Below The Knee Interventions

How To Avoid and Manage Complications

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Disclosure Statement of Financial Interest

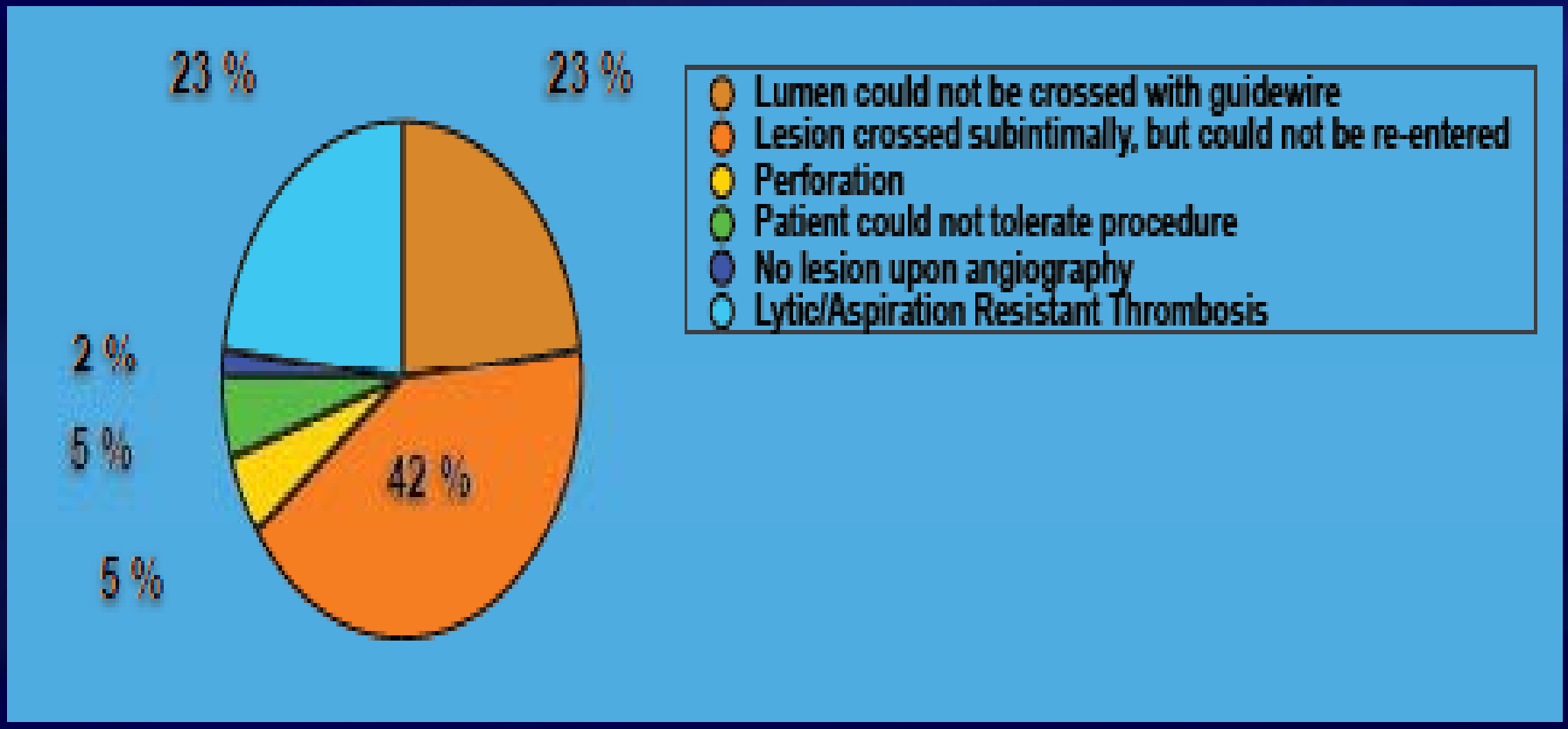
- I, (Issam Moussa) DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation

Infrapopliteal Disease

- Closely aligned with diabetes and is associated with calcific medial disease.
- With intervention, patients with CLI are at higher risk for complications compared to claudicants (2 – 6%)
- When complications occur, ~ 85% are diagnosed in the endovascular suite.
- Amputation occur in < 1% of procedures

Complications with Infrapopliteal interventions

In the BASIL trial, 216 patients underwent attempted angioplasty. Of these, 43 (20%) were considered immediate failures:



