

Musculo-skeletal ultrasound and MRI in evaluation of nerve and muscle

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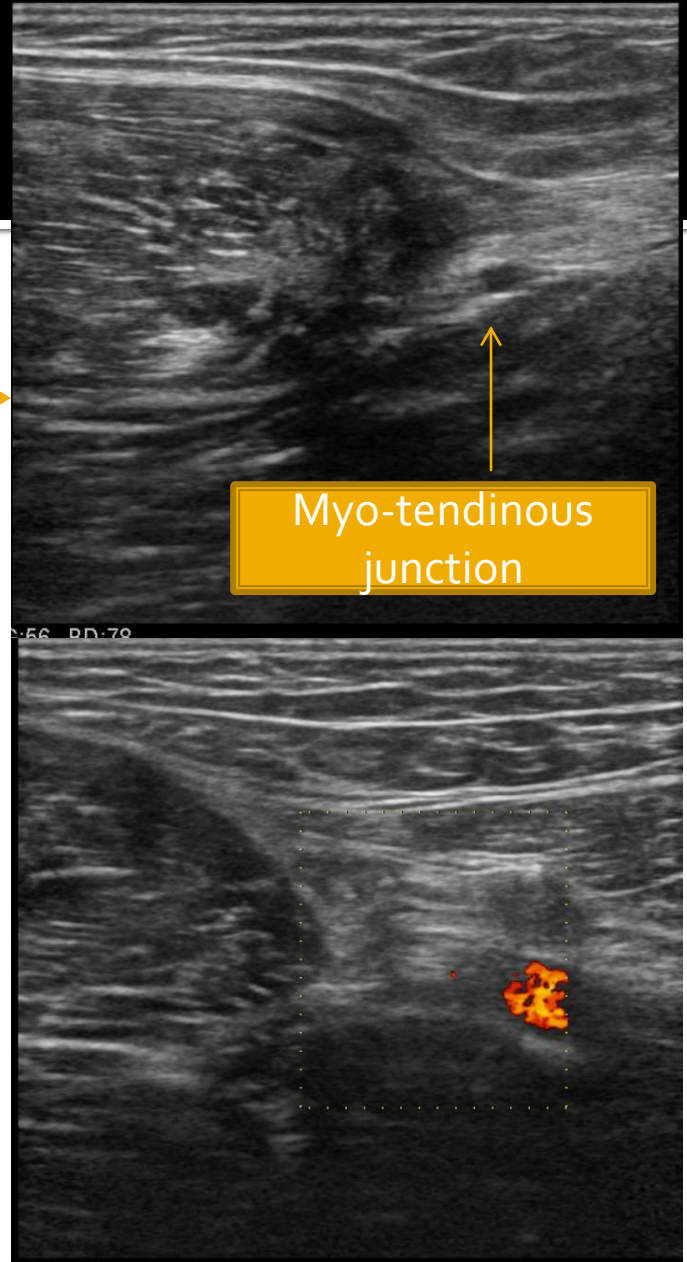
GUIDE- DR. AMIT KHARAT , Professor , radiology department,
DYPMC. ()

CASE 1

- The patient presented with c/o swelling and mild pain in the thigh region in the medial aspect since the history of hyperabduction of thigh while playing football.

