Wound care case examples and best practices

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Disclosure

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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
Expectations Post TADV

- Edema can occur in the treated limb after TADV and typically resolves within 3-4 weeks.
- Acceleration in healing typically occurs 4-6 weeks after the procedure and is likely due to maturation of the arterialization. Wound conditions may deteriorate during this time.
- Severe pain or pain that has not resolved within 24-48 hours should raise concern for new ischemia (arterial steal) and should be investigated.

- **Must have intense communication amongst teams managing patient care.**
Careful debridement of necrotic tissue is recommended, caution must be exercised when performing surgical debridement
- Newly arterialized veins in the process of maturation can bleed extensively if aggressive debridement occurs
- Early debridement less than 4-6 weeks of TADV must be done carefully and resect only clearly necrotic tissue
- Not recommended to use a tourniquet, this may cause pedal loop occlusion
- Do not debride aggressively as is typical done after conventional arterial revascularization
- **Do not attempt to close wound or use skin graft until evidence of granulation tissue is present**

**Minor Amputations**
- Avoid proximal TMA, should be mid-metatarsal
- Be mindful of damaging the lateral plantar vein, the first metatarsal perforator, and the dorsal outflow track
- Do not use a tourniquet during minor amputations, this may cause pedal loop occlusion
- Primary closure is not recommended, recommend secondary closure with or without skin graft at later date
  - **Do not attempt to close wound or use skin graft until evidence of granulation tissue is present**
82yo male, Type 2 Diabetes, no ESRD
Cardiac Function: 45% EF

Rutherford 5 patients

Right foot
DII - At the medial side of the end-phalanx a small area of a superficial ulceration.
As far as assessable no signs of a soft tissue infection.
Case Example 1 – Index Angiograms

- Tibial CTO
- Cutting Ballon
- Distal Stent Landing
- Tapered Stent in Native Artery
Case Example 1 – Index Angiograms

Big Medial Branch Stealing Flow

Post Embolisation Lateral

Post Embolisation AP
Case Example 1 – Index Angiograms

Baseline Final

August 26th (occluded stent), pulse spray thrombectomy
Case Example 1 – Wound Healing

Index

1 Month

3 Months: Thrombectomy

3 Months

12 Months

15 Months
Case Example 2 – Screening Information

82yo male, Type 2 Diabetes, no ESRD
Cardiac Function: 45% EF

Rutherford 5 patients

Left Foot
Hallux – Small open ulceration on the tip of the toe with some slough necrotic tissue.
As far as assessable no signs of soft tissue infection.

<table>
<thead>
<tr>
<th>Vein</th>
<th>AP Diameter</th>
<th>T Diameter</th>
<th>Thrombosed?</th>
<th>Absent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSV at ankle</td>
<td>4.0 mm</td>
<td>4.3 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>MMV prox foot</td>
<td>3.8 mm</td>
<td>4.0 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>MMV mid foot</td>
<td>4.7 mm</td>
<td>4.9 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>MMV dist foot</td>
<td>3.7 mm</td>
<td>3.8 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>PTV at ankle</td>
<td>3.5 mm</td>
<td>3.4 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>LPV prox foot</td>
<td>1.7 mm</td>
<td>4.2 mm</td>
<td>Ø</td>
<td></td>
</tr>
<tr>
<td>LPV mid-dist foot</td>
<td>4.0 mm</td>
<td>4.8 mm</td>
<td>Ø</td>
<td></td>
</tr>
</tbody>
</table>
Case Example 2 – Screening Angiograms
Case Example 2 – Index Angiograms

Vein Access

Pre Inflow

Crossing
Case Example 2 – Index Angiograms

After Stenting - LPV Valves Obstructing

Post LPV valvulotomy
Case Example 2 – Index Angiograms

Bilateral LimFlow
Case Example 2 – Wound Healing

6 Weeks: Wound Infection+ Hallux Amputation

Index

2 Weeks

6 Weeks

8 Weeks: LPV Angioplasty

12 Months
Case Example 3 – Screening Information

- **72yo male, non-diabetic, no ESRD**
  Pedal GSV bypass to posterior tib. art. ‘18, occluded ‘19 - recanalized and stented, Reocclusion 12/2020