BASIL trial participants, Lancet 2005; 366:1925-34

Complications with Infrapopliteal interventions

1. Access site related complications
2. Complications at the PTA site:
   A. Perforation
   B. Acute occlusion
      1. Dissection
      2. Thrombosis
3. Complications distal to the PTA site:

   Embolization and Spasm

Access Site Related Complications

	Antegrade Access (n = 745)	Retrograde Access (n = 5,173)	P value
Transfusion	11.5%	5.6%	< 0.001
Vascular Access Complications	5.9%	3.2%	< 0.001
Amputation	5.4%	1.4%	< 0.001

Multivariate predictors of vascular access site complications:
Female sex
Age >70 years
Larger sheath size

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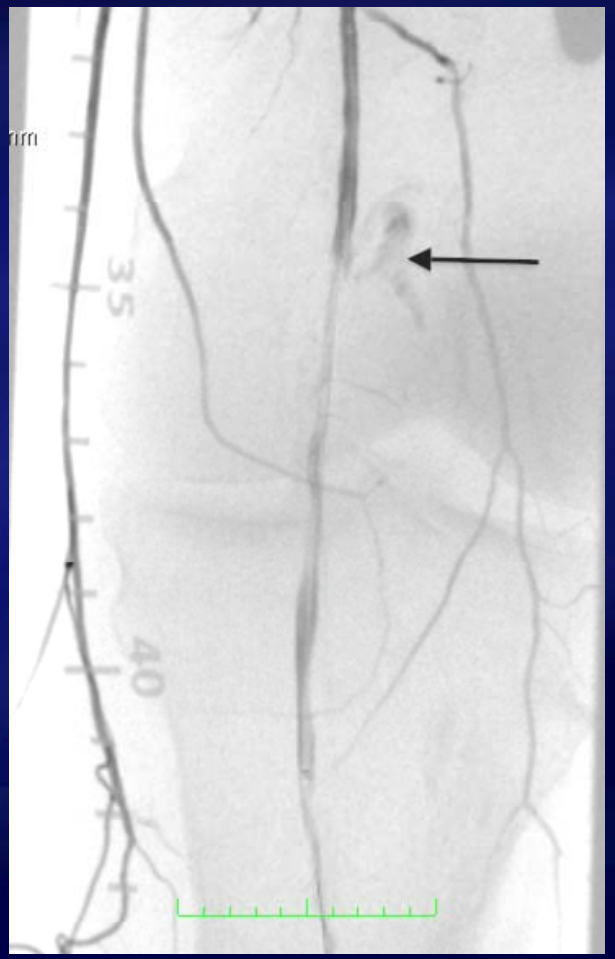
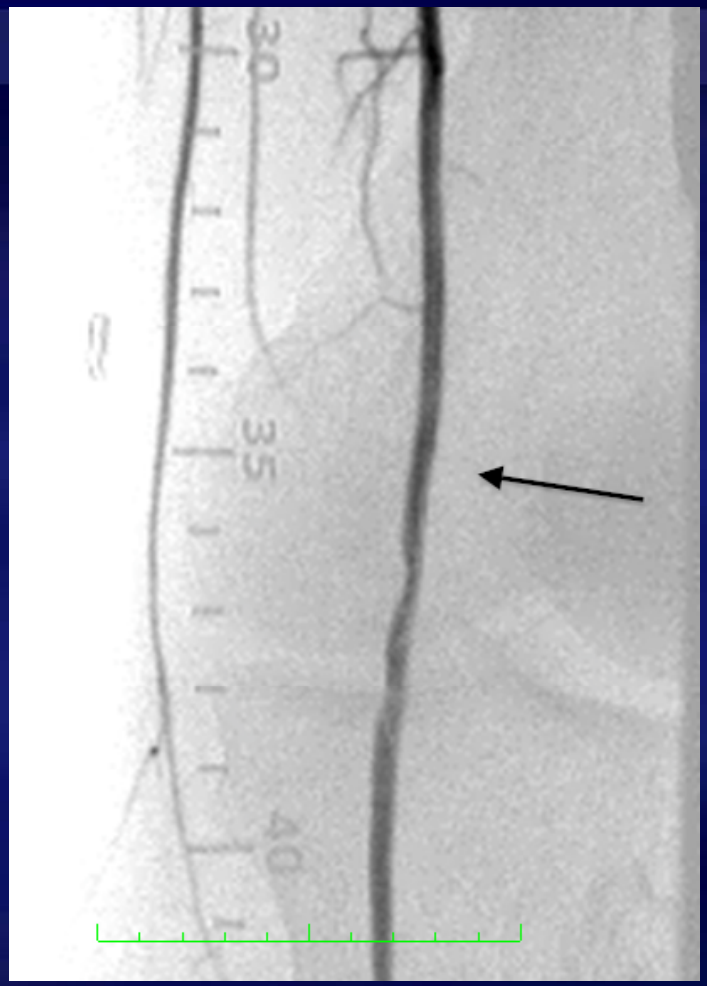
Wheatley BJ, et al. Arch Surg. 2011;146:432-435

