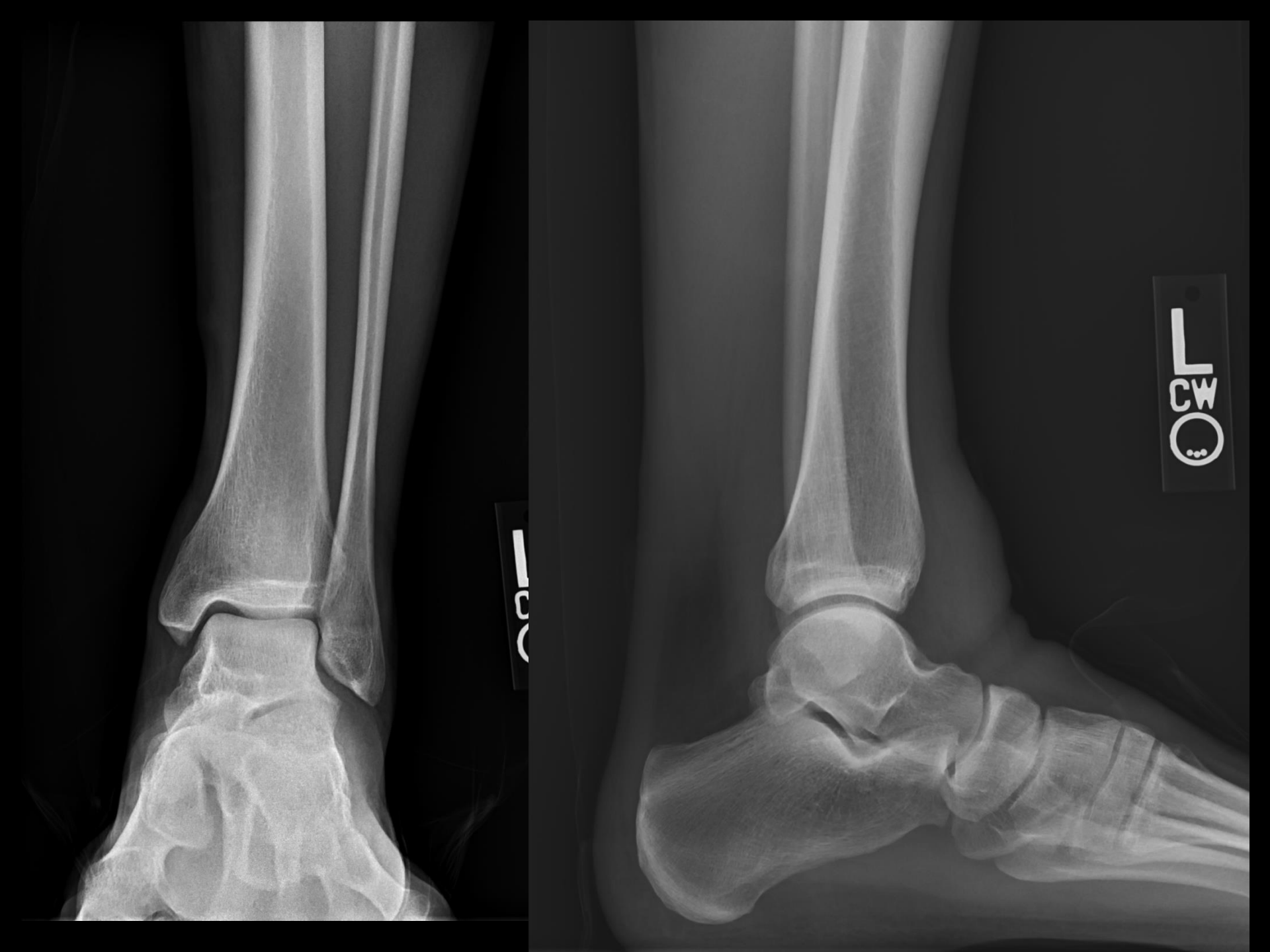
39 y/o M fell and hit leg while lifting weights.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