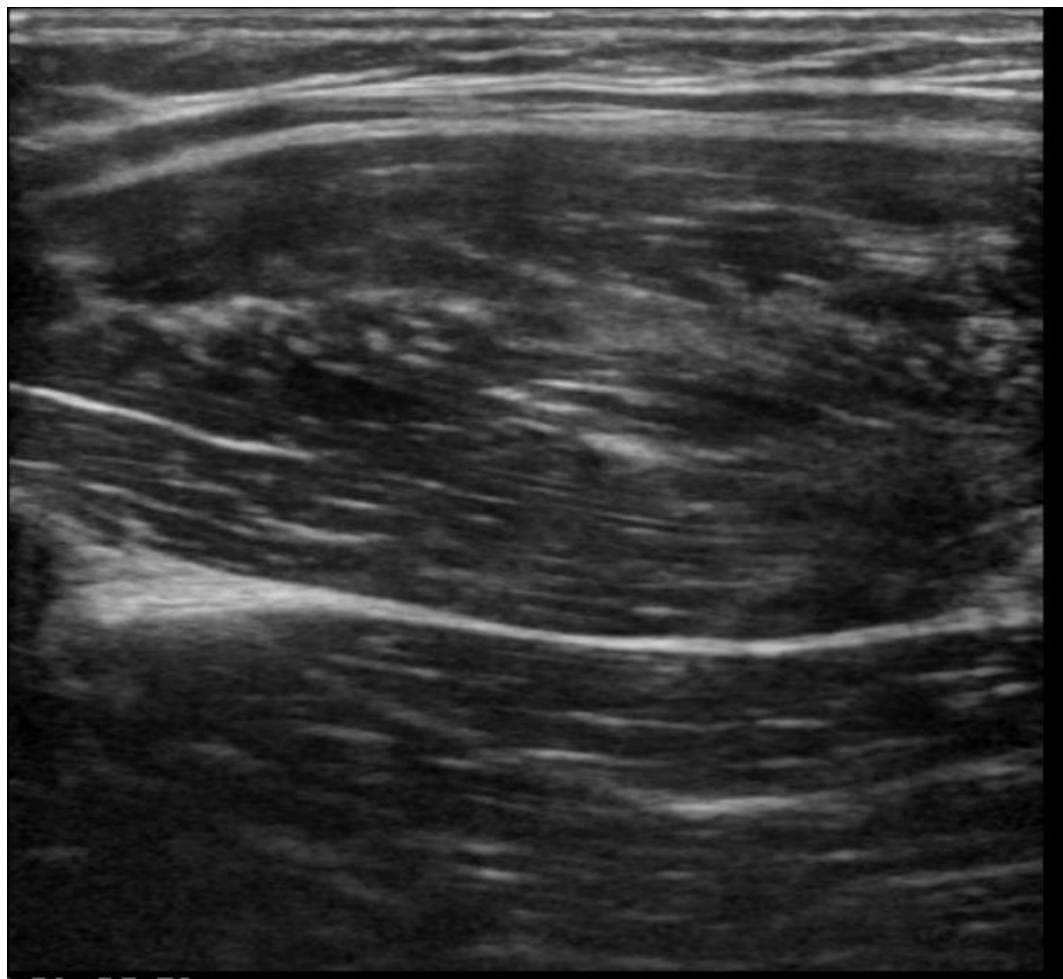


On MSK USG



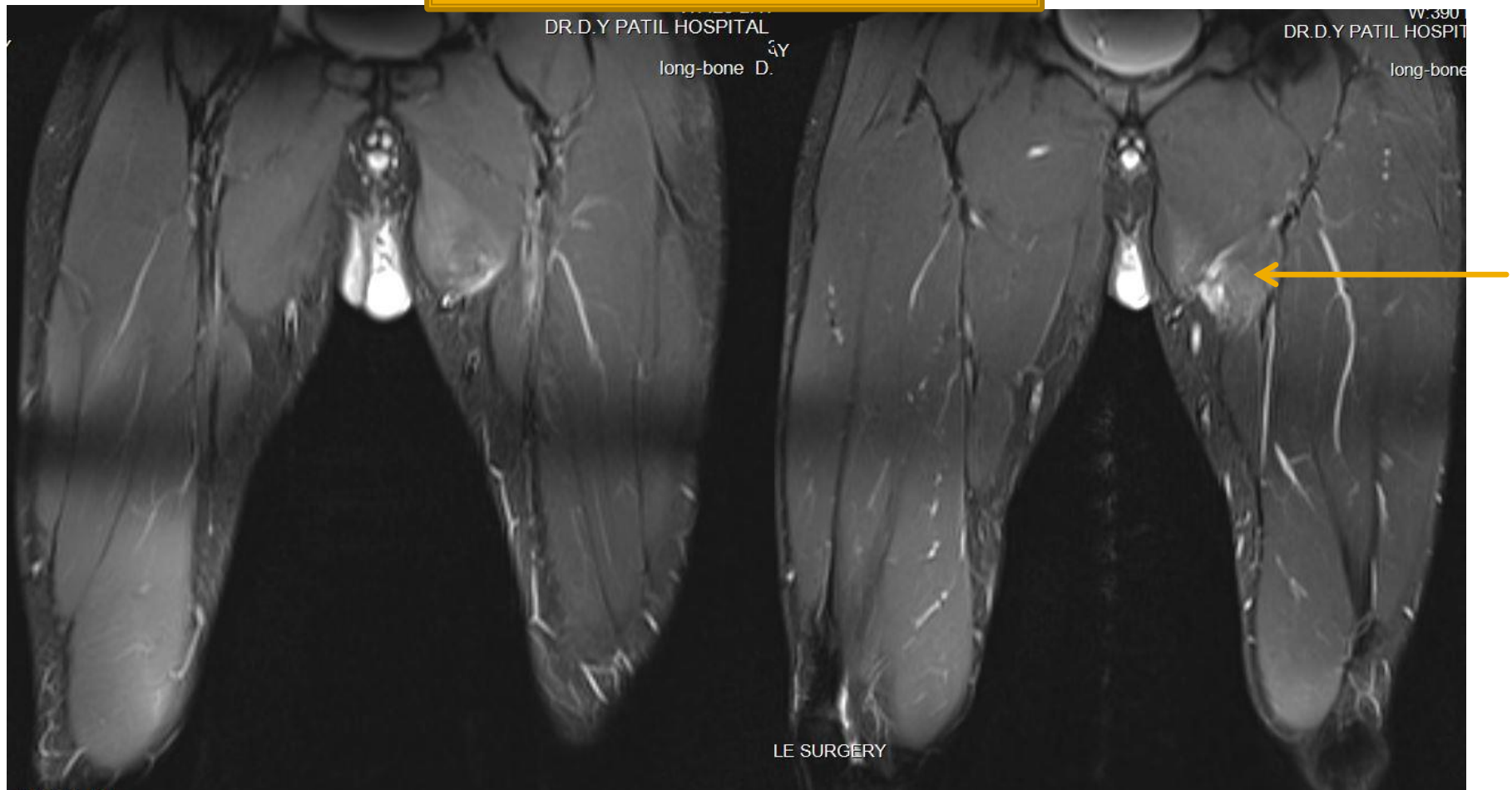
Myo-tendinous
junction