Complications at the PTA Site

Perforations



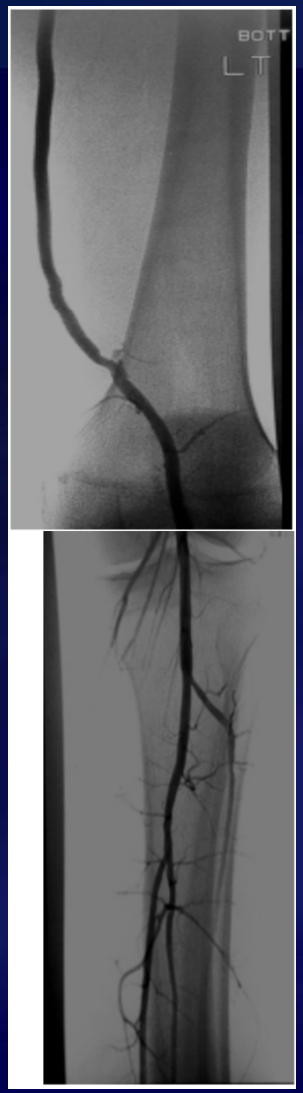


S/P covered stent

Perforations

Causes	Avoidance	Management
Atherectomy devices	- Avoid aggressive atherectomy - Avoid atherectomy of angulated lesions	- Proximal occlusion - External compression - Covered stents
Wires	- Always know where the tip of the wire is (especially hydrophyllic wires)	- Proximal occlusion - External compression - Coils
Oversized balloons	- Avoid oversizing	- Proximal occlusion - External compression
(cutting balloon)		- Covered stents
Subintimal angioplasty	- Keep subintimal loop small - Don't dilate subintimal space aggressively	- Proximal occlusion - External compression

Compartment Syndrome



Complications at the PTA Site
Acute Occlusion

Acute Occlusion		
Causes	Avoidance	Management
Occlusive dissection	Occur more often in occluded, diffusely diseased or calcified vessels. Occur more often with balloons rather than atherectomy devices.	Re inflation of long undersized balloon Stenting
Thrombosis	Optimize anticoagulation Treat proximal disease first	Thrombectomy Local thromblytics /IIbIIIa

Complications Distal to the PTA Site

Embolization

Embolization		
Causes	Avoidance	Management
Plaque embolization	Avoid aggressive atherectomy Consider distal protection devices	Complete work at lesion site Position wire distal to embolus and aspirate
Thrombus embolization	Use thrombectomy/local lysis not balloons to treat thrombotic lesions Consider distal protection devices	Complete work at lesion site Position wire distal to embolus and aspirate or infuse local thrombolytics