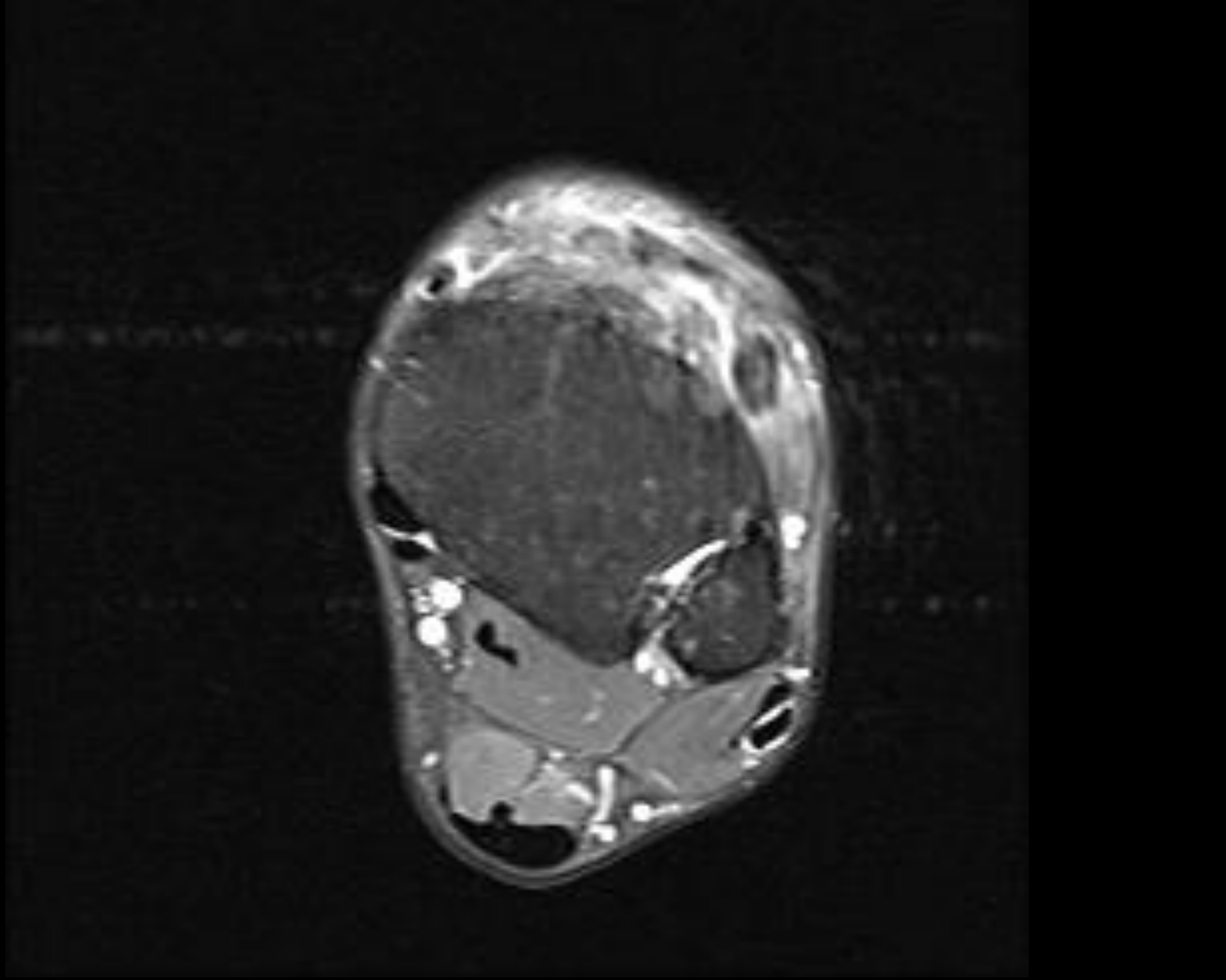
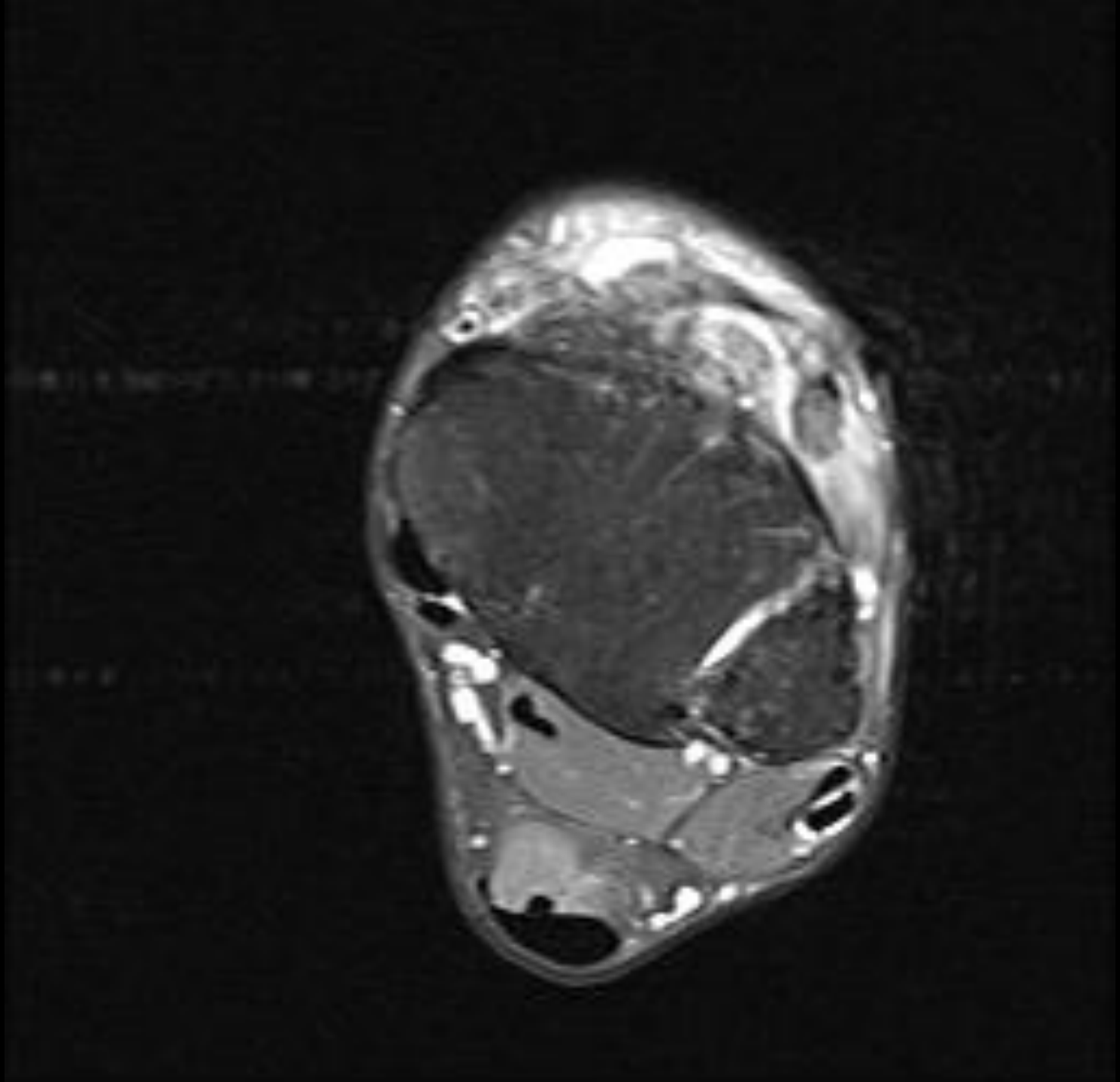
