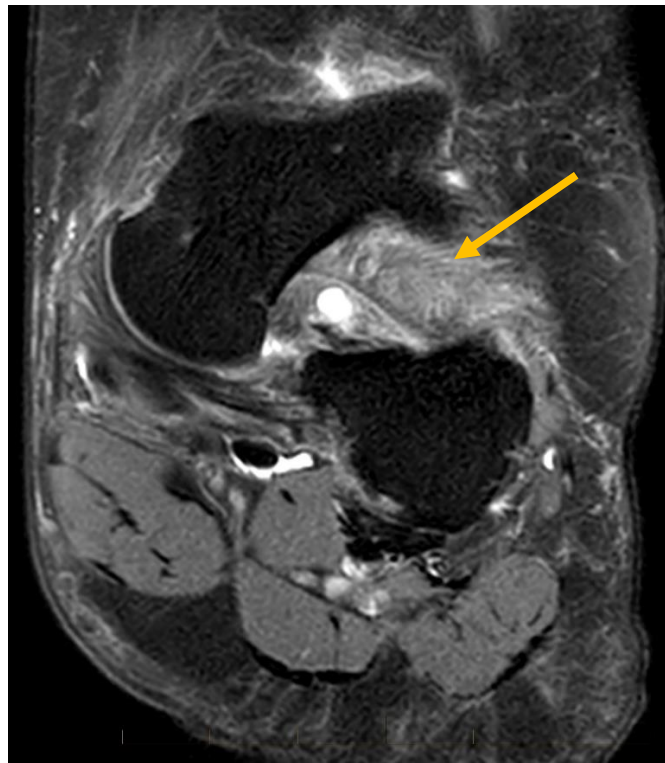
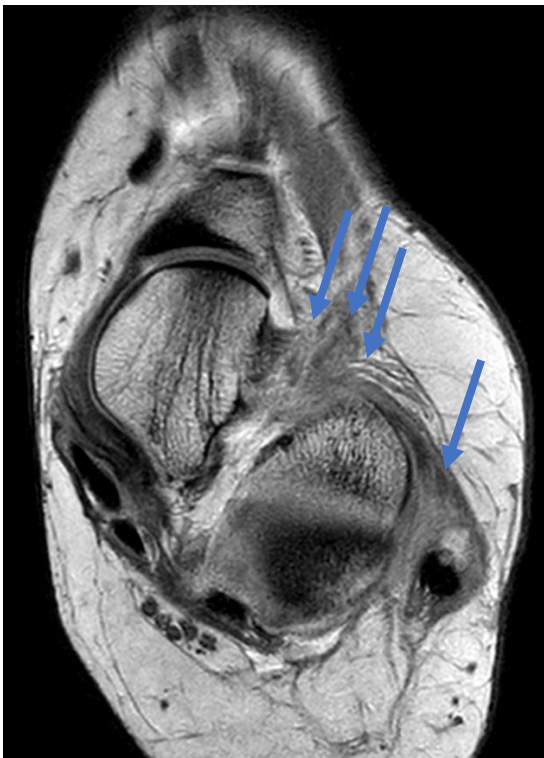


32 year old female with an injury 9 months ago presents with lateral ankle symptoms

MRI Findings:

- Evidence of lateral ankle injury – high grade tearing of anterior talofibular ligament, calcaneofibular ligament, extensor retinaculum, with hypertrophic scar formation
- Scar formation tracks inferiorly down into the tarsal sinus
- Associated ganglion cyst formation
- Normal fat of the tarsal sinus has been lost, instead replaced with fluid/fibrous scarring

