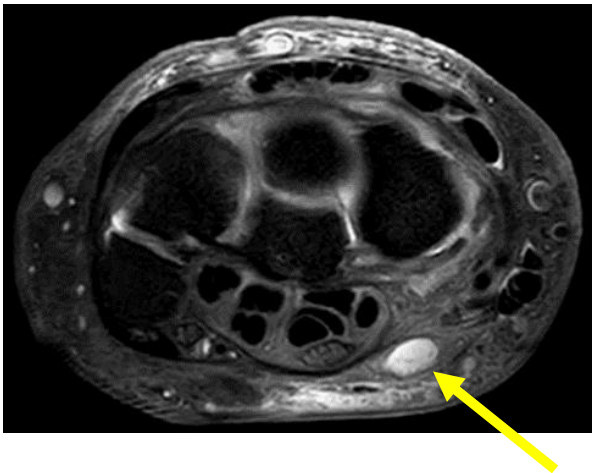
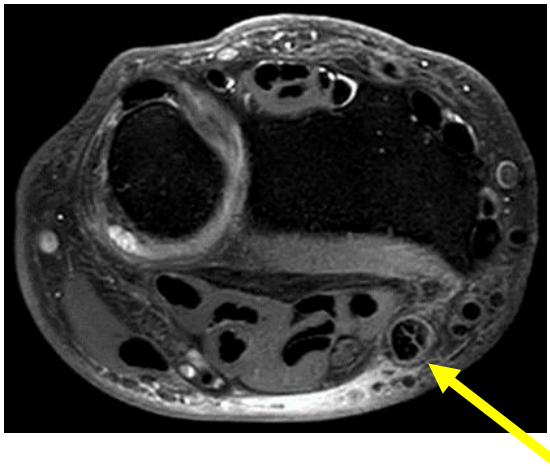
64 M – presents with volar (radial aspect) wrist swelling and wrist flexion/abduction weakness

MRI Findings:

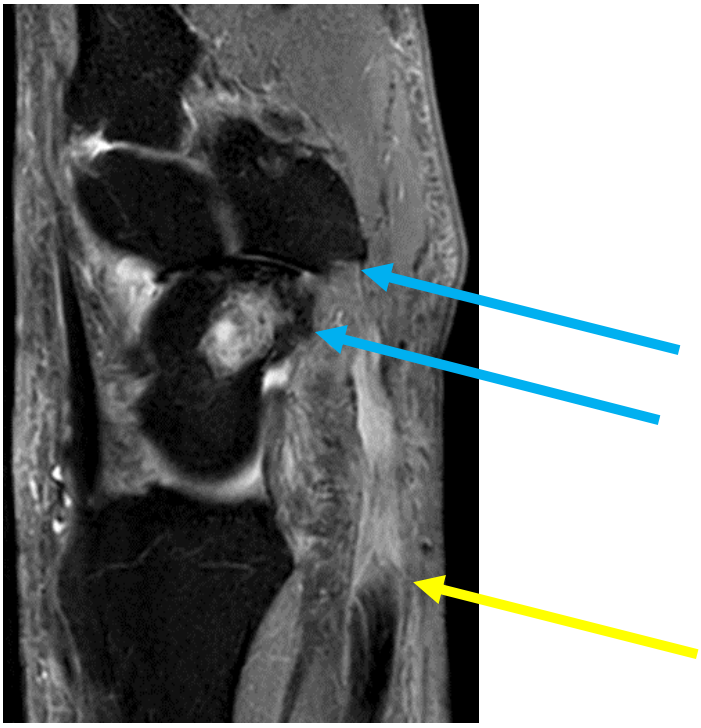
- Rupture flexor carpi radialis (FCR) tendon with ~ 4cm retraction from the base of the second metacarpal leaving an empty fluid filled sheath
- Residual stump of tendon tissue remains attached to the base of the second metacarpal
- Advanced arthropathy of the scapho-trapezio-trapezoidal articulation with chondral deficiency and pronounced cystic change in the distal pole of the scaphoid with prominent osteophyte formation

Coronal PD: Low signal retracted FCR tendon; **Coronal PD SPAIR**: Advanced STT arthropathy





Axial PD SPAIR: Empty/fluid-filled FCR sheath *prox carpal row level* and retracted delaminated tendon *distal radius level*



Sag PD SPAIR: demonstrates advanced STT arthropathy and prominent volar spurring as well as the retracted FCR

Discussion

- Closed rupture of the long finger flexors is well described (particularly in the setting of rheumatoid arthritis) however ***isolated rupture of FCR is rare*** (only ~12 cases reported in the literature)
- Most of these are associated with scapho-trapezio-trapezoidal osteoarthritis, and less commonly trauma
- Tendinopathy and mechanical repetitive micro-trauma from STT interface volar bone spurs play a role
- Surgical opinion in trauma / young patient / those requiring high level of function
- Long term disability related to FCR tear may be relatively mild in the setting of advanced arthropathy and conservative management may be appropriate

- MRI
  - *Partial* tear: Focal areas of increased signal on T1WI and T2WI; some tendon fibres remain intact
  - *Complete* tear: Complete discontinuity of tendon fibres ± retraction
  - Flexor tendons retract more than extensor tendons when disrupted due to lack of tethering
  - Post-op (such as carpal tunnel release) rupture – assess for micrometallic debris
  - Delineation of background tendinopathy or tenosynovitis
- Ultrasound
  - Complete tear: Tendon fibre discontinuity/disruption; anechoic focus corresponds to tendon tear/gap
  - Tendinopathy/partial intrasubstance tear: Hypoechoic regions/delamination in swollen tendon
  - Tenosynovitis: Sheath distention; fluid may be anechoic or slightly complex
  - Hyperaemia often demonstrated on Doppler imaging

Further Reading:

Kanevsky J, et al. Rupture of the flexor carpi radialis tendon secondary to trauma: case report and literature review. Plast Aesthet Res 2015;2:138-9.
Polatsch DB, et al. An unusual rupture of the flexor carpi radialis tendon: a case report. Am J Orthop (Belle Mead NJ) 2006;35:141-3.
Allred DW, et al. Flexor carpi radialis tendon rupture following chronic wrist osteoarthritis: a case report. J Okla State Med Assoc 2003;96:211-2.
Tonkin MA, Stern HS. Spontaneous rupture of the flexor carpi radialis tendon. J Hand Surg Br 1991;16:72-4.