On MSK MRI

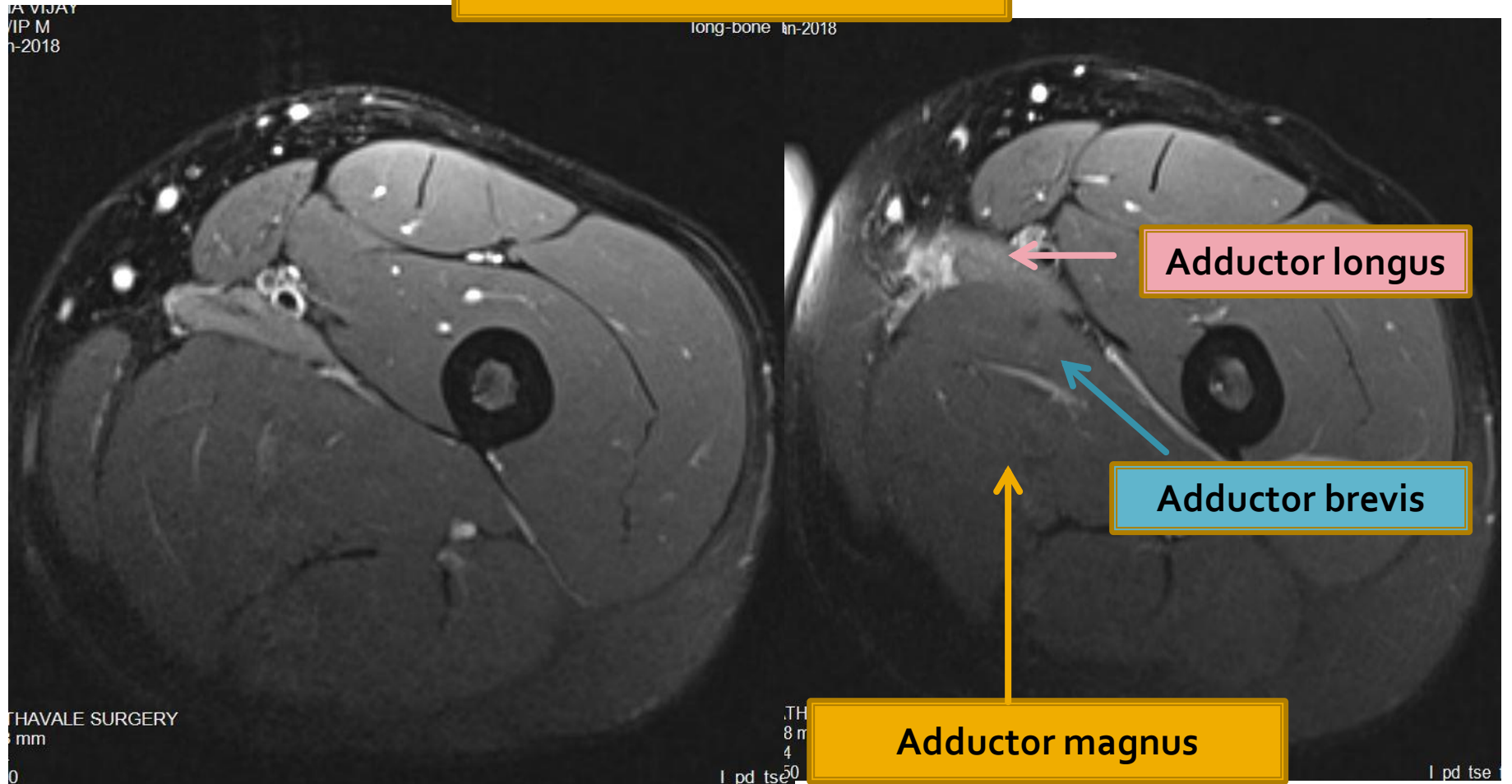
PDFS coronal images



PDFS axial images

IA VIJAY
/IP M
n-2018

long-bone ln-2018



