HPI: 73 yo F with COPD with worsening foot ischemia to the L toes x 3 months.
   Illnesses: COPD, AAA, PAD
   Medications: mometasone
   Allergies: NKDA
   Hospitalizations: None
   Operations: Hysterectomy
   Lives alone
   Former smoker, 1 PPD x 40 years, quit in 2003

Initial presentation

Physical Exam
   Vasc: DP, PT non-palpable bilaterally.
   DP, PT monophasic bilaterally.
   Derm: Dry gangrene to digits 1-3. Ischemia extending onto the dorsum of the L foot with boggy skin necrosis centrally.
Non Invasive Arterial Studies

- **Right:**
  - Systolic Diastolic ABI
  - Brachial 155 0.49
  - Dorsalis Pedis 76 0.49
  - Posterior Tibial 74 0.48
  - Toe 0

- **Left:**
  - Systolic Diastolic ABI
  - Brachial 150 0.43
  - Dorsalis Pedis 67 0.43
  - Posterior Tibial 65 0.42
  - Toe 0

- Patient admitted 8/20/15
- Diagnostic angiogram with concurrent debridement performed on 8/21/15
  - Angiogram results:
  - *high grade left common iliac stenosis, moderate stenosis of SFA just distal to profunda takeoff, popliteal occlusion at the knee with reconstitution of the AT as the dominant runoff into the foot*
8/24/15

- 1. Left common femoral endarterectomy
- 2. Open, left common iliac artery angioplasty and stent
- 3. Left common femoral to anterior tibial artery bypass with CryoVein.
Dr. Rowe and Dr. Reyzelman

When should the definitive foot procedure be performed?  
Concurrently?  
Few days later?  
7 days later?
Timing of Revascularization and Foot Reconstruction in the Diabetic Foot: Vascular Perspective

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Disclosures

None
What is correct timing of foot debridement/partial amputation?

Immediately

*in most cases
Immediate

- Decrease risk of secondary infection
- Shorten length of stay
- Cost savings
- Provides early assessment of foot for functional outcome
- Less and more specific antibiotics
- Improve patient well being

Minimizing Interval Between Revascularization and Completion Amputation Optimizes Surgical Site Healing

- Retrospective review of prospective database
- 2013-2015
- All CLI patients
- WfI Class 3 or 4
- Endovascular revascularization
- Podiatric surgical resection

Minimizing Interval Between Revascularization and Completion Amputation Optimizes Surgical Site Healing

- 30 patients for evaluation
- Resection < 8 days 34% reduction in healing time
- Correlation (r=.68) decreased time to healing with decreased time interval for amputation
- Every 1 day = 4 days saved in healing time


Time is Tissue!!

International Journal of Vascular Medicine
Volume 2013, Article ID 296169, 7 pages
http://dx.doi.org/10.1155/2013/296169
Caution Situations

- Extensive gangrene in multiple locations

Caution Situations

- Dominating infection
Caution Situations

- Function Uncertainty
Immediate

- Multidisciplinary Team
- Coordination with Podiatry
- Better studies
- Coordination with office based endovascular laboratories

Time is Tissue!!
Timing of Revascularization and Foot Reconstruction in the Diabetic Foot: Podiatry Perspective

Alexander Reyzelman DPM
Co-Director
UCSF Center for Limb Preservation and Diabetic Foot

Protocol for limb salvage:

- Prompt surgical drainage of any underlying infection. Debridement of uninfected necrotic tissue is NOT performed as an initial procedure.

- Final debridement, amputation, and wound closure can then be accomplished under conditions of optimal perfusion.
Quotes from around the country

- “Now I prefer to amputate as the vascular surgeon is closing”
- “I was taught "1 week!" by the best and the brightest of clinicians in the Cleveland Clinic. The theory is, even for a distal leg bypass case (which may result in an immediate return of pulsatile pedal pulses), it may take up to a week to "re-open" the smaller arteries & arterioles in a previously-ischemic limb.”
- “We routinely close our patients POD#1 after endovascular work.”
- “I typically wait 2-3 days to perform my amputation.”

Optimal Waiting Period For Foot Salvage Surgery Following Limb Revascularization

- When should foot salvage procedure be performed following a revascularization procedure?
  - Multiple studies have reported that adequate tissue oxygenation for healing has been described as having transcutaneous oxygen tension (TcPO2) of 30mmHg
  - TcPO2 measurements have a higher diagnostic accuracy than the ABIs, pulse volume recordings, and toe pulse reappearances in identifying foot ischemia.
• **Purpose:**
  • To Compare TcPO2 measurements on the 1st, 2nd, & 3rd postoperative days after bypass surgery with the preoperative value and to determine if there was an optimal waiting period after revascularization surgery for maximal tissue oxygenation.

• **Materials & Methods:**
  • 11 patients with severe foot ischemia (TcPO2 pressures of less or equal to 30mmHg) with non-healing wound, gangrene or limb threatening ischemia were included.
  • TcPO2 pressures: measured at the dorsal aspect of the first IM space of the affected foot
  • All readings were taken at least 1 inch distal to the first metatarso-cuneiform joint to avoid the TCPO2 electrode placement over the 1st IM space perforator artery.
• **Results:**
  • All bypasses remained patent on POD3.
  • POD1
    ▪ 6 out of 11 patients had an increase in TcPO2
    ▪ 3 patients had the same pre-op TcPO2 value
    ▪ 2 patients showed a decrease in TcPO2 value
  • POD2
    ▪ 9 patients showed an increase in TcPO2 value
  • POD3
    ▪ 10 patients showed an increase in TcPO2 value
    ▪ 1 patient had a decreased TcPO2 value compared to their pre-op value.

**TABLE 3** Mean pre- and postoperative TcPO2 measurements

<table>
<thead>
<tr>
<th>TcPO2 Measurement</th>
<th>Mean (mm Hg)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative</td>
<td>9.27</td>
<td>12.14</td>
</tr>
<tr>
<td>POD1</td>
<td>17.73</td>
<td>15.86</td>
</tr>
<tr>
<td>POD2</td>
<td>20.36</td>
<td>5.61</td>
</tr>
<tr>
<td>POD3</td>
<td>36.82</td>
<td>18.80</td>
</tr>
</tbody>
</table>

**Optimal Waiting Period For Foot Salvage Surgery Following Limb Revascularization**

• **Discussion/Conclusion:**
  • At least 3 days following a lower extremity revascularization procedure is required to achieve higher tissue perfusion on the affected foot for wound healing.