

CIRA Case of the Week

Octobre 2015

Case Courtesy of Dr. Ondina Bernstein

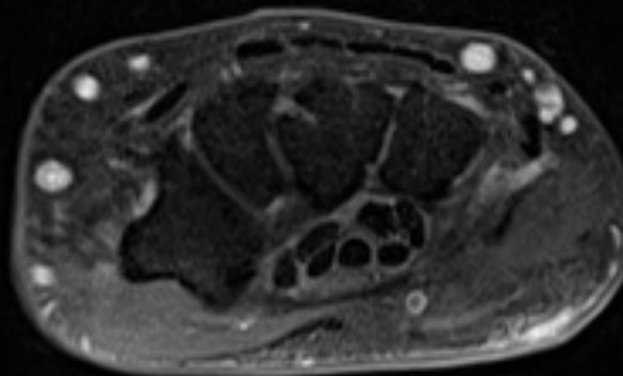
University of Toronto

Case History

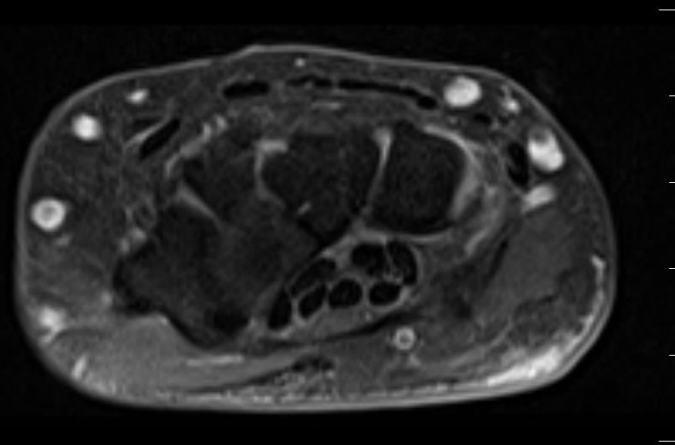
- 56 year old female
- Tender erythematous lump hypothenar eminence
- Right dominant hand
- Increasing symptoms over past 2 years
- Pulsatile on examination



