Treatment of AVMs of the foot

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Background

• AVM remain most challenging among various malformations to be treated

• Arteriography determining angioarchitecture is helpful to define specific endovascular treatment
High-Flow AVM Angioarchitecture

Yakes AVM classification system advanced the description of AVM angioarchitectures building on previously classification systems.
Intraarterial vs. Percutaneous Embolotherapy Techniques

37 year-old male
painful AVM Typ IIf
Intraarterial Embolotherapy

i.a. embolization using ethylene vinyl alcohol (Onyx®) and n-Butyl cyanoacrylate (Histoacryl®)

large area of plantar necrosis
persistent AVM
Percutaneous Coiling/Ethanol Embolotherapy

3 y follow up

- puncture of aneurysmal vein
- 18G/15 cm; Chiba Biopsy Needle®, Cook Medical
- coiling of aneurysmal vein
  - 8 fibered coils 6mm, 3 coils, 4 mm (Cook, Nester Coil®)
- injection of 4.5 cc, 96% ethanol

1 y follow up

residual AVM (other compartment)

JVS, 2015, in press
42 year-old male with painful AVM Typ IIIb

Puncture of vein aneurysm
18G/15 cm; Chiba Biopsy Needle®
Cook Medical
Yakes Type IIIb AVM

Coiling
- 5 fibered coils, 10mm;
  4 fibered coils, 8 mm;
  Nester Embolization Coils®,
  Cook Medical

Embolosclerotherapy
- 15 ml; 96% ethanol

Nester coils were surgically removed 3 mo later
Percutaneous Embolotherapy Techniques

40 year-old male

AVM
interstitial Typ IV

Ausgangslage
Yakes Type IV AVM

- direct puncture of AVM microfistulas (venous side) 96% ethanol
- direct puncture of feeding arterial pedicle (arterial side) 50% ethanol

Puncture of microfistula
23G/butterly needle
Percutaneous Embolotherapy Techniques

40 year-old male

AVM Typ IV
Conclusion

Yakes Type IIIB AVM

- Coils lessen endovascular complications when densely packed in the **aneurysmal vein** of Yakes Type IIIB AVMs
- Ethanol (often additionally) required to completely occlude the coiled aneurysmal vein

Yakes Type IV AVM

- Mixture of (50-96%) ethanol and non-ionic contrast can be curative in this lesion type
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