</tr>
<tr>
<td>Chalmers^{19}</td>
<td>72</td>
<td>6 (8.3%)</td>
<td>Thrombectomy</td>
</tr>
<tr>
<td>Dyet^{11}</td>
<td>43</td>
<td>1 (2.3%)</td>
<td>Surgical revision</td>
</tr>
</tbody>
</table>

NA: not available, OTW: over the wire, RX: rapid exchange.

Treatment Options for Lower Extremity Thrombus and Emboli

- Thrombus
  - Medications
  - PTA
  - Laser Athrectomy
  - Manual Aspiration
  - Electromechanical Aspiration

- Emboli
  - Manual Aspiration
  - Electromechanical Aspiration
Manual vs Electromechanical Aspiration

Catheter & Syringe
+ Global Availability
+ Ease of Use
- Limited Control
- Limited Power
- Speed

Electro-Mechanical
+ Speed
- Costly
- Capital Equipment
- Training
- Time consuming

Manual vs Electromechanical Aspiration

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+ Global Availability
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- Costly
- Capital Equipment
- Training
- Time consuming
Considerations for Manual Syringe Aspiration

- Aspiration force
- Length of catheter shaft
- Diameter of catheter
- Distal Tip Area
## Aspiration Catheter Characteristics

<table>
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<tr>
<th>0.070 6F Guide Cath Compatible</th>
<th>Distal OD</th>
<th>Mid-Shaft OD</th>
<th>Proximal OD</th>
<th>Distal ID Area mm²</th>
<th>Transition ID Area mm²</th>
<th>Proximal ID Area mm²</th>
<th>Usable Length</th>
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<td>0.054&quot;</td>
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<td>1.43</td>
<td>1.43</td>
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<tr>
<td>Diver</td>
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<td>0.068&quot;</td>
<td>0.054&quot;</td>
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<td>0.055&quot;</td>
<td>0.053&quot;</td>
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<td>0.46</td>
<td>145</td>
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<tr>
<td>Xtract</td>
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<td>0.057&quot;</td>
<td>0.055&quot;</td>
<td>0.79</td>
<td>0.66</td>
<td>1.03</td>
<td>140</td>
</tr>
</tbody>
</table>
Indigo System

- Easy-to-use single operator design
- Penumbra MAX Pump delivers almost pure vacuum
- Allows for hands free aspiration
Range of Sizes to Personalize Care

CAT8
- 6.7F (2.24 mm)
- 85-115 cm

CAT6
- 5.4F (1.8 mm)
- 130 cm

CAT5
- 4.9F (1.63 mm)
- 132 cm

CAT3
- 3.1F (1.04 mm)
- 150 cm
CAT8 XTORQ with SEP
Thank you!
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