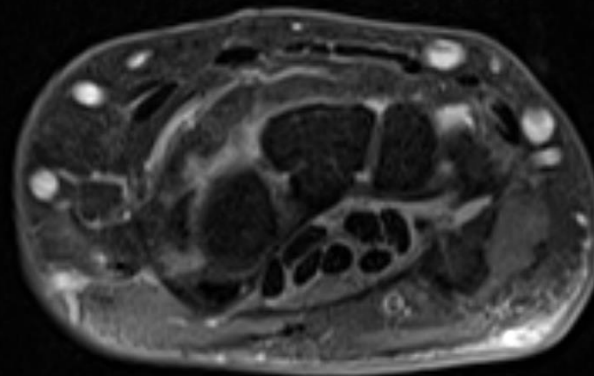
MRI: T1W/FS/Post gad



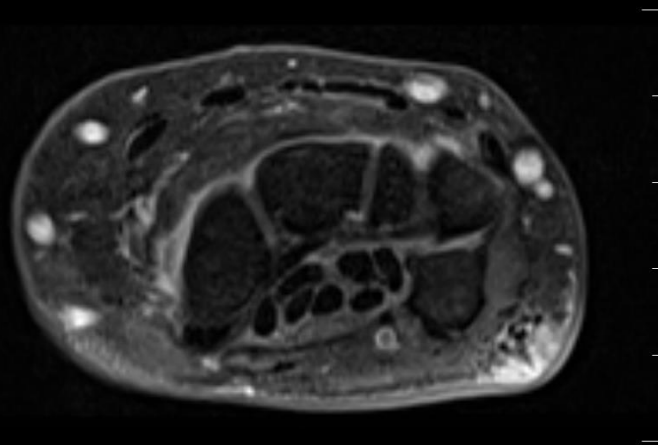
MRI: T1W/FS/Post gad



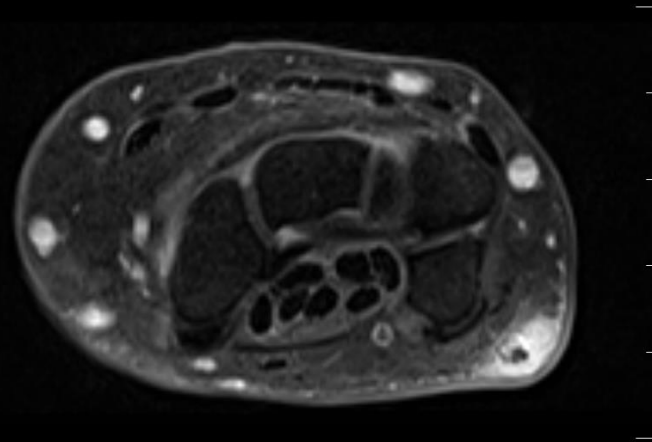
MRI: T1W/FS/Post gad



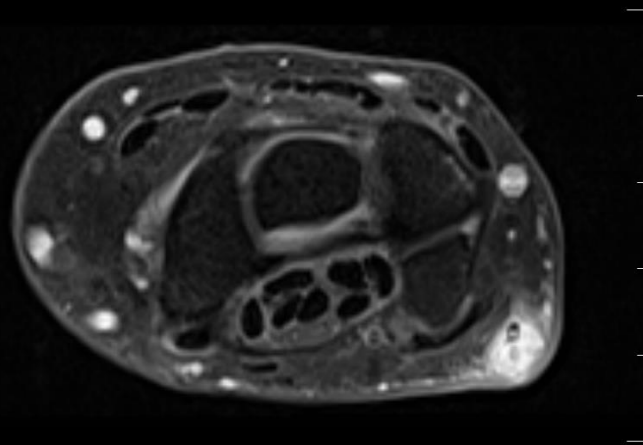
MRI: T1W/FS/Post gad



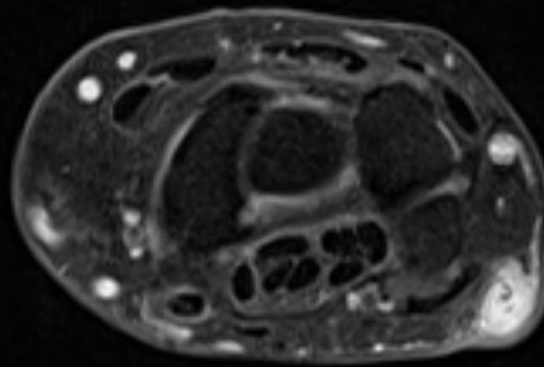
MRI: T1W/FS/Post gad



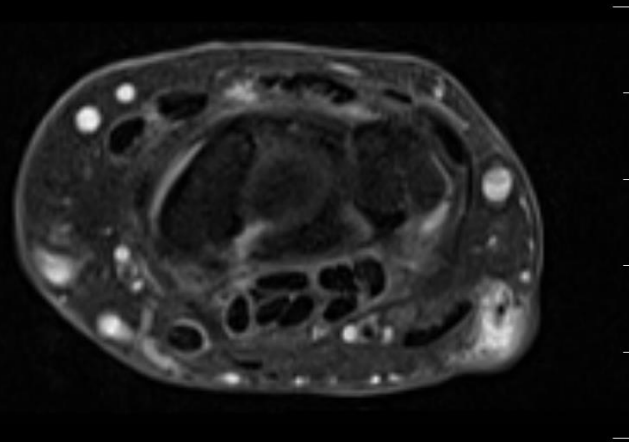
MRI: T1W/FS/Post gad



MRI: T1W/FS/Post gad



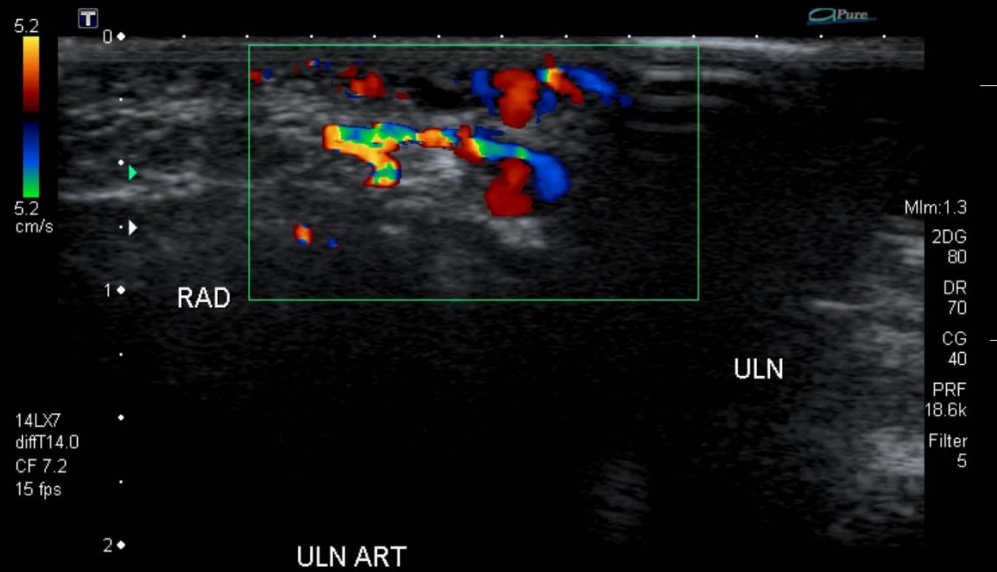
MRI: T1W/FS/Post gad



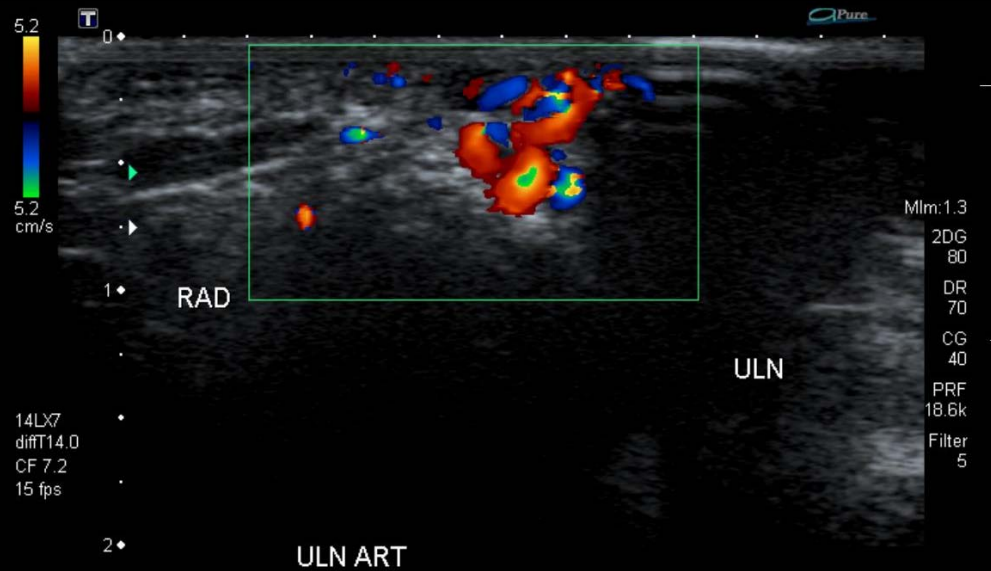
Demonstrates a vascular malformation with the draining vein identified. Arterial phase not optimal for evaluation.



