Thrombus containing lesions - How to approach?
Distal protection during peripheral interventions: available techniques and indications

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Disclosure

Speaker name: Dr. Sven Bräunlich

I have the following potential conflicts of interest to report:

- [x] 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
Risk of Thrombus... and embolization
Specific endovascular strategies are needed to open the vessel **AND** to avoid distal embolization:

- Thrombus aspiration
- Thrombolysis
- Mechanical thrombectomy (Rotarex)
Thrombus Aspiration

- Antegrade access
- 8F Aspiration-catheter
- Detachable sheath-valve
Antegrade access
8F Aspiration-catheter
Detachable sheath-valve

Thrombus Aspiration
Specific endovascular strategies are needed to open the vessel **AND** to avoid distal embolization:

- Thrombus aspiration
- **Thrombolysis**
- Mechanical thrombectomy (Rotarex)
Local bleeding after 12h low-dose thrombolysis
Thrombus-Containing Lesions

Specific endovascular strategies are needed to open the vessel AND to avoid distal embolization:

- Thrombus aspiration
- Thrombolysis
- Mechanical thrombectomy (Rotarex)
Rotarex S Catheter (Straub-Medical)

- Detachment (up to 1 cm/s)
- Suction
- Fragmentation
- Transport

40 000 rpm
Thrombus aspiration in P3 and TPT

Rotarex
Thrombectomy-catheter 6F

Short activation time
Rotarex mechanical thrombectomy: The Leipzig experience in 1,200+ patients

- Single center registry:
  - Use of Thrombectomy device in PAOD patients
  - Safety and efficacy

- Consecutive patient enrollment
  - Real world scenario
  - 1,809 patients treated (from 1/2005 – 11/2013)
  - 1,572 patients were analyzable (86.9%)
Rotarex mechanical thrombectomy: The Leipzig experience in 1.200+ patients

**Intervention Feature**

- Native „virgin“ arteries
- Surgical bypasses
- Redo procedures
- In-stent procedures

1203 Procedures
Rotarex mechanical thrombectomy in native arteries: **Acute results**

- Procedural success rate: 1139 (94.7%)

- Main performed procedure
  - Rotational Thrombectomy alone: 255 (21.2%)
  - Rotational Thrombectomy + PTA: 597 (49.6%)
  - Additional Stenting: 251 (29.2%)
  - Additional Thrombolysis: 113 (9.4%)

- Mean time follow-up: 12 ± 2.4 months
Rotarex mechanical thrombectomy in native arteries: **Acute results - Complications**

<table>
<thead>
<tr>
<th>Major Adverse Events (MAE) to 30 postoperative day</th>
<th>All events</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAE</td>
<td>n (%)</td>
</tr>
<tr>
<td>Perforation</td>
<td>22 (1.8)</td>
</tr>
<tr>
<td>Bleeding</td>
<td>29 (2.4)</td>
</tr>
<tr>
<td>Dissection</td>
<td>108 (9)</td>
</tr>
<tr>
<td>Acute closure</td>
<td>27 (2.2)</td>
</tr>
<tr>
<td>Emboli</td>
<td>87 (7.2)</td>
</tr>
<tr>
<td>Infection</td>
<td>14 (1.2)</td>
</tr>
</tbody>
</table>
Rotarex mechanical thrombectomy in native arteries: **Acute results**

- Stenting-rate: 29.2%
- Full lesion stenting: 7.6%
- Focal stenting: 21.6%
### Rotarex mechanical thrombectomy in native arteries:

**Clinical Follow-up: 30-day results**

<table>
<thead>
<tr>
<th>MAE</th>
<th>Events</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>19</td>
<td>1.6</td>
</tr>
<tr>
<td>MI *</td>
<td>13</td>
<td>1.1</td>
</tr>
<tr>
<td>TLR **</td>
<td>25</td>
<td>2.1</td>
</tr>
<tr>
<td>TVR ***</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td>Major Amputation</td>
<td>17</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>81</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Table 4. Major Adverse Events (MAE) to 30 postoperative day. Values are rate numbers (%) of observations

- Myocardial infarction
- **Target-lesion revascularization**
- ***Target-vessel revascularization***
### Rotarex mechanical thrombectomy in native arteries: Clinical Follow-up: 12 months results

<table>
<thead>
<tr>
<th>Major Adverse Events (MAE) to 12-months post-intervention</th>
<th>MAE</th>
<th>Events</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>101</td>
<td></td>
<td>8.4</td>
</tr>
<tr>
<td>MI *</td>
<td>28</td>
<td></td>
<td>2.3</td>
</tr>
<tr>
<td>TLR **</td>
<td>127</td>
<td></td>
<td>10.6</td>
</tr>
<tr>
<td>TVR ***</td>
<td>41</td>
<td></td>
<td>3.4</td>
</tr>
<tr>
<td>Major Amputation</td>
<td>47</td>
<td></td>
<td>3.9</td>
</tr>
</tbody>
</table>
Risk of Embolisation using the Rotarex-Device?
Rotarex-Thrombectomy of a Subacute SFA-Occlusion
Post-Thrombectomy Ballooning
The SpiderFX ™ Embolic Protection Device
Medtronic

- Guidewire 0.014” - 0.018”  Delivery of choice
- 5Fr sheath compatible
- Shaft length 190 cm or 320 cm
- Flexible nitinol braid filter available in 5 sizes (in mm)
Emboshield NAV6 Embolic Protection System
Abbott Vascular

Bare Wire system

Allows wire movement independent of the filter

6Fr sheath compatible

Two Sizes: small Ø 2.5 ~ 4.8mm vessel
large Ø 4.0 ~ 7.0mm vessel

Low crossing profile: 2.8 and 3.2 French

Short Filter Length of 19.0 and 22.5 mm
WIRION EPD System
Allium Medical

- can be used with any 0.014” guide wire
- allows filter positioning anywhere on the guide wire and anywhere along the vessel
- one size system for vessel diameter from 3.5 to 6 mm
When to use a protection device?

Recommended only in case of:

- necessity for additional ballooning
- one-vessel run-off
- contraindication for thrombolysis

Intensive thrombectomy of the proximal part before passing the last cm of the occlusion also helps to avoid embolization.
Conclusion

• Particular endovascular techniques are available to treat thrombus containing lesions without the harm of distal embolization

• Mechanical thrombectomy with the Rotarex device is safe and effective

• Sophisticated embolic protection systems are available to improve our results in selected cases
Thank you!
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