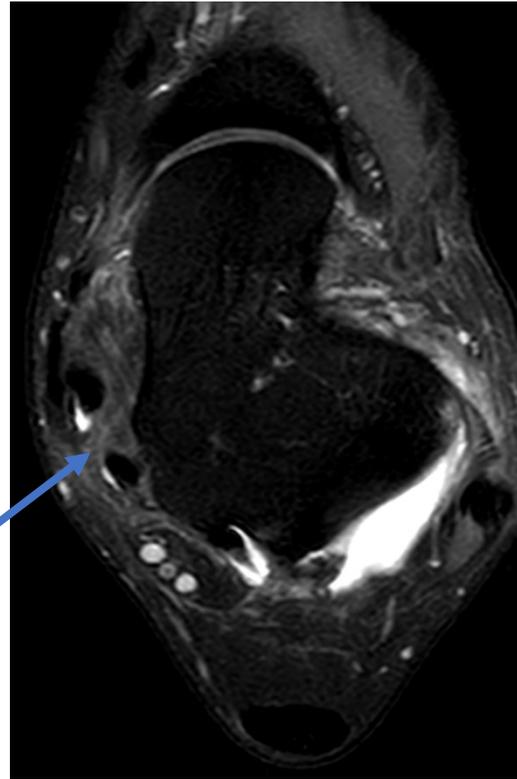
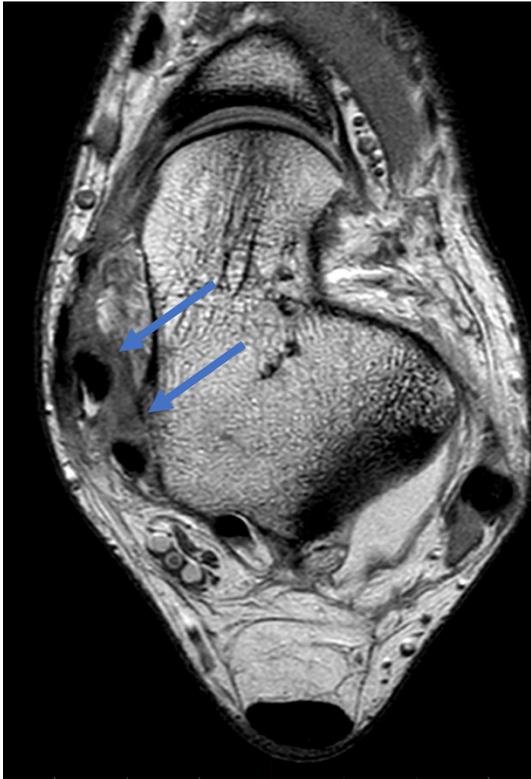


27 M sprinter – prior ankle injury, now has posteromedial ankle pain

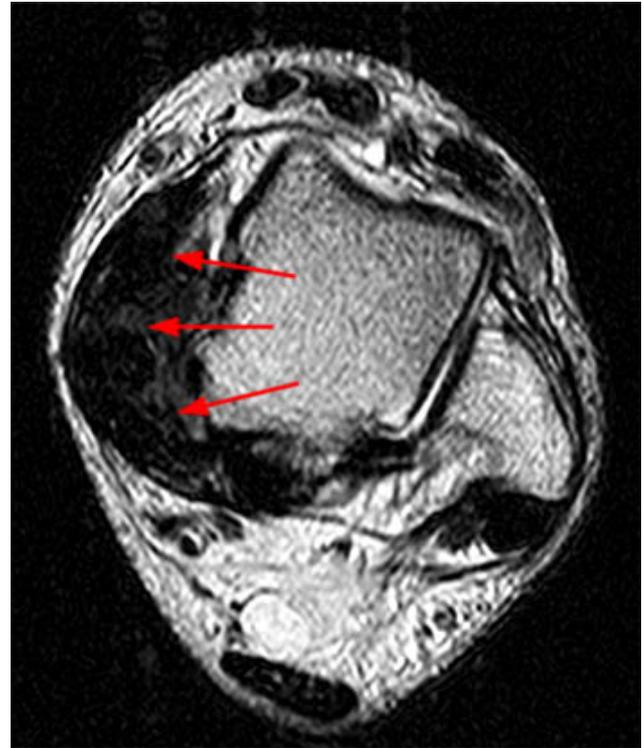
MRI Findings:

- Chondral marrow bruise of the lateral talar dome
- Intact lateral ligaments (not shown)
- Prior injury of the deep deltoid fibres, with developing hypertrophic scarring which abuts the adjacent flexor tendons



Axial PD and T2 SPAIR (top left and top right) show the hypertrophic scarring of the deep fibres of the deltoid ligament complex. Note that at the posteromedial edge of the deltoid a small nodule of hypertrophic scarring is developing, which abuts the adjacent flexor tendons.

Coronal PD (left) Shows the scarring of the deep deltoid fibres from a different perspective.



Top left – Coronal T2 SPAIR shows contusion of the medial talar dome, a co-existent injury which was also present in our case.

Top right – Companion case, image taken from an excellent article by Howell GA, shows more advanced posteromedial impingement, where the degree of hypertrophic scarring has progressed to essentially encase the flexor tendons. (Ref: Howell GA, Posterior Ankle Impingement, RadSource, Acc: 30.04.2019, <http://radsourc.us/posterior-ankle-impingement/>).

Discussion:

- Presents clinically with limitation of normal ankle motion posteriorly/posteromedially
- Aetiology is prior severe inversion injury to ankle
- Mechanism: deep fibres of deltoid are crushed/damaged between the medial malleolus and medial talus
 - The POMI lesion is caused by hypertrophic scarring as part of the healing response. In essence, the impingement is secondary to poor healing, not the acute contusion injury.
- Careful interrogation needed in oedematous/scarred deltoid ligament in patient presenting with acute/chronic lateral ligamentous injury
 - Especial care needed in region of posterior deep tibiotalar ligament (PDTL) of deltoid complex for POMI lesion

Imaging:

- X-Ray
 - May see small avulsion fractures in region of medial malleolus
- Ultrasound
 - Disorganised, thickened deltoid ligament
- MRI
 - Best imaging modality.
 - Scarring through deep fibres of deltoid ligamentous complex
 - Hypertrophic scarring in posteromedial deep deltoid + clinical posteromedial impingement = POMI
 - In acute injury, may see bone marrow contusions of the medial malleolus and talus from 'nutcracker' effect

Further Reading:

Datir A, Connell D, *Imaging of impingement lesions in the ankle*, Top Magn Reson Imaging, 2010 Feb; 21(1):15-23
 Koulouris G., Connell D, Schneider T, Edwards W, *Posterior tibiotalar ligament injury resulting in posteromedial impingement*, Foot Ankle Int, 2003 Aug;24(8):575-83
 Howell GA, Posterior Ankle Impingement, RadSource, Acc: 30.04.2019, <http://radsourc.us/posterior-ankle-impingement/>.
 Chhabra A et al, *MR Imaging of deltoid ligament pathologic findings and associated impingement syndromes*, Radiographics, 2010; 30:751-761