Ultrasound



Ultrasound



Feeding ulnar artery branch was identified on ultrasound



AVM

- High flow arteriovenous malformation
- IR treatment: Aim to eradicate abnormal shunt or nidus
- Performed under GA
- Superselective arterial embolization
- Often require multiple sessions



Possible embolic agents

- Coils
- PVA
- Absolute ethanol
- Liquid casting agents: glue, Onyx™
- In our institution: ethanol and Onyx™ are currently the agents of choice



Selective ulnar arteriogram



Access: 4 Fr sheath in brachial artery and 4 Fr Kumpe catheter



Selective ulnar arteriogram



Selective ulnar arteriogram



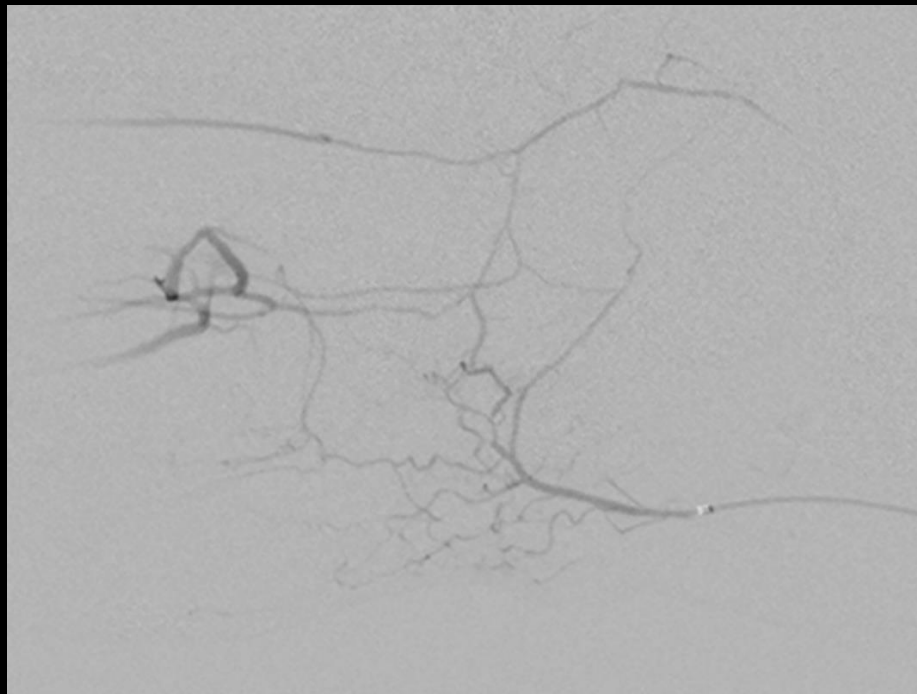
Selective ulnar arteriogram



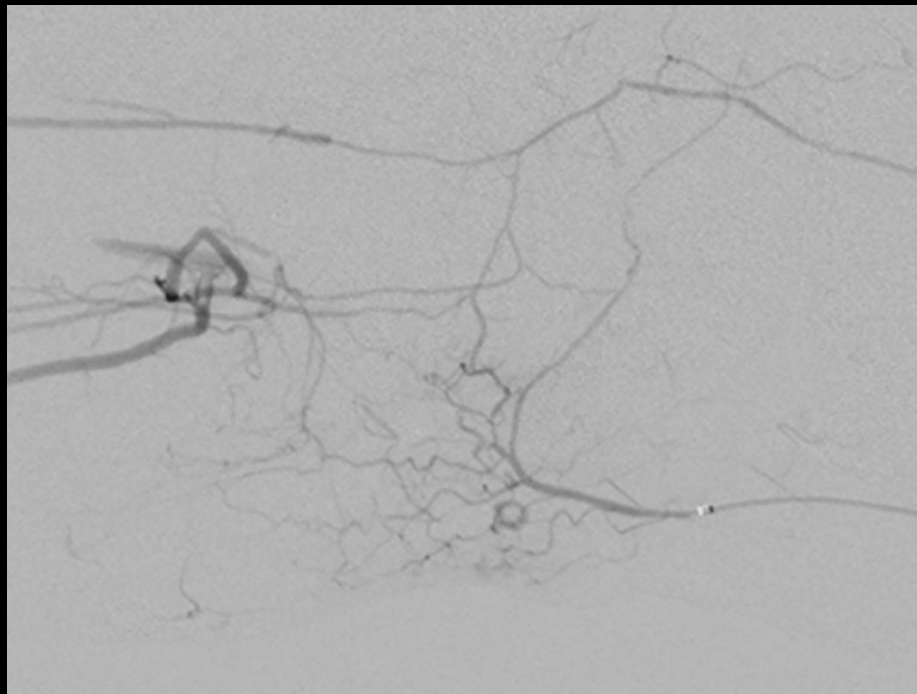
Selective ulnar arteriogram



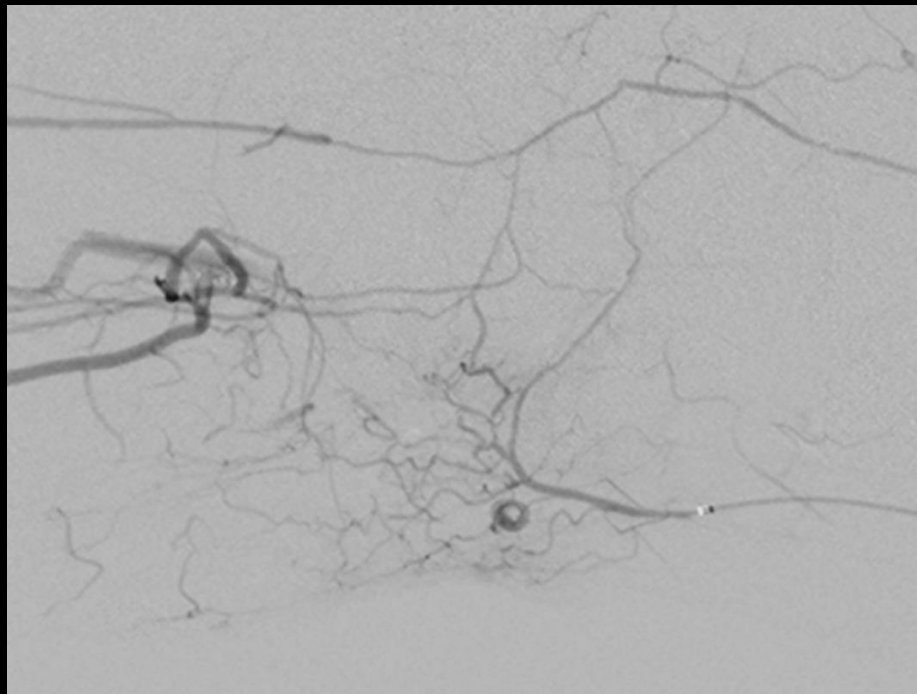
Selective arteriogram through 1.7 Fr microcatheter