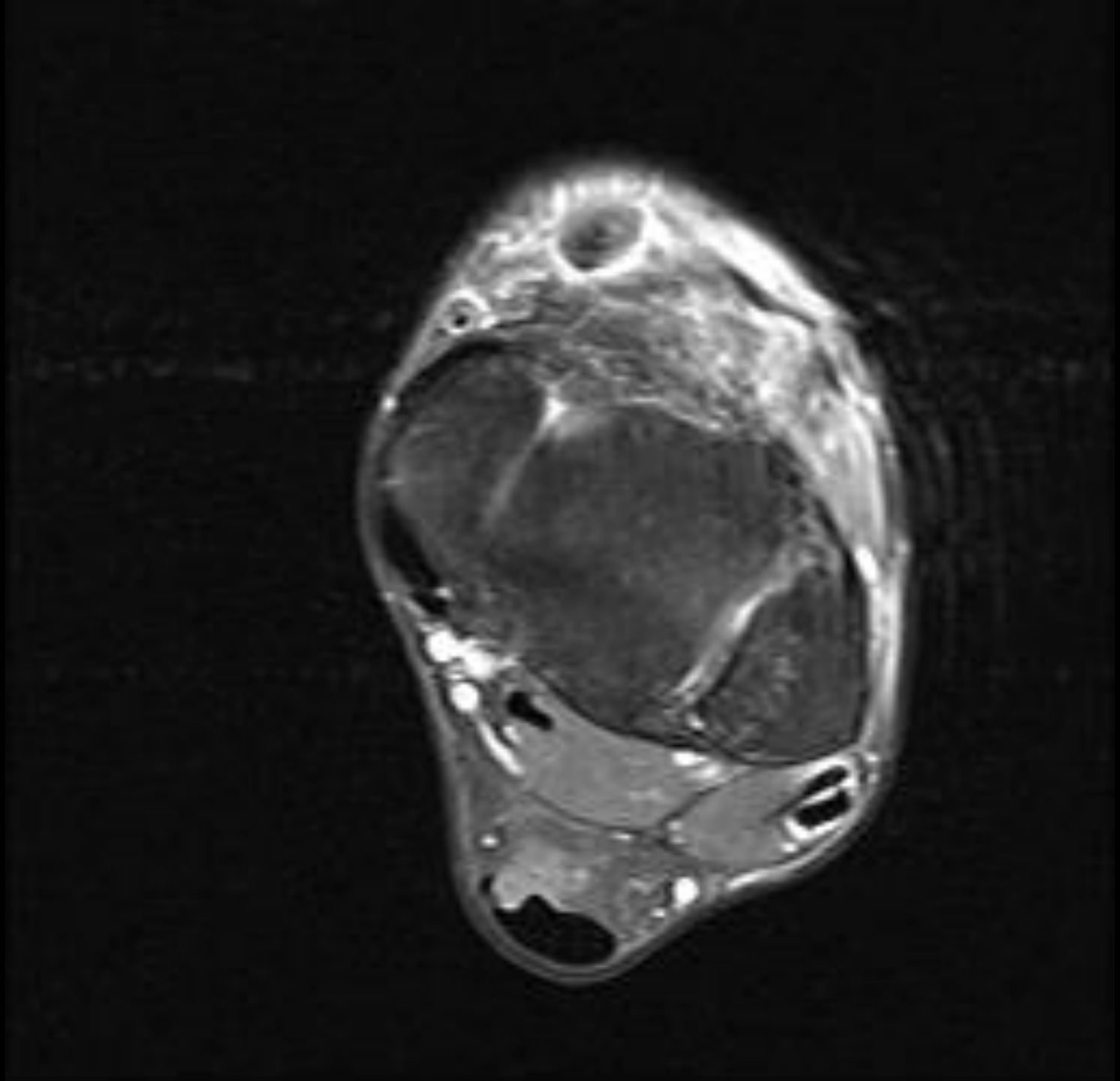
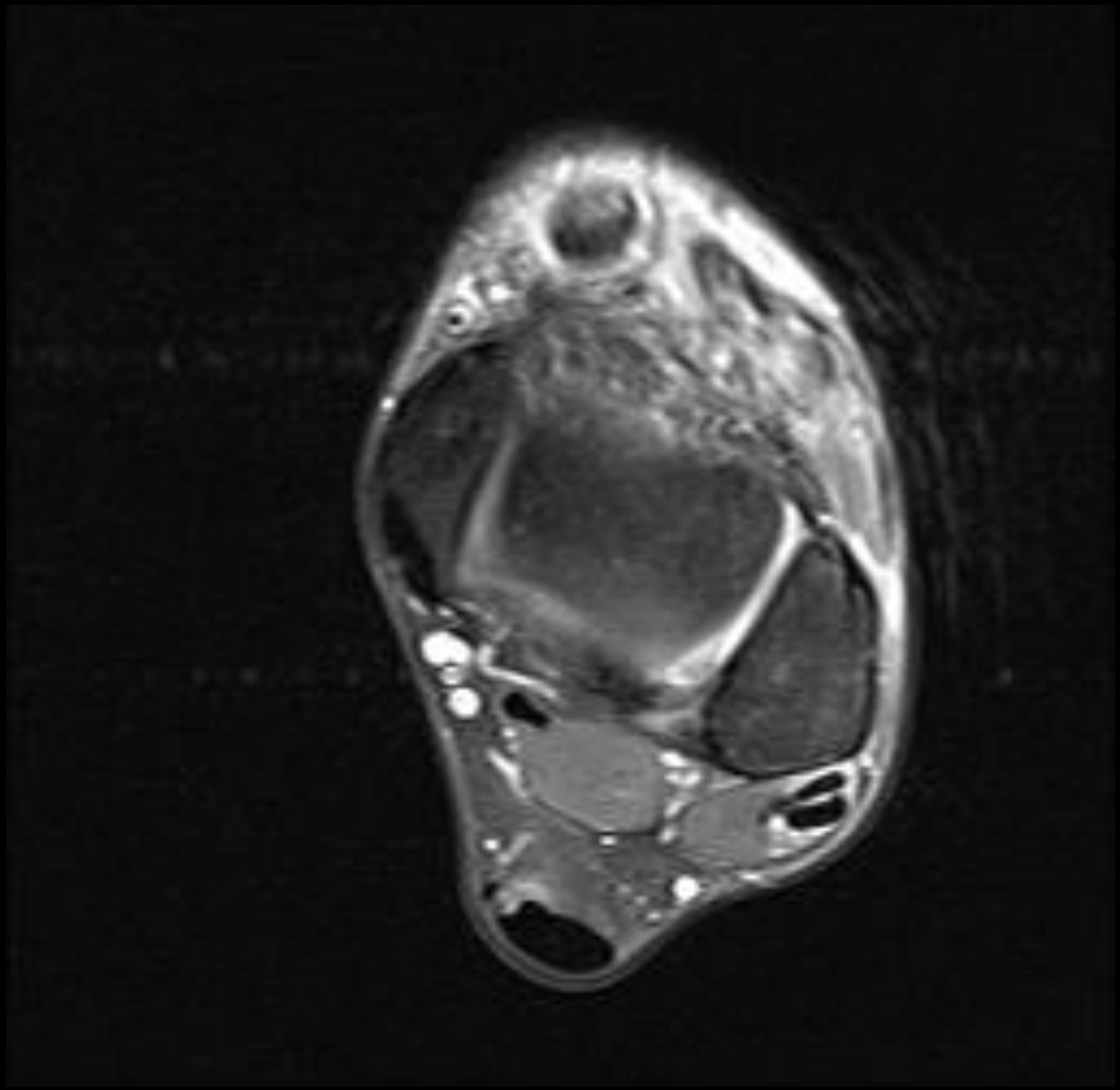
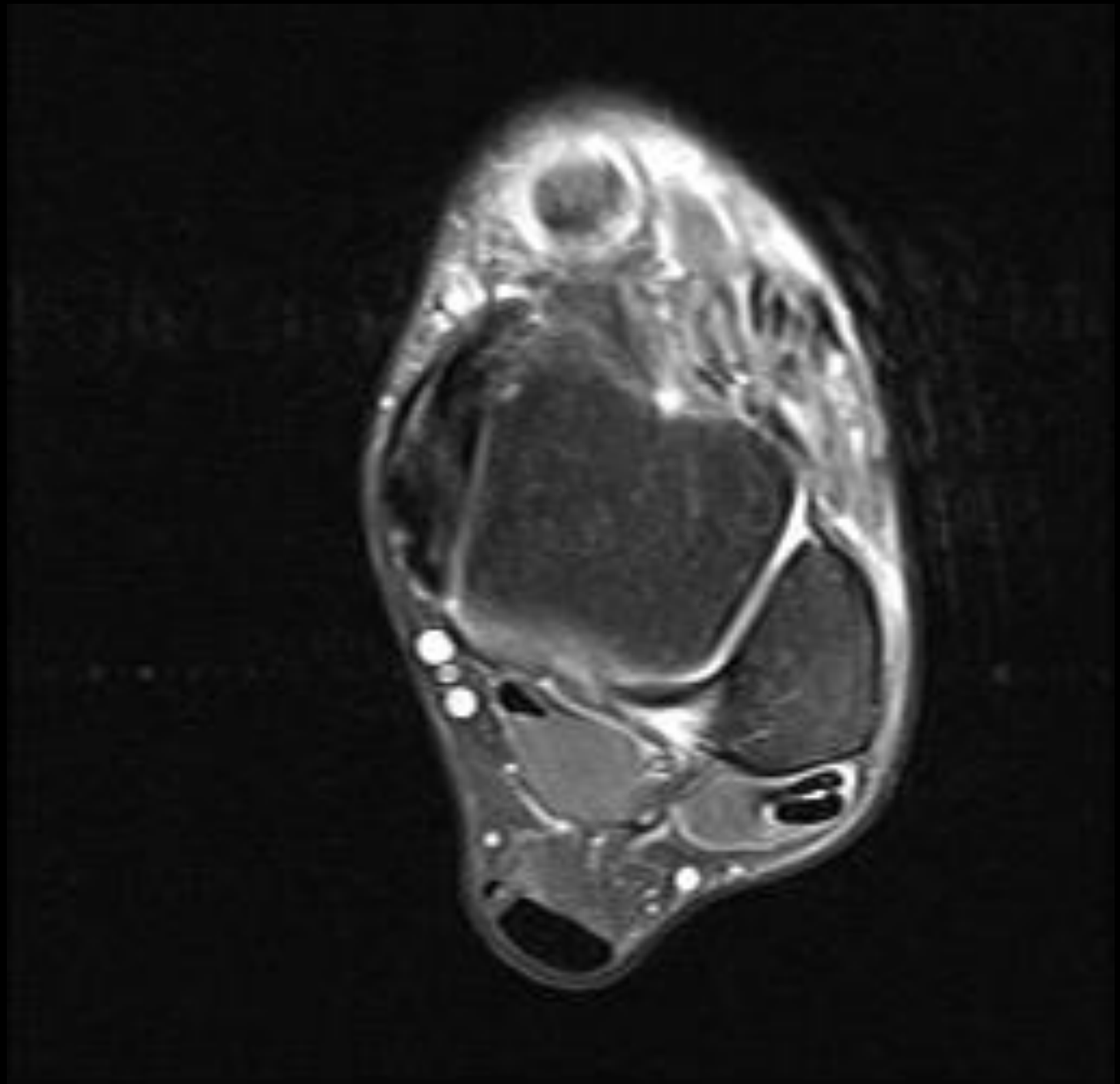




