Arteriovenous Malformations of the Foot

David Hatch, PGY-2
Madigan Army Medical Center
Case

- 34 yo M with RLE swelling/pain
  - h/o vein stripping, GSV RFA
  - Venous duplex LE
  - MRA
  - Angiography
  - Embolization
  - Continued pain
Case

- Continued pain → Angiography
- Re-embolization
AV Malformations

- Congenital, complex tangle of A/V
  - Connected by one or more fistulae
- Brain, lungs, LEs

Pathophysiology

- Somewhat unknown
- Most common congenital maldevelopment
- Also, trauma, degenerative vascular diseases, and iatrogenic causes
- Subintimal fibrosis and smooth muscle hypertrophy
- No malignant characteristics

http://www.wikiwand.com/en/Arteriovenous_malformation,
Signs/Symptoms

- Skin coloration
- Pigmented lesion or birthmark
- Macules, nodules, verrucous fields, scaling violaceous plaques
- Inflammation
- Mass/swelling

• Pulsations / thrill
  o Not usually in foot

• Neuro deficits
  o d/t compression phenomenon

• Varicosities

• Ulcerations

S/S (cont.)
Diff dx

- Derm symptoms suggest
  - Angioderatitis
  - Kaposi Sarcoma
  - AVF
  - Hemangiomas
  - Glomus tumor
  - Angiosarcoma

- Physical symptoms suggest
  - Neuropathy
  - PVD or ischemia
  - Venous HTN
  - Plantar fasciitis/tarsal tunnel syndrome

Imaging

- X-ray
- Venous duplex
- CT highly sensitive
- MRA

Case

- Pain in midfoot
- Exam unremarkable
- CT/MRI
  - Bony erosions

Imaging

- Gold standard for LE AVMs: digital subtraction angiography
Treatment

• Ligat i on
• Surgical excision
  o Three arteries in foot
• Amputation

Emboliization

Figure 1  Divisions of embolic agents. PVA, polyvinyl alcohol; GGVOD, Grifka-Gianturco vascular occlusion device.
Embolization

- Preferred therapeutic option
- ETOH
- Coils
- Glue (N-Butyl-2 Cyanoacrylate)
- Ethylene vinyl alcohol copolymer (Onyx)
- Concern for arterial occlusion leads to recurrence

Treatment

- Conservative: Immobilization

Case Report:

PF was diagnosed initially.

MRI revealed AVM.

Figure 1. T2-weighted coronal (A), axial (B), and sagittal (C) magnetic resonance images representing an arteriovenous malformation measuring 22 × 8-mm with an area of hyperintensity below the calcaneocuboid joint region.
Treatment

• Conservative? Immobilization

• Case Report:

• PF diagnosed initially
  o MRI revealed AVM

• Relief with 6 weeks CAM boot, dispensed CFO

References