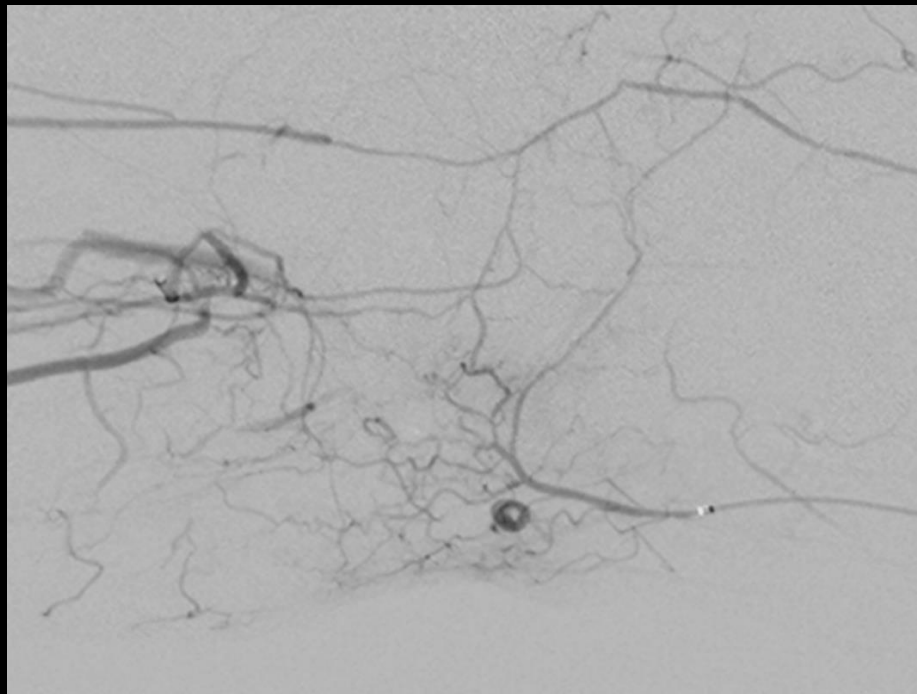
Selective arteriogram through 1.7 Fr microcatheter



Selective arteriogram through 1.7 Fr microcatheter



Selective arteriogram through 1.7 Fr microcatheter



Preprocedural plan was to embolize with Onyx™



Procedural details

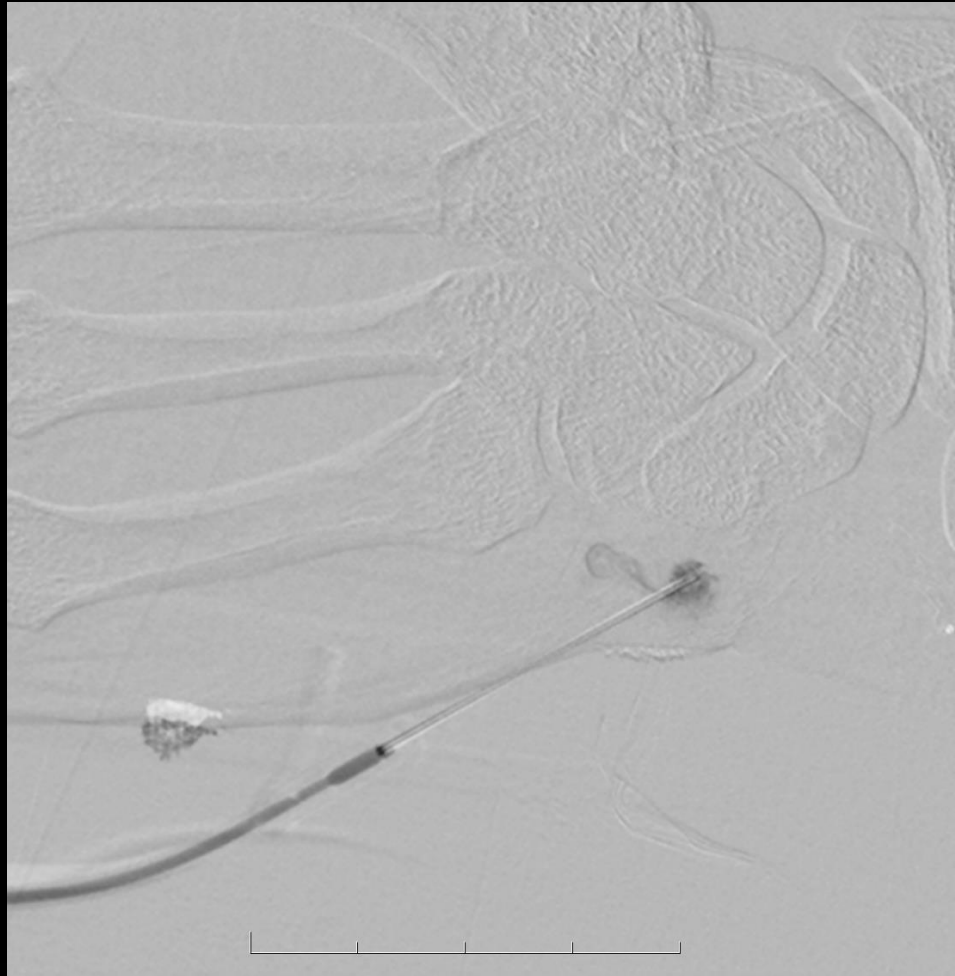
Unable to catheterize close enough to the nidus to embolize with Onyx™ 18