- **Rutherford 5 patients**

- **Right Foot**
  State after DV amputation with non healing wounds DV, DI, DII.
Case Example 3 – Screening Angiograms
Case Example 3 – Index + Follow-up Angiograms

- Post LPV Index
- 5 Day: Medial Branch Embolisation
- 2 month: Angio before TMA
Case Example 3 – Wound Healing Follow-up

### 6-Months Follow-up

<table>
<thead>
<tr>
<th>Location*</th>
<th>Volume flow (Vf = TAV x A)</th>
<th>Diameter</th>
<th>Peak Systolic Velocity (PSV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflow artery (<em>2 cm above crossing point</em>)</td>
<td>350 ml/min</td>
<td>0.50 cm</td>
<td>2490 cm/s</td>
</tr>
<tr>
<td>Crossing stent proximal anastomosis</td>
<td>219 ml/min</td>
<td>0.39 cm</td>
<td>227 cm/s</td>
</tr>
<tr>
<td>Crossing stent distal anastomosis</td>
<td>637 ml/min</td>
<td>0.53 cm</td>
<td>1313 cm/s</td>
</tr>
<tr>
<td>Mid stent graft</td>
<td>176 ml/min</td>
<td>0.5 cm</td>
<td>1090 cm/s</td>
</tr>
<tr>
<td>Distal stent graft (last stent distal anastomosis)</td>
<td>400 ml/min</td>
<td>0.42 cm</td>
<td>129 cm/s</td>
</tr>
<tr>
<td>Outflow arterialized vein (<em>2cm below last stent</em>)</td>
<td>128 ml/min</td>
<td>0.39 cm</td>
<td>754 cm/s</td>
</tr>
<tr>
<td>Distal outflow arterialized vein (close to the arch)</td>
<td>99 ml/min</td>
<td>0.37 cm</td>
<td>122 cm/s</td>
</tr>
</tbody>
</table>

* Highlighted row correspond to measurement that should be captured in the eCPR for protocol-scheduled required visits

**Patient mobile, self dependent, wears normal shoes, does 30km bycicle rides**

### 12-Months Follow-up

<table>
<thead>
<tr>
<th>Location*</th>
<th>Volume flow (Vf = TAV x A)</th>
<th>Diameter</th>
<th>Peak Systolic Velocity (PSV)</th>
<th>End Diastolic Velocity (EDV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflow artery (<em>2 cm above crossing point</em>)</td>
<td>970 ml/min</td>
<td>0.4 cm</td>
<td>240 cm/s</td>
<td>102 cm/s</td>
</tr>
<tr>
<td>Crossing stent proximal anastomosis</td>
<td>ml/min</td>
<td>cm</td>
<td>cm/s</td>
<td>cm/s</td>
</tr>
<tr>
<td>Crossing stent distal anastomosis</td>
<td>ml/min</td>
<td>cm</td>
<td>cm/s</td>
<td>cm/s</td>
</tr>
<tr>
<td>Mid stent graft</td>
<td>449 ml/min</td>
<td>0.45 cm</td>
<td>115 cm/s</td>
<td>70 cm/s</td>
</tr>
<tr>
<td>Distal stent graft (last stent distal anastomosis)</td>
<td>ml/min</td>
<td>cm</td>
<td>cm/s</td>
<td>cm/s</td>
</tr>
<tr>
<td>Outflow arterialized vein (<em>2cm below last stent</em>)</td>
<td>748 ml/min</td>
<td>0.38 cm</td>
<td>125 cm/s</td>
<td>74 cm/s</td>
</tr>
<tr>
<td>Distal outflow arterialized vein (close to the arch)</td>
<td>490 ml/min</td>
<td>0.48 cm</td>
<td>96 cm/s</td>
<td>64 cm/s</td>
</tr>
</tbody>
</table>

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Case Example 3 – Wound Healing

26-Months Follow-up