THAVALE SURGERY
mm
0

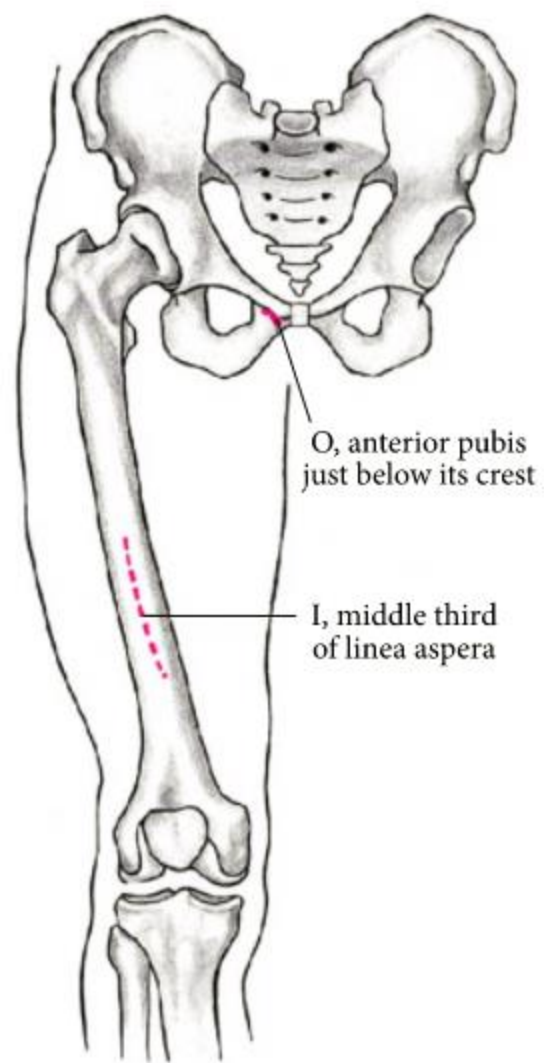
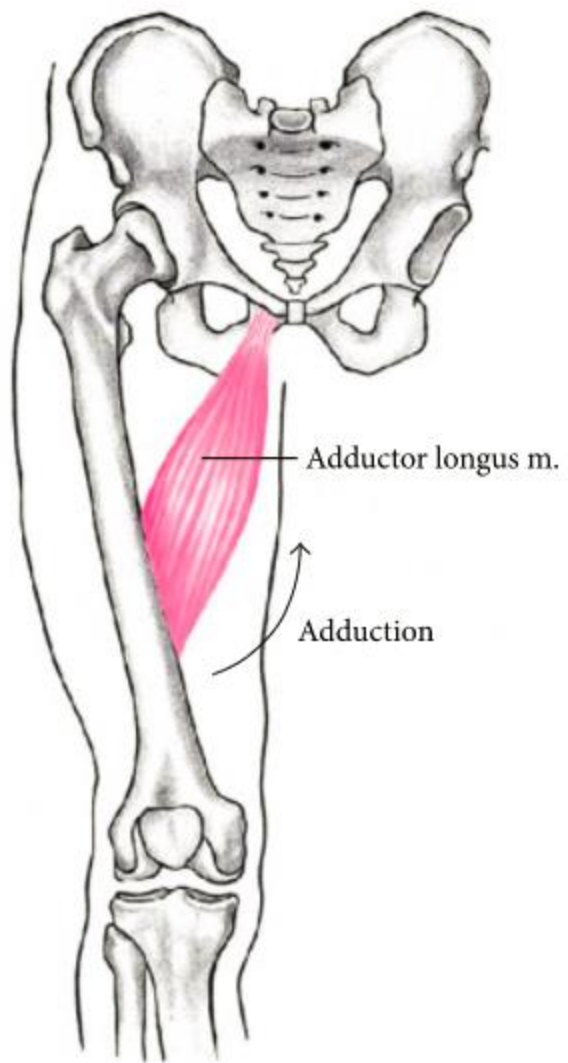
.TH
8 m
4 m
I pd tse