Proximal embolization not effective as it promotes recruitment of nearby arteries to supply the lesion

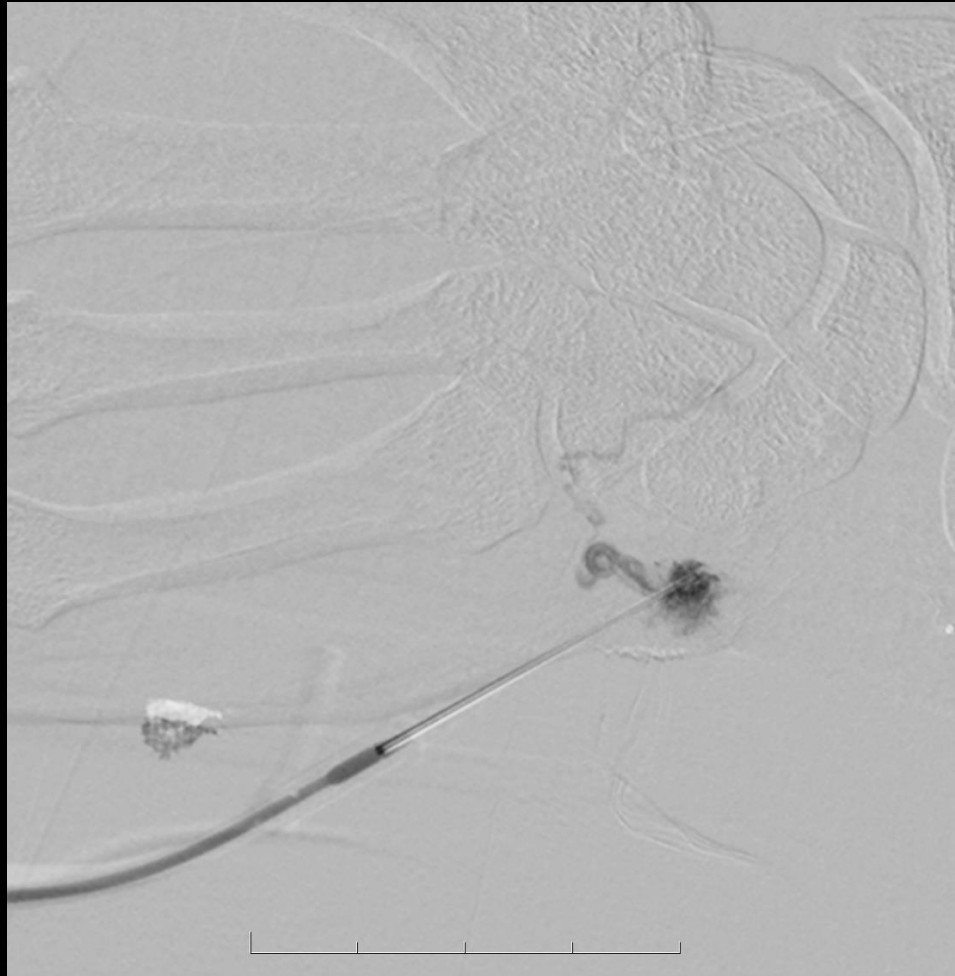
What next?