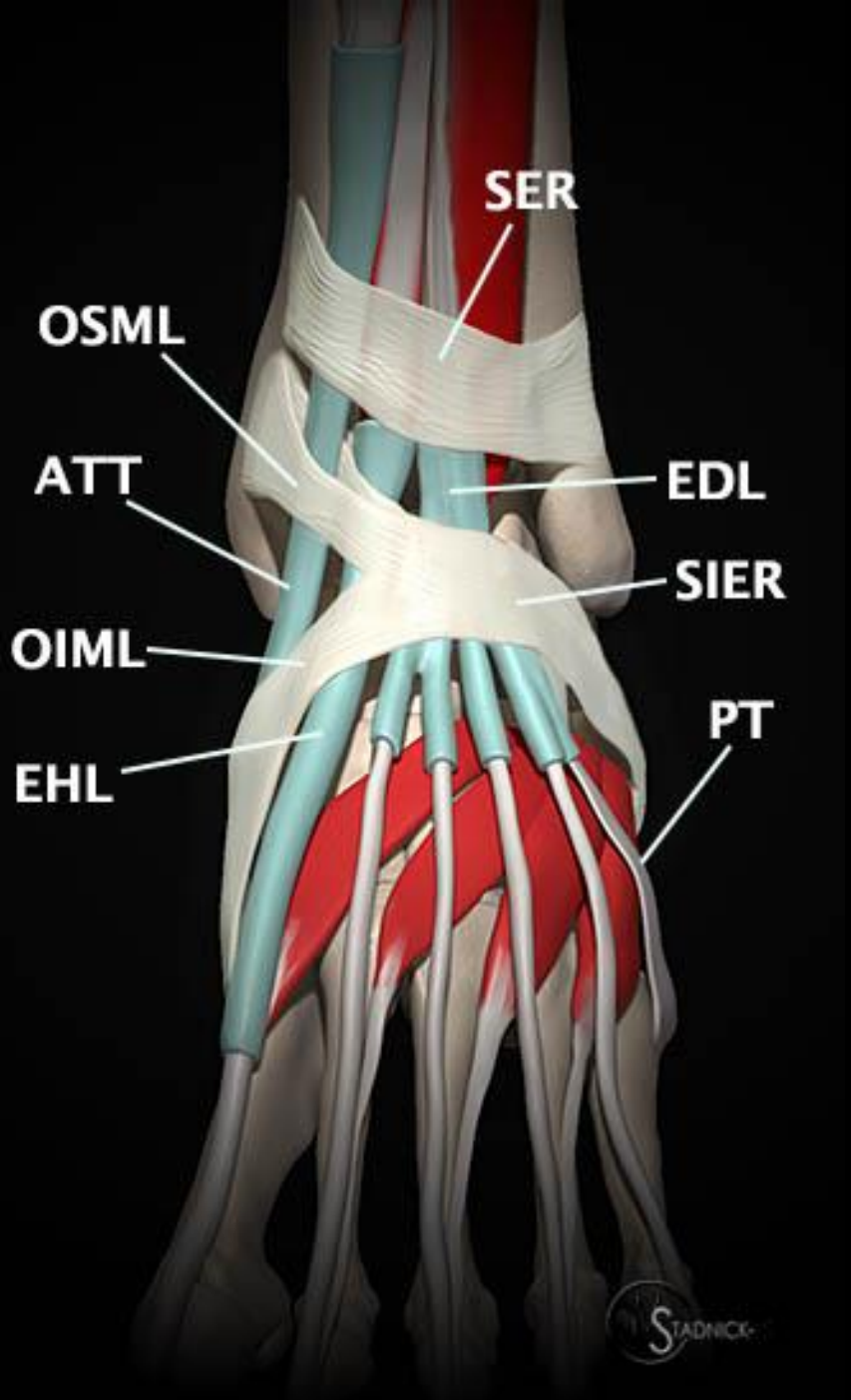


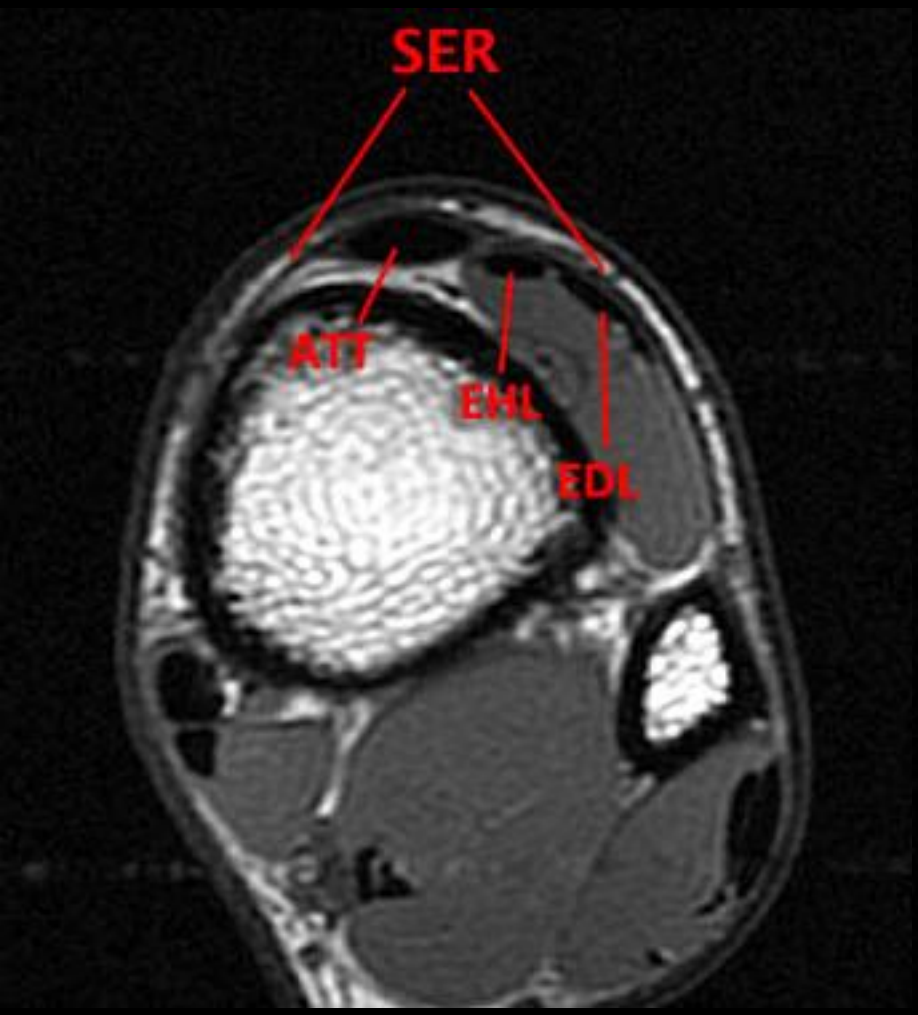


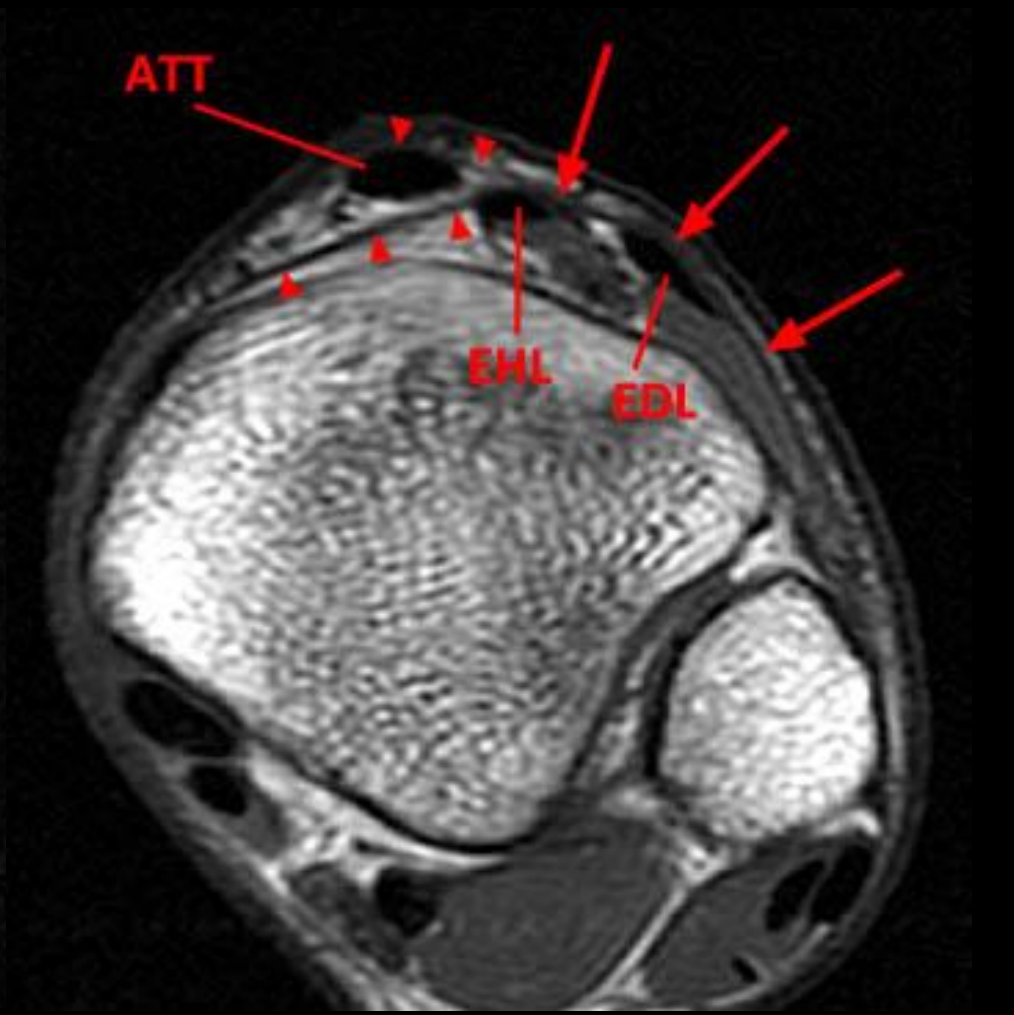


DX: Traumatic Laceration of the Anterior tibial tendon, high grade tear of EHL and EDL

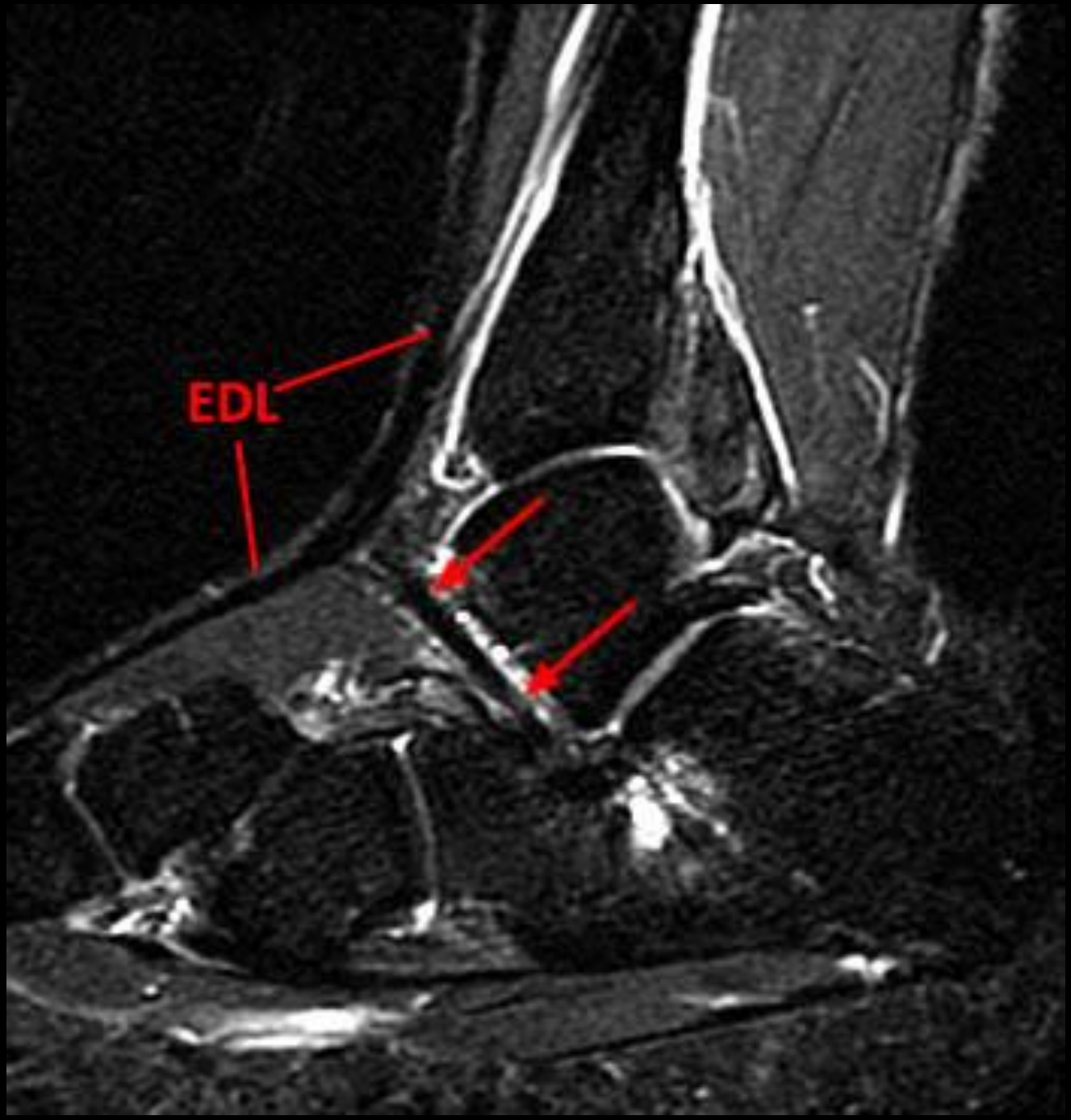
- Extensor tendons- easily overlooked b/c rarely injured.
- Anterior Tibial Tendon- inserts on medial cuneiform and 1st MT base. May have normal split.
  - Provides 80% of dorsiflexion
- Extensor Hallicus Longus- inserts base distal phalanx great toe
- Extensor Digitorum Longus- Common tendon, divides around extensor retinaculum, insert on phalanges 2nd-5th.
- Peroneus tertius- present in 85-93% population. Shares common tendon sheath with EDL and inserts base of 5th MT



