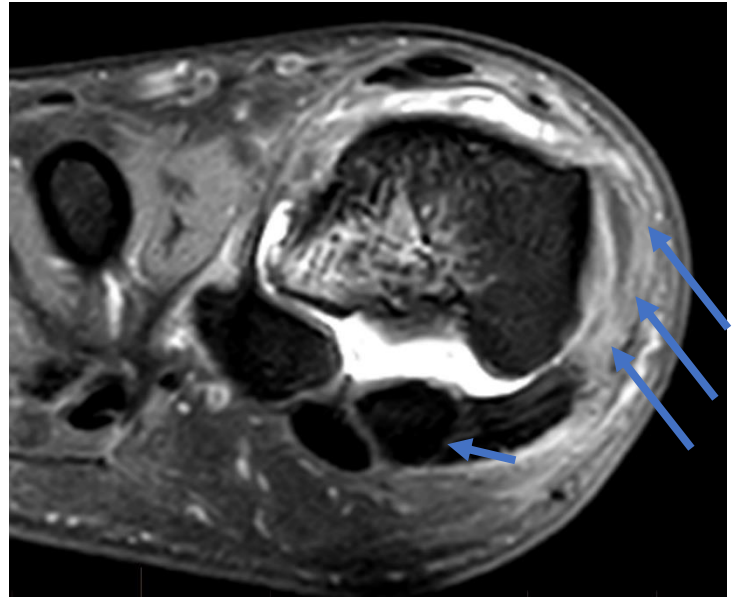


### 30M with hyper-extension injury of the 1<sup>st</sup> MTP while playing sports

#### MRI Findings:

- High grade ligamentous injury of the medial collateral ligament
- Medial capsule disruption
- High grade injury of the medial sesamoidophalangeal ligament (plantar plate injury)
- Bone marrow contusion of the lateral aspect of the 1<sup>st</sup> metatarsal head

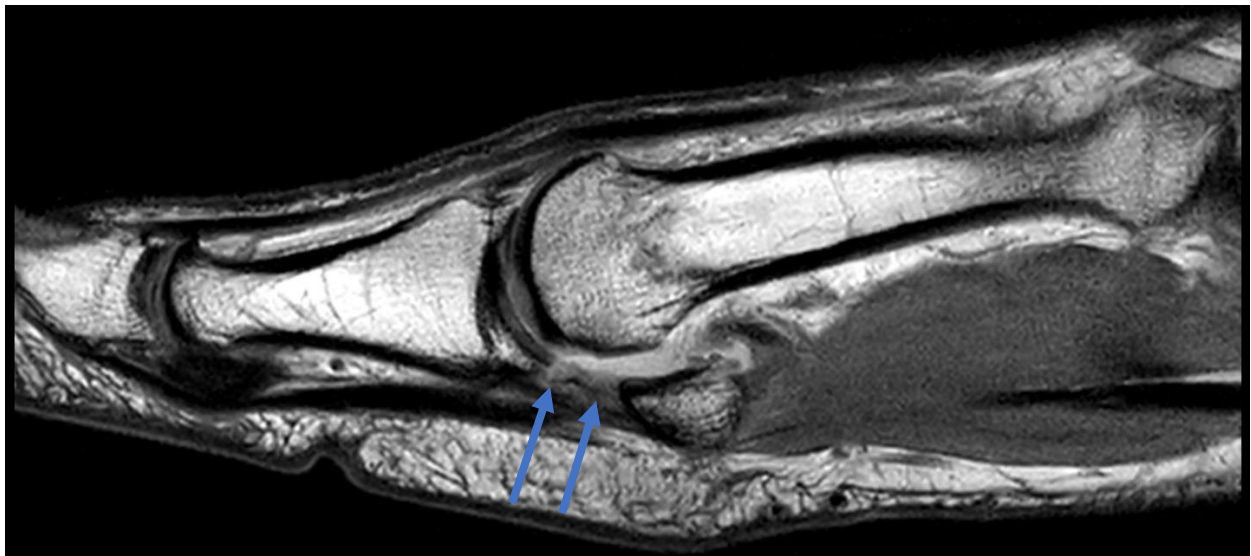


Coronal T2 (top left) – shows medial collateral ligament high-grade tearing and bone marrow contusion of the metatarsal head