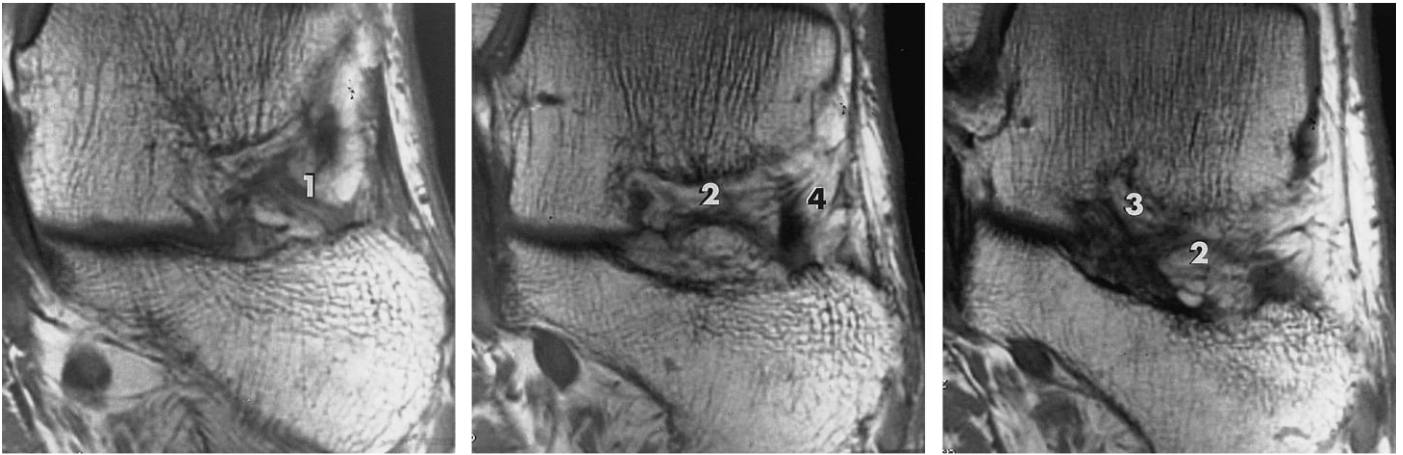


TOP LEFT – Axial PD shows the high grade tear of the anterior talofibular ligament (blue arrow) - other lateral ligamentous injuries are unable to be shown. Note the significant hypertrophic scar formation which tracks down into the sinus tarsi (blue arrows)

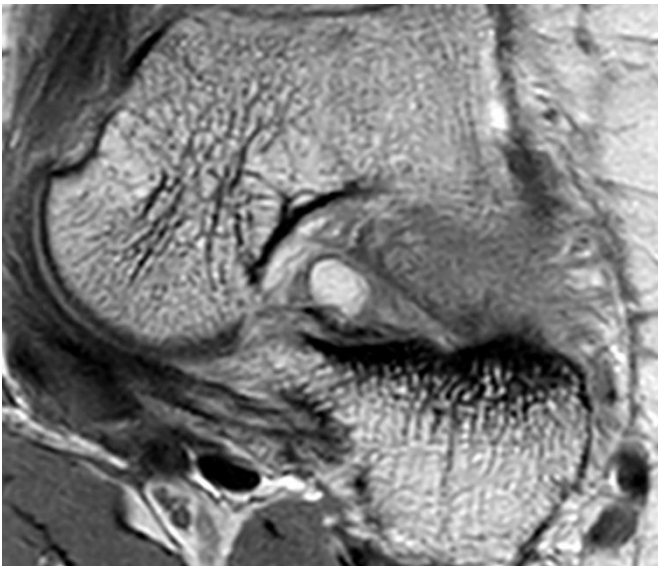
TOP RIGHT – Coronal T2 FS shows that the normal appearance of the sinus tarsi fat has been replaced by high signal ganglion formation and fibrous tissue (yellow arrows). Note that the normal ligaments of the sinus tarsi cannot be adequately visualised.

LEFT - Sagittal T2 FS shows again the high signal fibrous material which has replaced the normal sinus tarsi fat.

ANATOMIC CORRELATION



The images **above**, taken from an excellent article on sinus tarsi imaging by Lektrakul et al, shows a normal appearance of the tarsal sinus on PD weighted imaging. Note specifically on this PD acquisition that the sinus tarsi contains core stabilising ligaments, annotated: 1) cervical ligament, 2) interosseous talocalcaneal ligament, and 3) & 4) representing attachments of the inferior extensor retinaculum. Note especially how these ligaments, taken from a cadaveric study patient, are unable to be appreciated on our study shown **below**, with instead fibrosis and ganglion formation. (Reference: Lektakul et al, Tarsal sinus: Arthrographic, MR imaging, MR arthrographic, and pathologic findings in Cadavers and retrospective study data in patients with sinus tarsi syndrome).



DISCUSSION:

- Sinus tarsi syndrome: Chronic lateral hindfoot pain due to abnormal tissue/lesion occupying space
- Key information:
 - 3-4th decade of life most common
 - Presents with instability, lateral pain
 - Tender over sinus tarsi opening
 - Usually associated with lateral ankle injury
 - Most common aetiology is post-traumatic
 - Also implicated in diabetes, gout, synovitis
- Treatment options:
 - Conservative
 - Oral analgesia
 - Corticosteroid/anaesthetic injection
 - Subtalar arthroscopy/debridement

MRI FEATURES:

- Normal fat of sinus tarsi replaced by fluid or fibrous tissue
- Poorly delineated cervical/interosseous talocalcaneal ligaments due to scarring/tear
- Bone marrow oedema at attachments of cervical ligament
- Heterotopic ossification
- Associated injuries of the ankle, especially lateral ankle ligamentous complex

Further Reading:

Lektrakul N, Chung CB et al, Tarsal sinus: arthrographic, MR imaging, MR arthrographic, and pathologic findings in cadavers and retrospective study data in patients with sinus tarsi syndrome, *Radiology*, 2001; 219(3) 802-10

Choudhary S et al, Review of common and unusual causes of lateral ankle pain, *Skeletal Radiol*, 2011; 40(11):1399-413

Crim J., Tarsal Sinus Syndrome, StatDx, accessed Mar 18,2019, <https://my.statdx.com/cme/topic/7ba2e82c-a777-42b2-a5f8-8c80cca1cb9f?button=true>