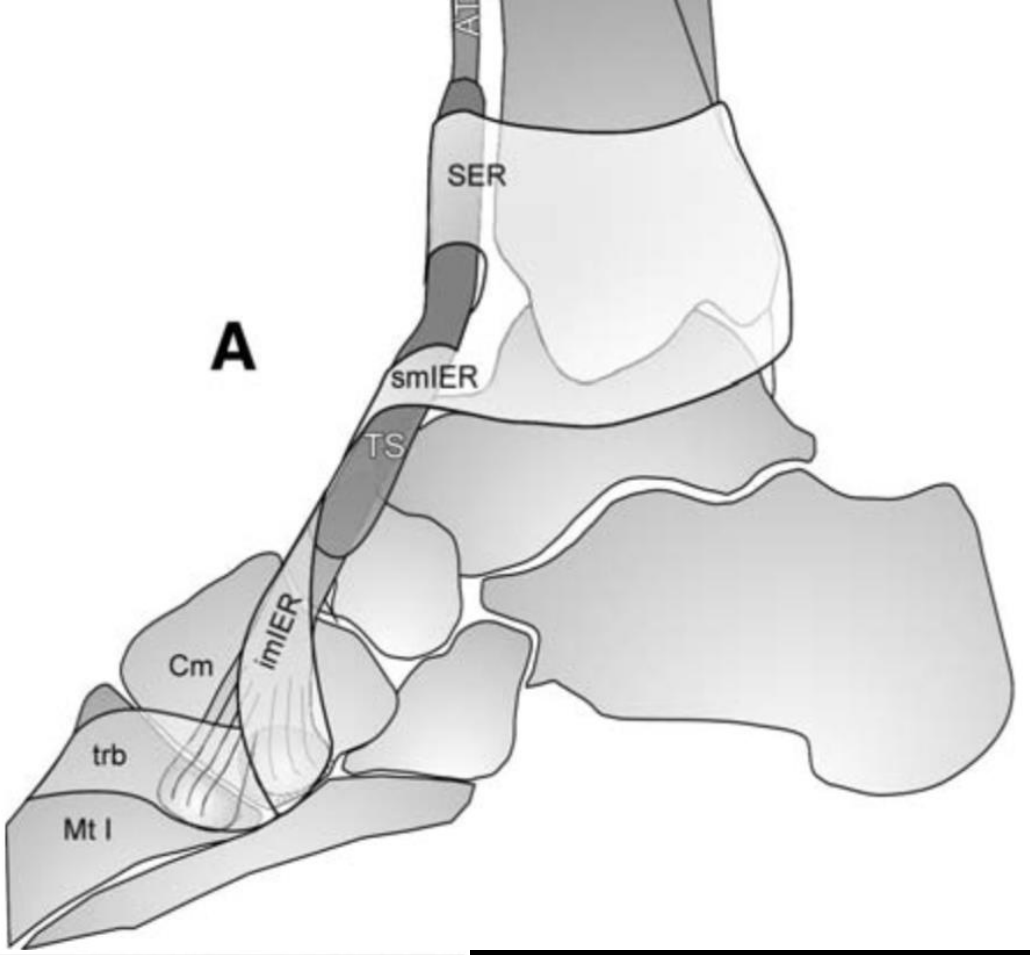


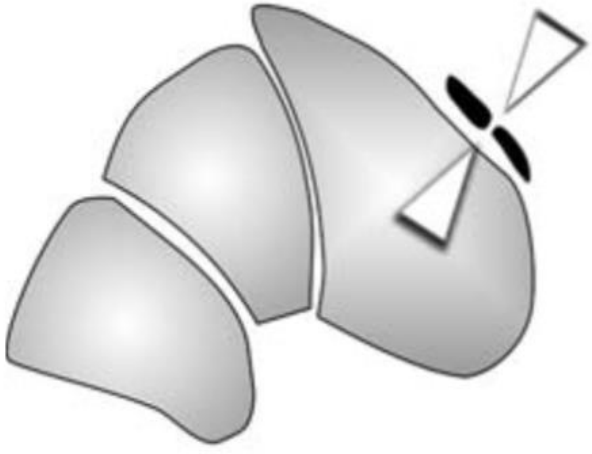


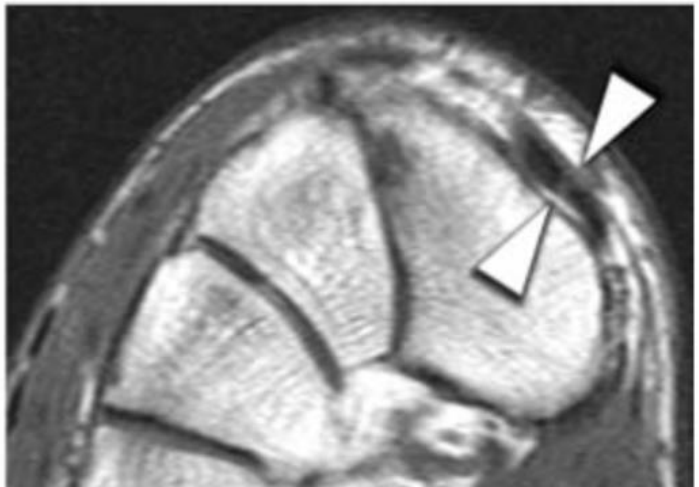
www.radsource



Mengiardi B, Pfirrman CW, et al. Anterior tibial tendon abnormalities: MR Imaging Findings. *Radiology* 2005; 235:977-984

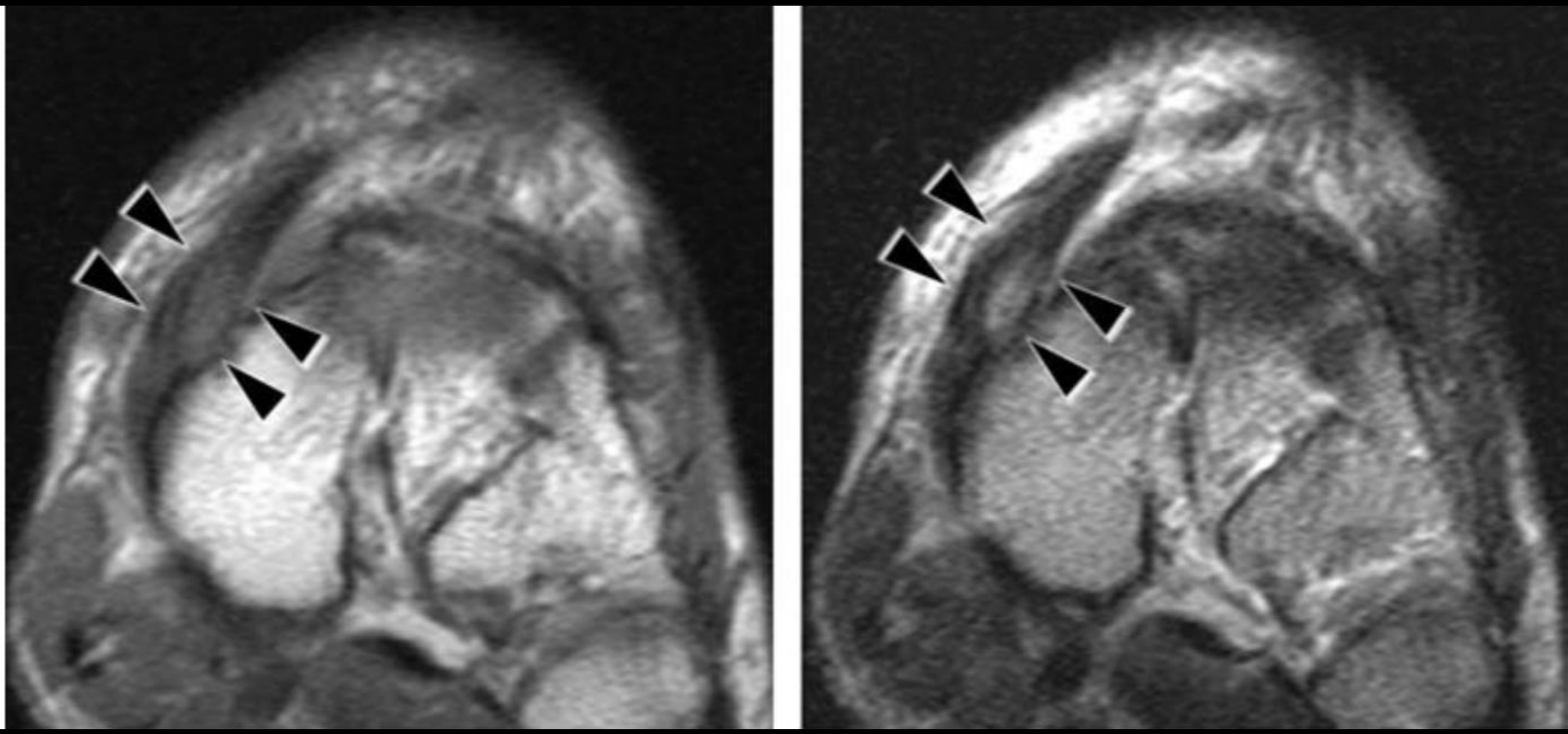






ATT Pathology

- Complete Tears- usually easily diagnosed clinically- foot drop, loss of dorsiflexion, palpable mass at anterior ankle.
  - Most are not traumatic- degeneration, repetitive stress, systemic disease, etc
  - Trauma, laceration
- Partial tears or tendinosis
  - Most ATT abnormalities first 3cm proximal to insertion(82%), tendon thickening >= 5mm, and have diffuse or posterior signal intensity abnormalities (93%)