Complications Distal to the PTA Site

Embolization

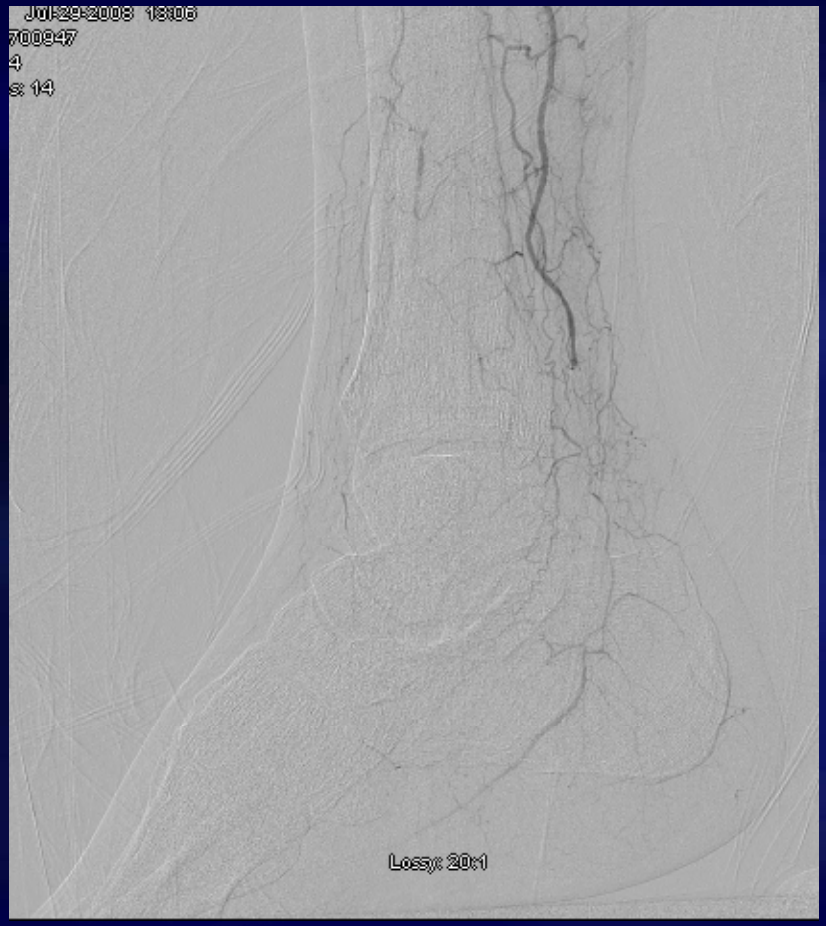
Complications Distal to the PTA Site
Vasospasm

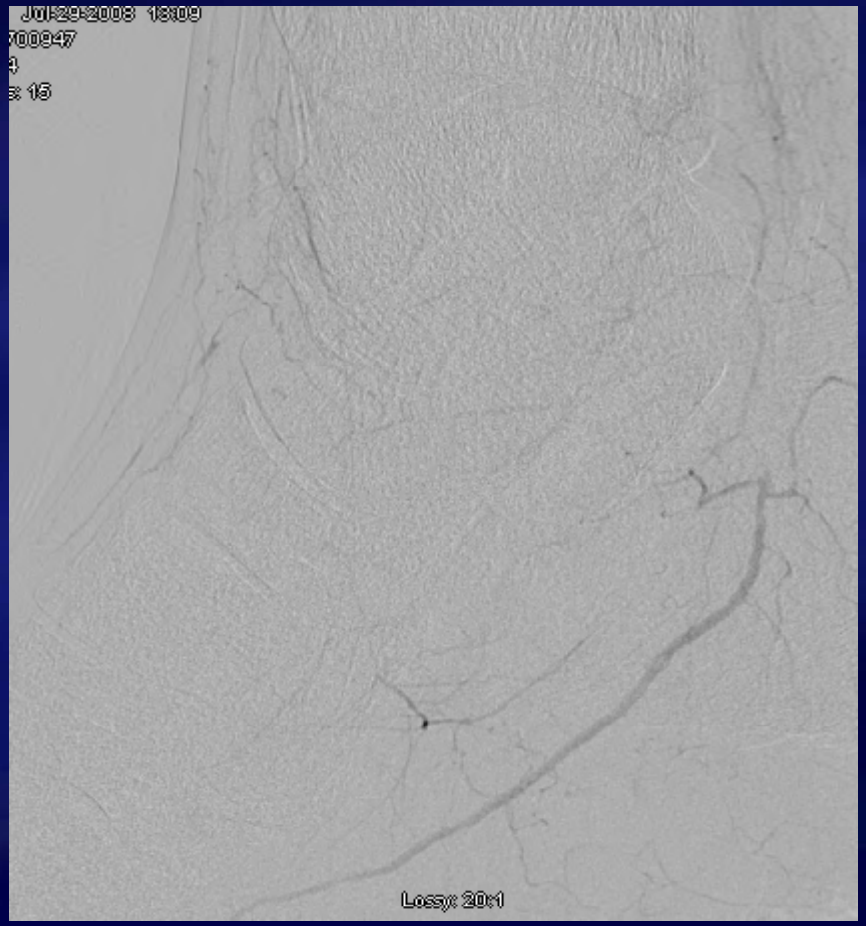
- Can be difficult to distinguish from emboli and dissection.
  - – Prolonged inflation with undersized balloon
    - Nitroglycerine
    - Calcium channel blockers

      Preferably, delivered locally through an end hole catheter

Complications Distal to the PTA Site

Vasospasm



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