Adductor magnus

I pd tse

Diagnosis

- Adductor longus grade II strain with proximal partial retraction of its fibres at its insertion.

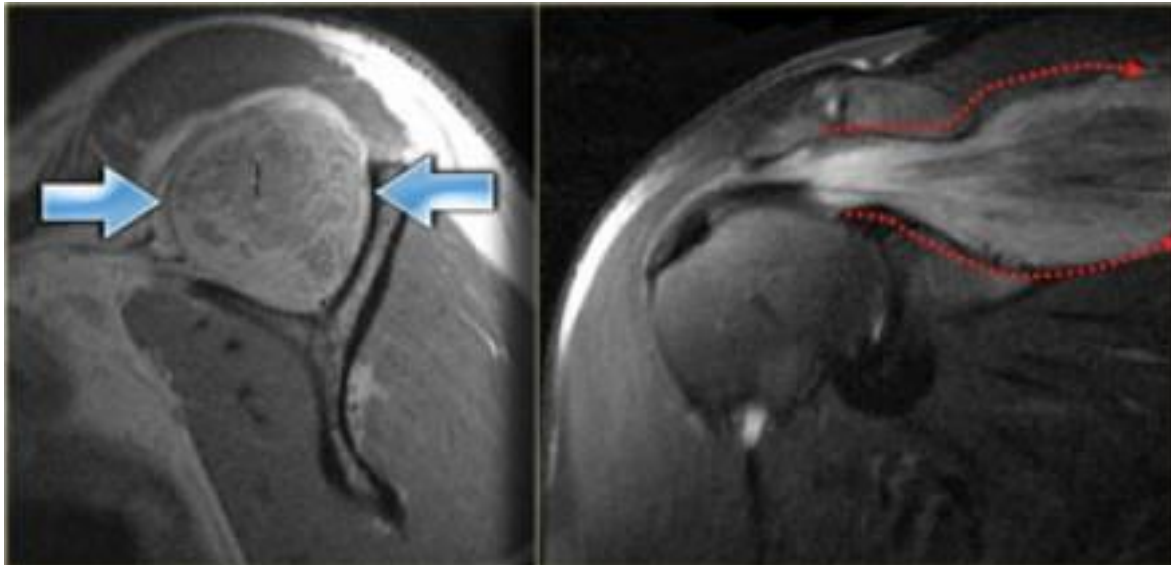


Muscle injury

- The most common muscle injury is muscle strain.
- It is an injury to the musculotendinous junction.
- Typical for muscle strain is edema centered along the musculotendinous junction.
- More severe muscle strains contain fluid collections such as hematomas and may contain grossly interrupted muscle fibers and thus may show mass-like features

- There are 2 patterns found with muscle strain.
- the myotendinous junction pattern, which occurs roughly 97% of the time.