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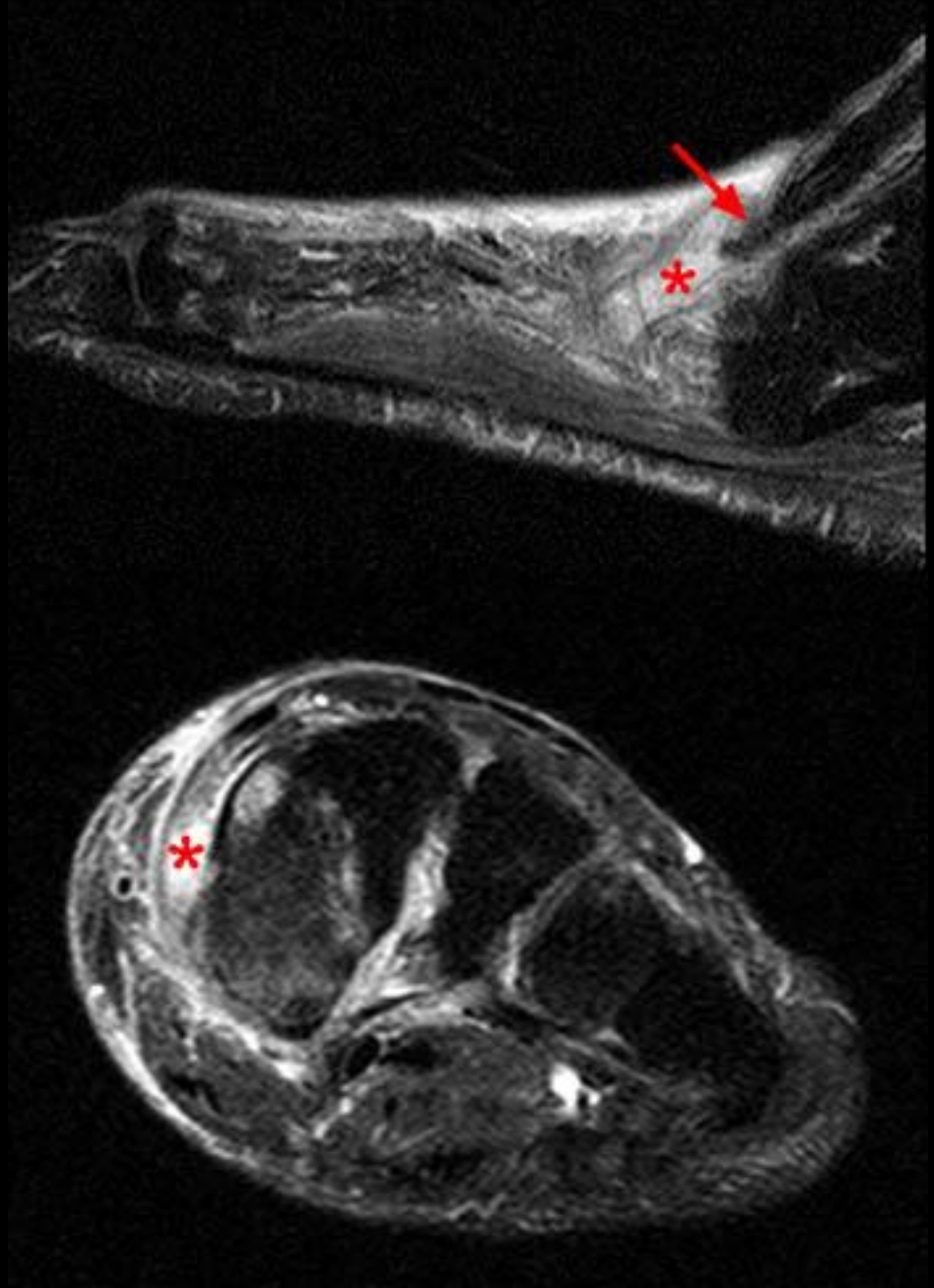
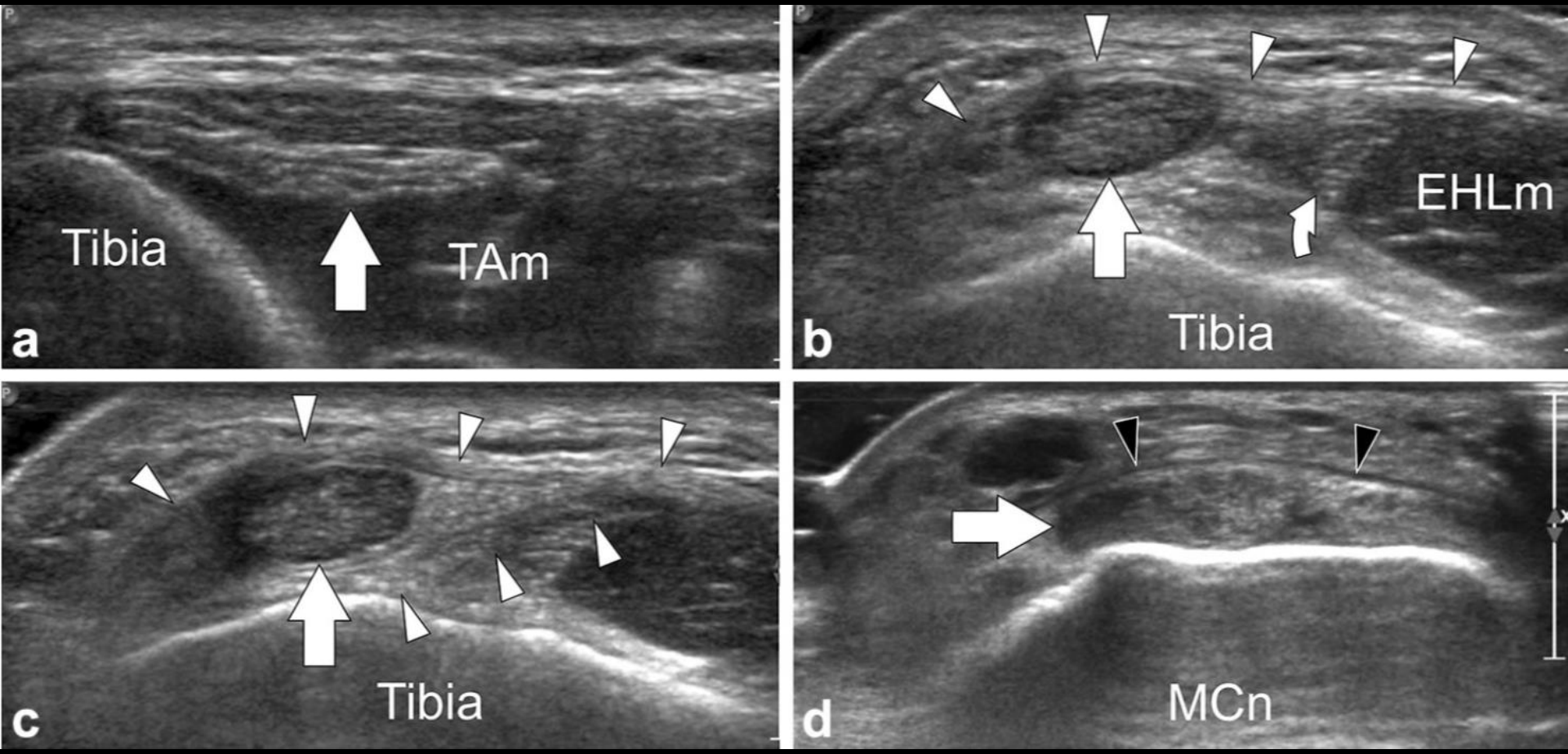


