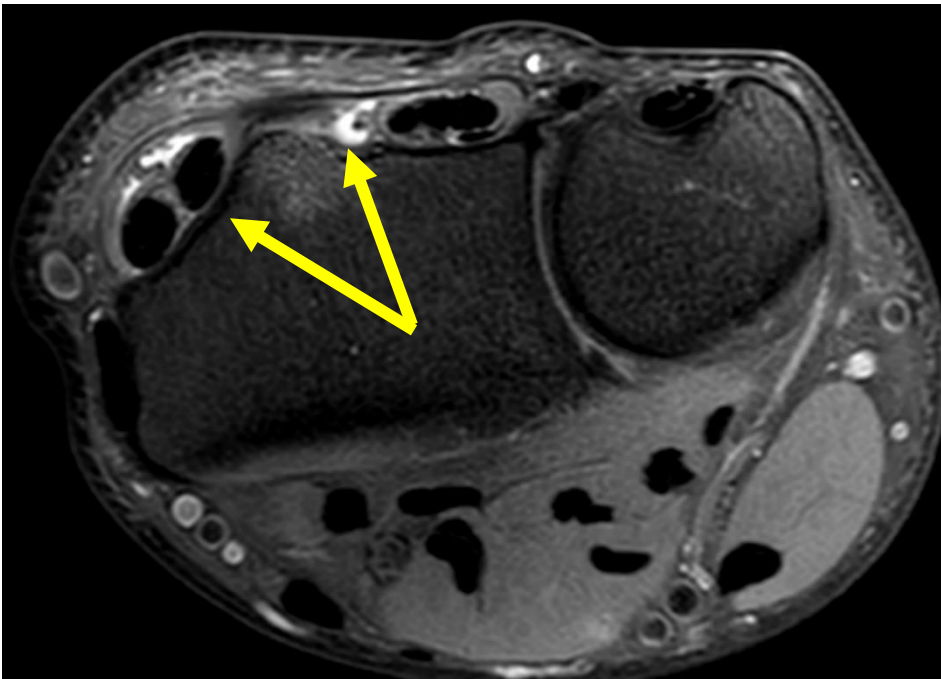


**25 M presents with chronic right wrist, thumb and forearm pain**

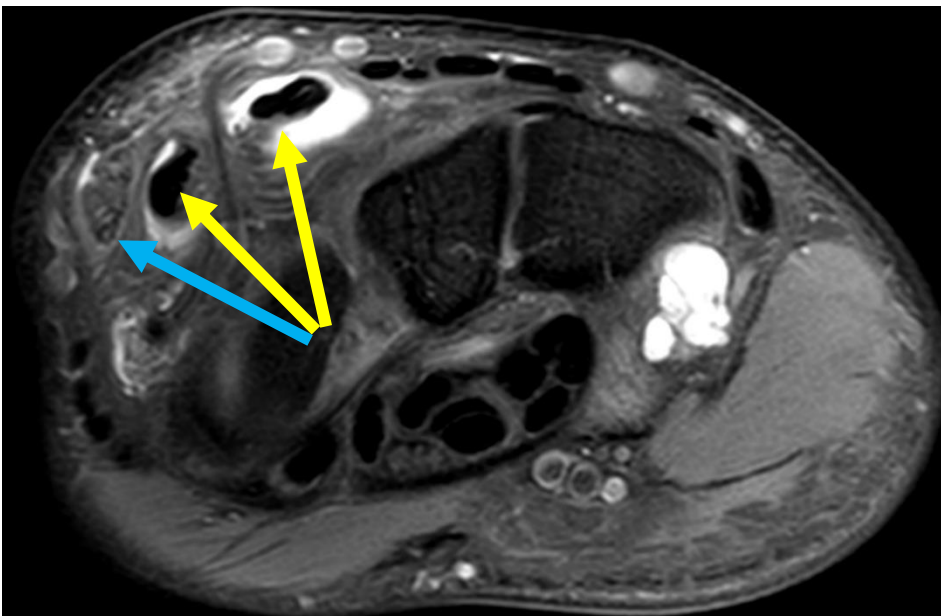
MRI Findings:

- Marked 2nd and 3rd extensor compartment tenosynovitis and high-grade tearing/rupture EPL tendon in the 3rd extensor compartment with associated retraction distally to the level of the trapezium
- ECRL and ECRB tendons of the 2nd extensor compartment are intact but demonstrate minor delamination and fraying at their distal insertions
- Cortical ill definition and likely reactive mild subcortical bone marrow oedema involving underlying Lister's tubercle
- Overlying extensor retinaculum demonstrates oedematous thickening, delamination and fraying



**Axial PD SPAIR – distal radius level**

Mildly oedematous Lister's tubercle separates the fluid-filled 2<sup>nd</sup> and 3<sup>rd</sup> (empty – ruptured and retracted EPL) extensor compartments



**Axial PD SPAIR – trapezium level**

Marked tenosynovitis demonstrated more distally ECRL/ECRB (Compartment 2) and thick hyperintense delaminated retracted stump of EPL is now visualised superficial/adjacent to ECRL



**Coronal PD SPAIR** – Tenosynovitis compartment 2 and absent EPL from its groove at Lister's tubercle

**Sagittal PD SPAIR** – Irregularity and oedema Lister's tubercle and overlying thickened/oedematous extensor retinaculum

## Discussion

- Intersection (crossover) syndromes
  - **Proximal (Classic):** 1st compartment (APL) and (EPB) crosses over 2nd extensor (ECRB) and longus (ECRL)] ~ 4 cm proximal to Lister tubercle in distal forearm
  - **Distal:** 3rd compartment (EPL) crosses over 2nd distal to extensor retinaculum and Lister tubercle
- Noninfectious tenosynovitis involving the extensor pollicis longus (EPL), extensor carpi radialis brevis (ECRB) and longus (ECRL) tendons over the wrist is less commonly reported in the literature than the classic intersection syndrome
- Present with dorsal wrist pain and swelling
- Aetiology : Occupational/recreational overuse injury; Post trauma (Lister's tubercle can irritate EPL - mechanical friction, particularly if previous fracture or deformity; Autoimmune – RA or lupus may predispose to tendinopathy and EPL has watershed vascular supply here
- 2<sup>nd</sup> & 3<sup>rd</sup> extensor compartments communicate with each other in this area, allowing passage of inflammation
- Complete tear with EPL discontinuity and retraction may be seen in severe cases
- Distal intersection tenosynovitis can coexist with the more proximal forearm (classic) intersection syndrome
- Management:
  - Conservative and non-surgical: physiotherapy/splinting/corticosteroid
  - Severe cases -> EPL tendon rupture -> surgery -> may require tendon transfer or graft
- **MRI**
  - Delineates soft tissues and osseous / articular structures at the wrist
- **Ultrasound**
  - Accurate and dynamic assessment of tendinopathy / tenosynovitis. Limitation is in assessing for marrow oedema and articulations / chondral injury

## Further Reading:

Lee RP et al: Extended MRI findings of intersection syndrome. Skeletal Radiol. 38(2):157-63, 2009

Costa CR et al: MRI features of intersection syndrome of the forearm. AJR Am J Roentgenol. 181(5):1245-9, 2003

Parellada AJ et al: Distal intersection tenosynovitis of the wrist: a lesser-known extensor tendinopathy with characteristic MR imaging features. Skeletal Radiol. 36(3):203-8, 2007

Tsao, LY. Tendon Intersection Syndromes. MRI Web Clinic — September 2012