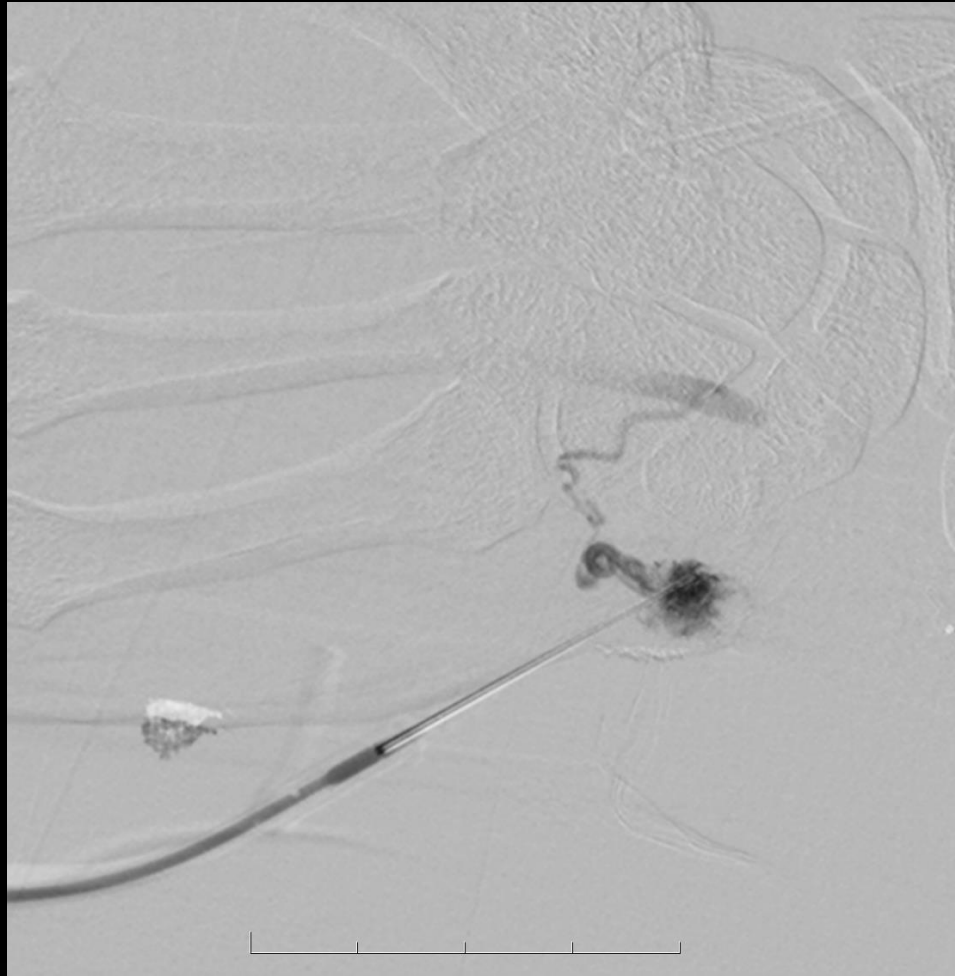
Direct puncture: 23G butterfly



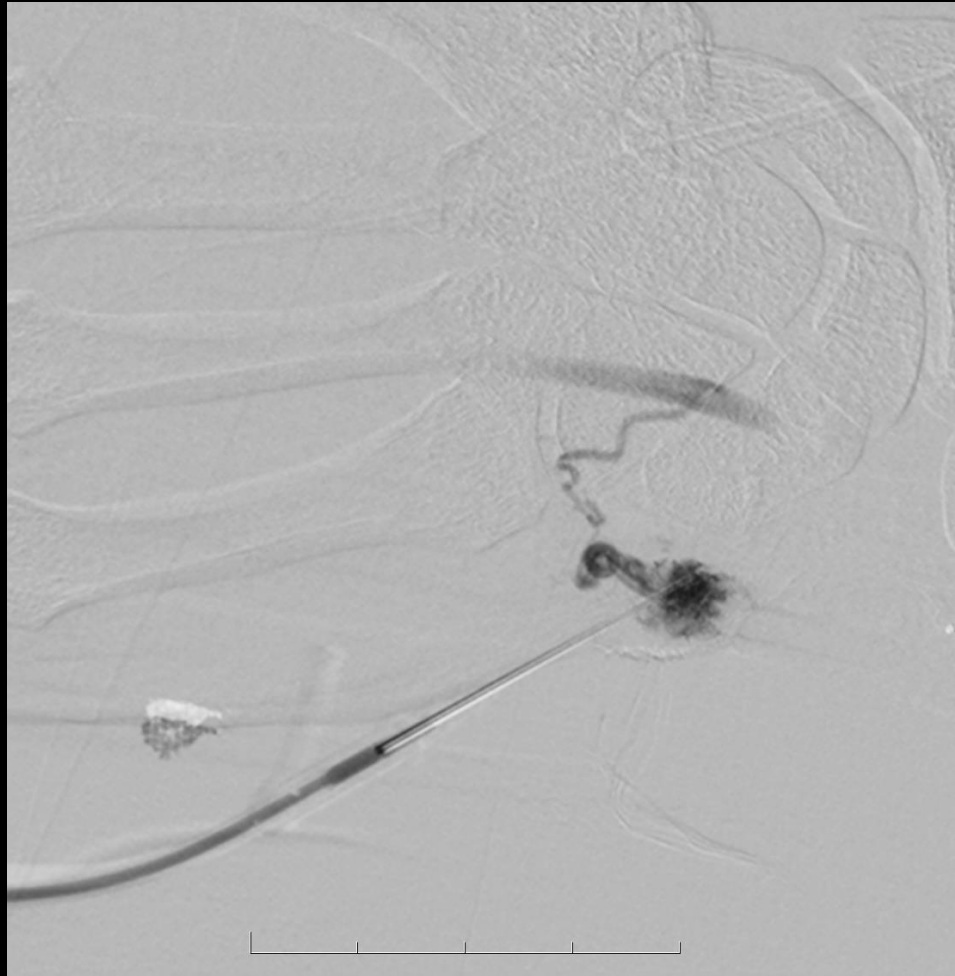
Direct puncture: 23G butterfly



Nidus and draining vein opacified



Nidus and draining vein opacified

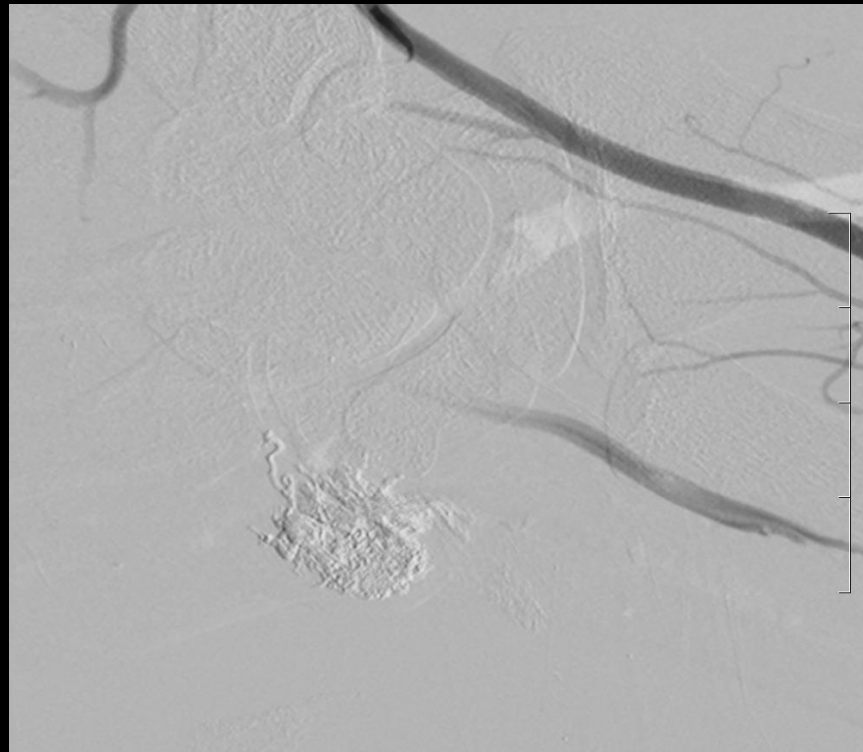


EVOH (ONYX™)