Imaging

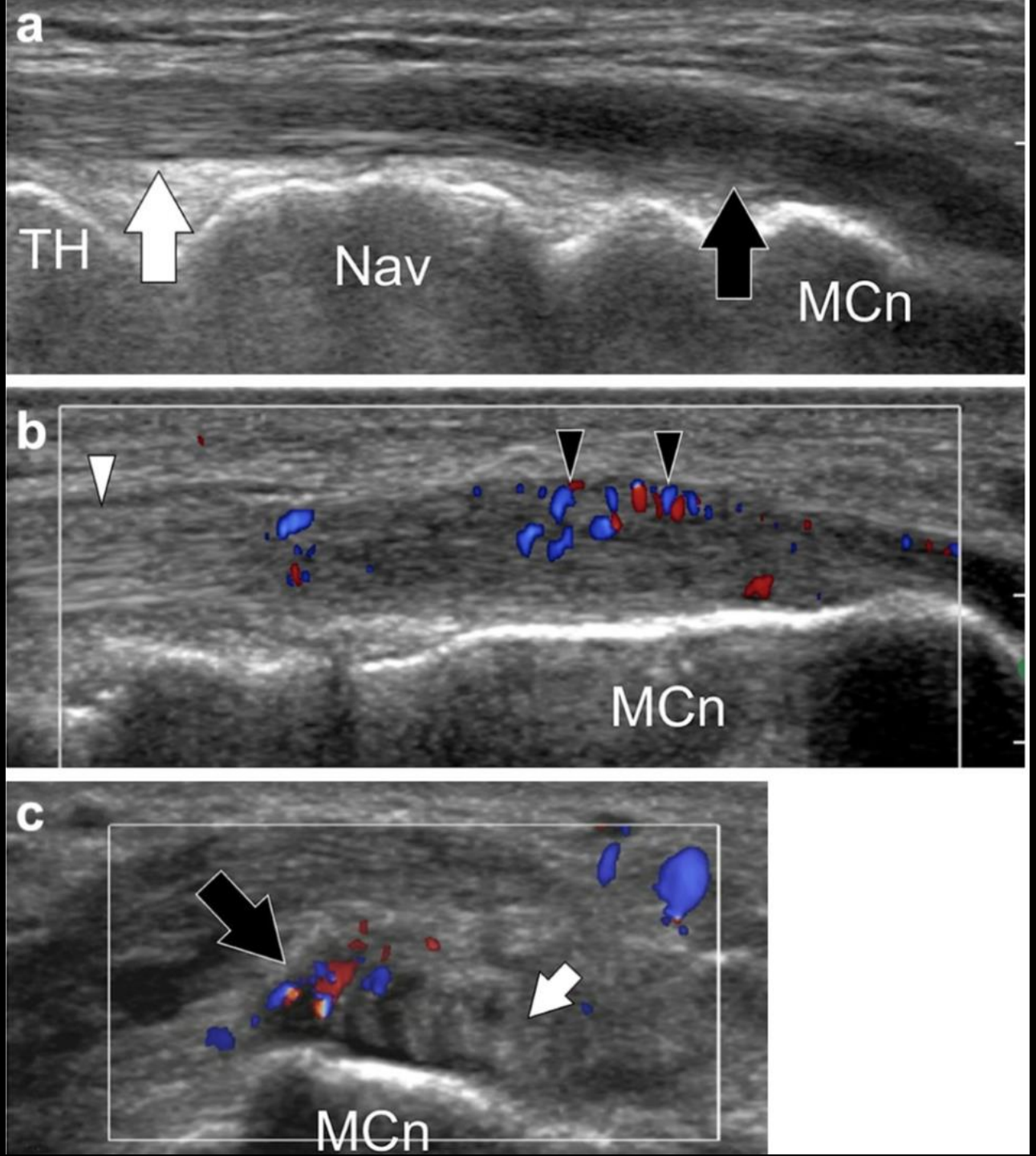
- MRI
  - Axial images for vertical portions
  - Coronal images for horizontal portions
  - Tough to follow on sagittal images because oblique course of tendon
  - Magic angle phenomenon as change direction from ankle to foot
  - If know in advance, try to do sagittal oblique images in plane with the tendons
  - Complete tears: Report gap, length of distal stump and tendinosis/unhealthy tendon length

Ultrasound

- Excellent at evaluating ATT because it is superficial and straight.
- Use linear high frequency (12-15 MHz transducer)
- Normal tendon is hyperechoic with a fibrillated appearance. Diameter approximately twice that of the other extensor tendons
- Normal synovial sheath can’t be distinguished



Varghese A, Bianchi S. Ultrasound of tibialis anterior muscle and tendon: anatomy, technique of examination, normal and pathologic appearance. *J of Ultrasound* 2014; 17:113-123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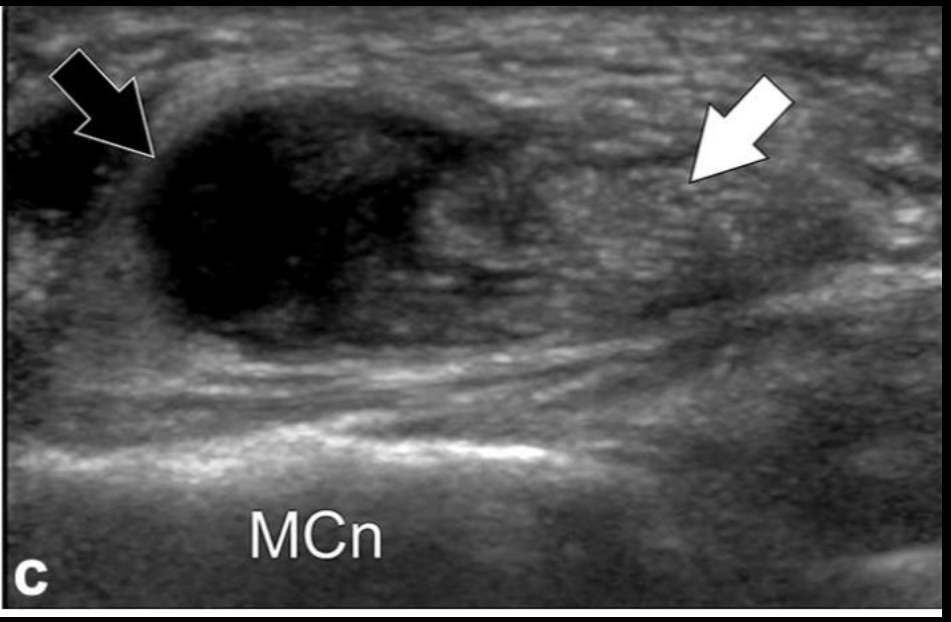

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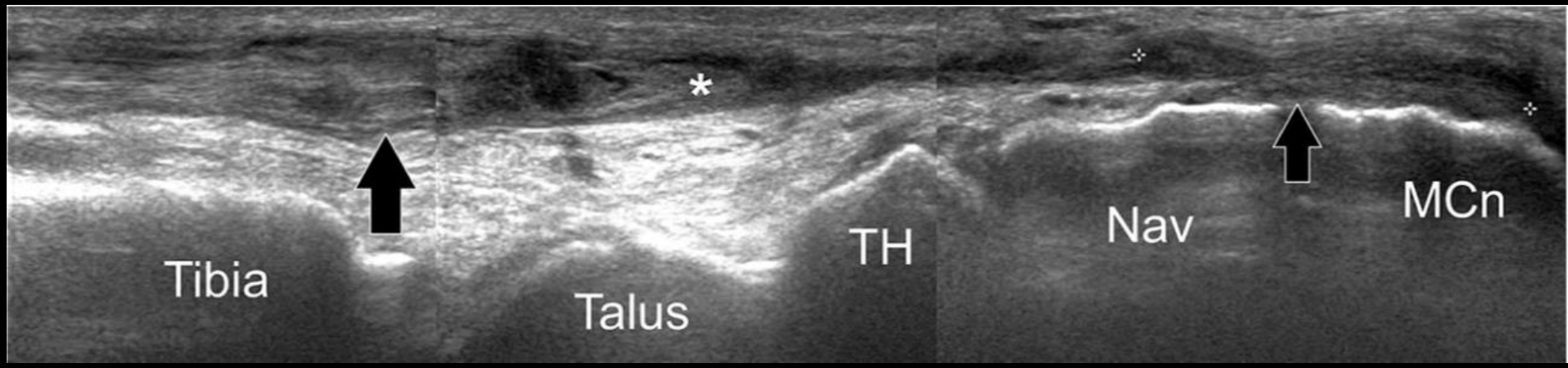

Treatment

- Conservative for tendinosis and PT tears
  - Rest, bracing, immobilize, modify footwear
- Complete tear- substantial functional deficit
  - Direct primary repair if tendon can be reapproximated and acute, not scarred
  - Interpositional graft or tendon transfer otherwise

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1. www.radsource.us
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3. Mengiardi B, Pfirrman CW, et al. Anterior tibial tendon abnormalities: MR Imaging Findings. *Radiology* 2005; 235:977-984
4. Varghese A, Bianchi S. Ultrasound of tibialis anterior muscle and tendon: anatomy, technique of examination, normal and pathologic appearance. *J of Ultrasound* 2014; 17:113-123.