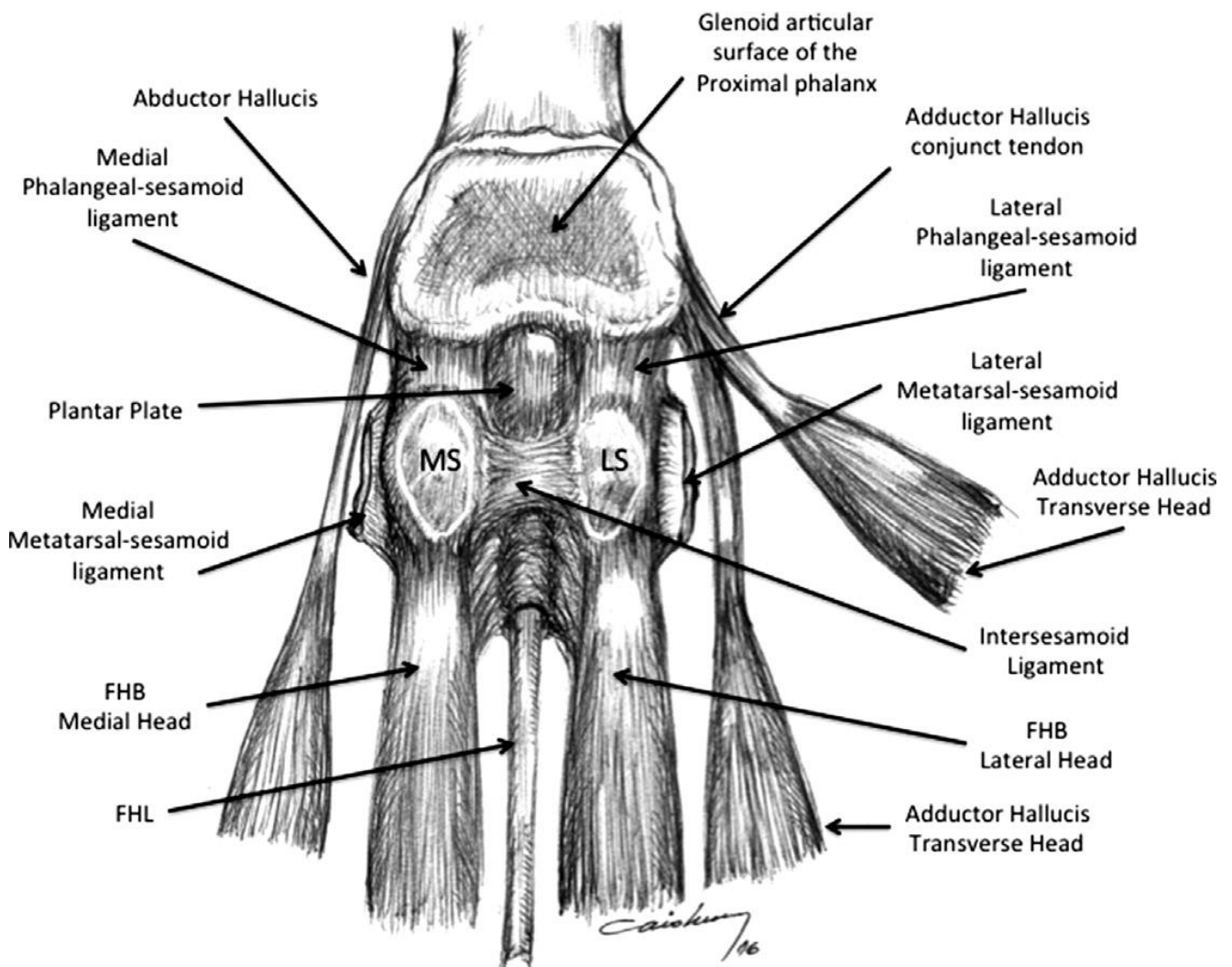
Axial T2 (top right) – Shows the MCL injury and associated high-grade capsular tearing. Note that in our case, the medial sesamoid has partially subluxed laterally without the MCL to hold it in place

Illustration (left): The image to the left has been taken from a wonderful article by Nery et al, which shows the hyper-extension injury of the 1<sup>st</sup> MTP joint which serves as the mechanism of the 'turf toe'. The black arrow shows the axial loading force through a great toe fixed on the ground, the gray arrowhead shows the corresponding plantar plate/glenosessamoid apparatus injury.

(Ref: Nery et al, *MR imaging of the plantar plate: normal anatomy, turf toe, and other injuries*, Magn Reson Imaging Clin N Am 25, 127-144, 2017)



**Sagittal PD:** Axial imaging shows the medial phalangeal-sesamoid ligament disruption (plantar plate)



**Illustration (above):** The diagram above, taken from the same excellent article by Nery et al, gives an overview of the key anatomic structures of the plantar plate, all of which which can be seen on MR imaging and their individual injuries identified.

**Further Reading:**

Umans et al, *MRI of lesser metatarsophalangeal joint plantar plate tears and associated interspace lesions*, Skeletal Radiol, Oct; 43(10): 1361-8, 2014  
 Nery et al, *MR imaging of the plantar plate: normal anatomy, turf toe, and other injuries*, Magn Reson Imaging Clin N Am 25, 127-144, 2017  
 Schein et al, *Turf toe and sesamoiditis: what the radiologists needs to know*, Clin Imaging, 39(3): 380-9, 2015