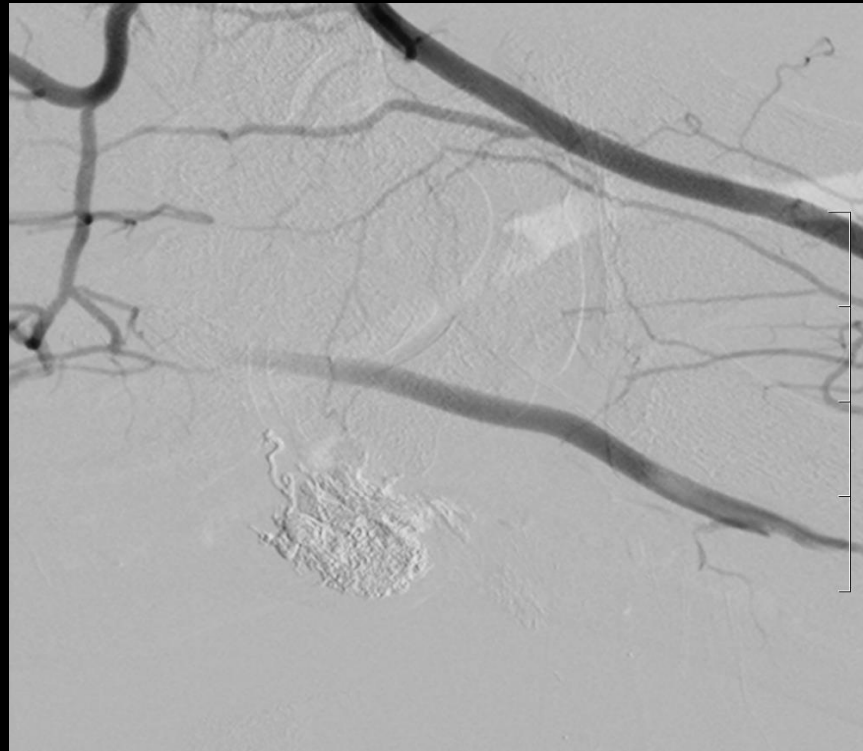
- Non-adhesive liquid embolic agent
- Ethylene vinyl alcohol (EVOH) copolymer dissolved in dymethyl sulfoxide (DMSO) and tantalum powder
- Needle primed with 0.4 mL DMSO
- Inject at 0.1 mL/min
- Total of 1mL EVOH injected at same rate
- Stop when small amount in draining vein



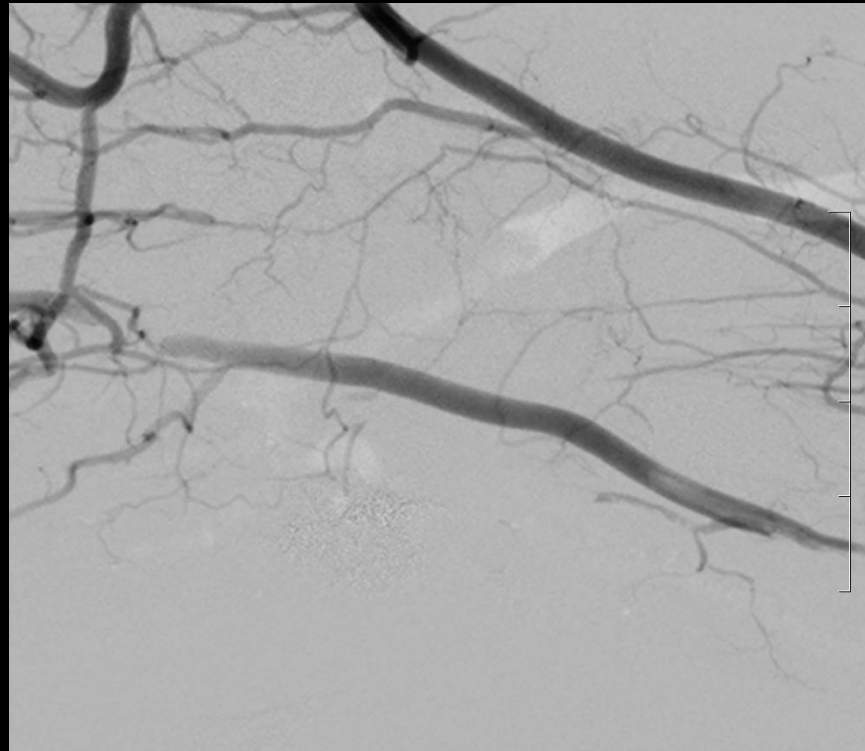
Post embolization arteriogram



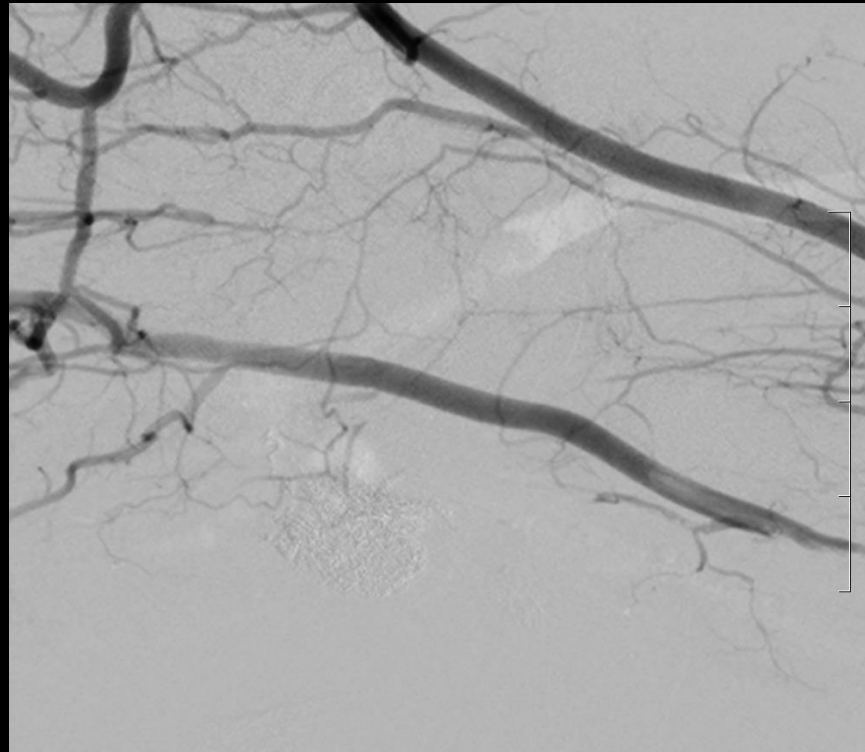
Post embolization arteriogram



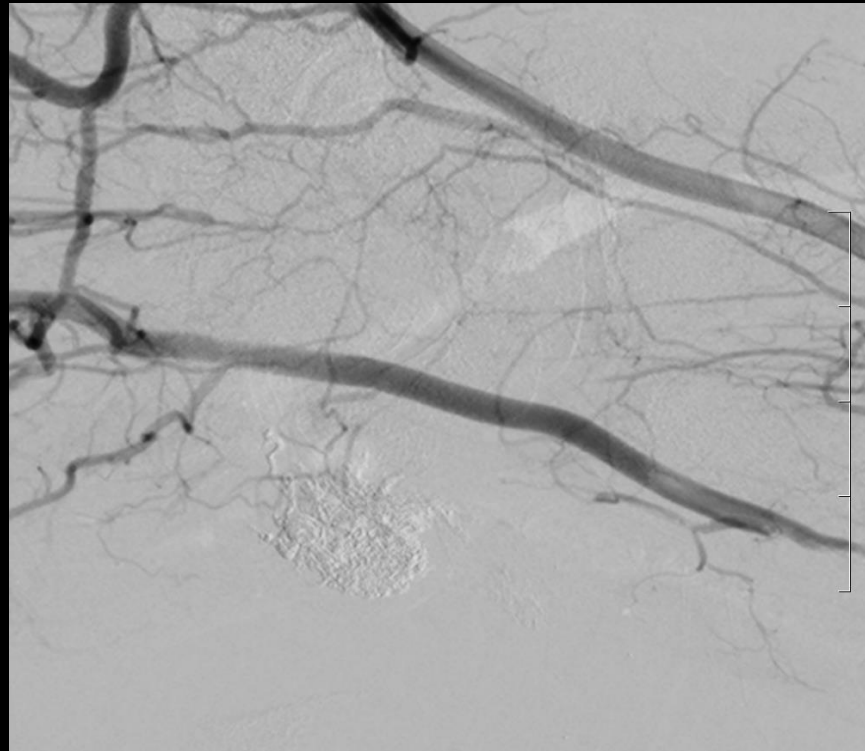
No opacification of AVM



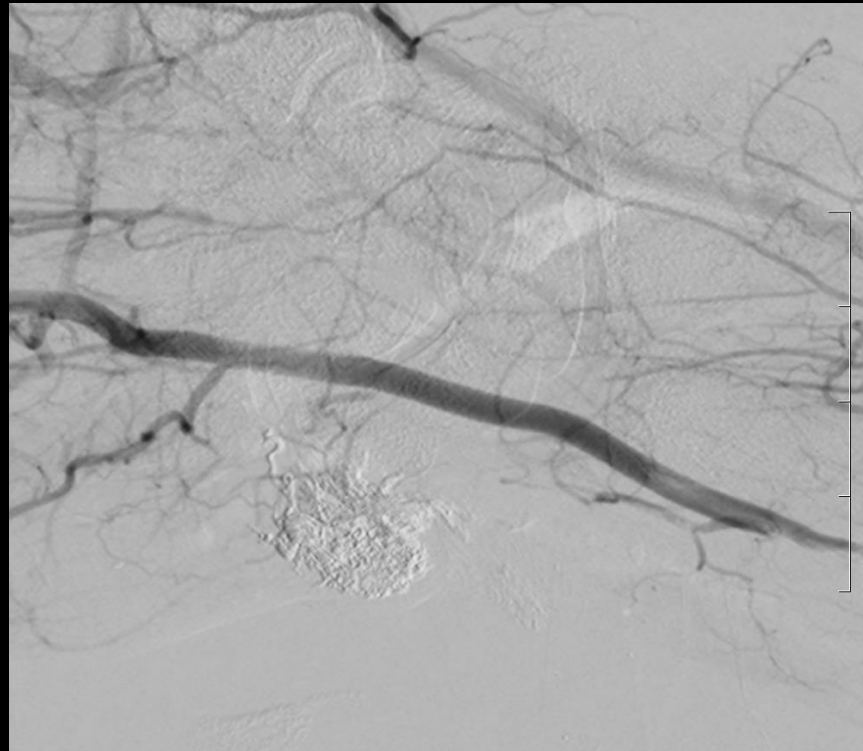
No opacification of AVM



No opacification of AVM



No opacification of AVM



Outcome

- Immediately post procedure: overlying discoloration of skin
- 6 week follow up: No discoloration, firm non-tender lump
- Plan for further follow up and could consider surgical excision



Direct puncture with Onyx

- Described for craniofacial AVMs in small case series^{1,2}
- Lower concentration of the copolymer penetrates small diameter vessels including nidus
- Direct puncture and injection of absolute alcohol used often in our institution