- The remaining 3% will show an epimysial strain pattern, with the abnormalities found at the periphery of the muscle.

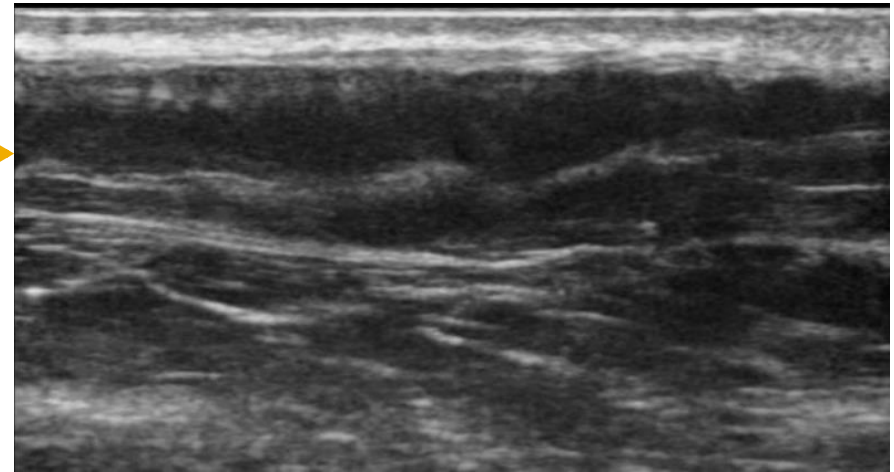
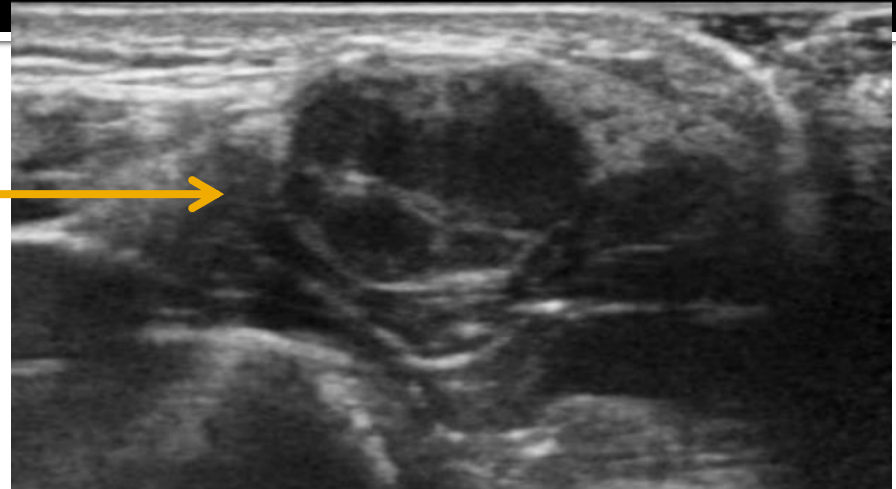
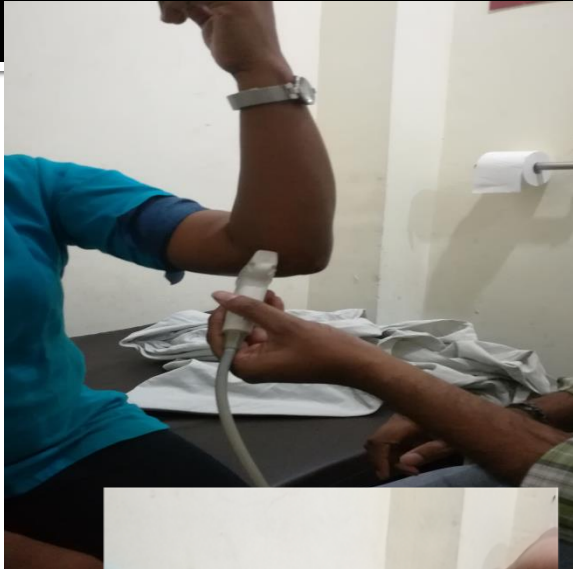


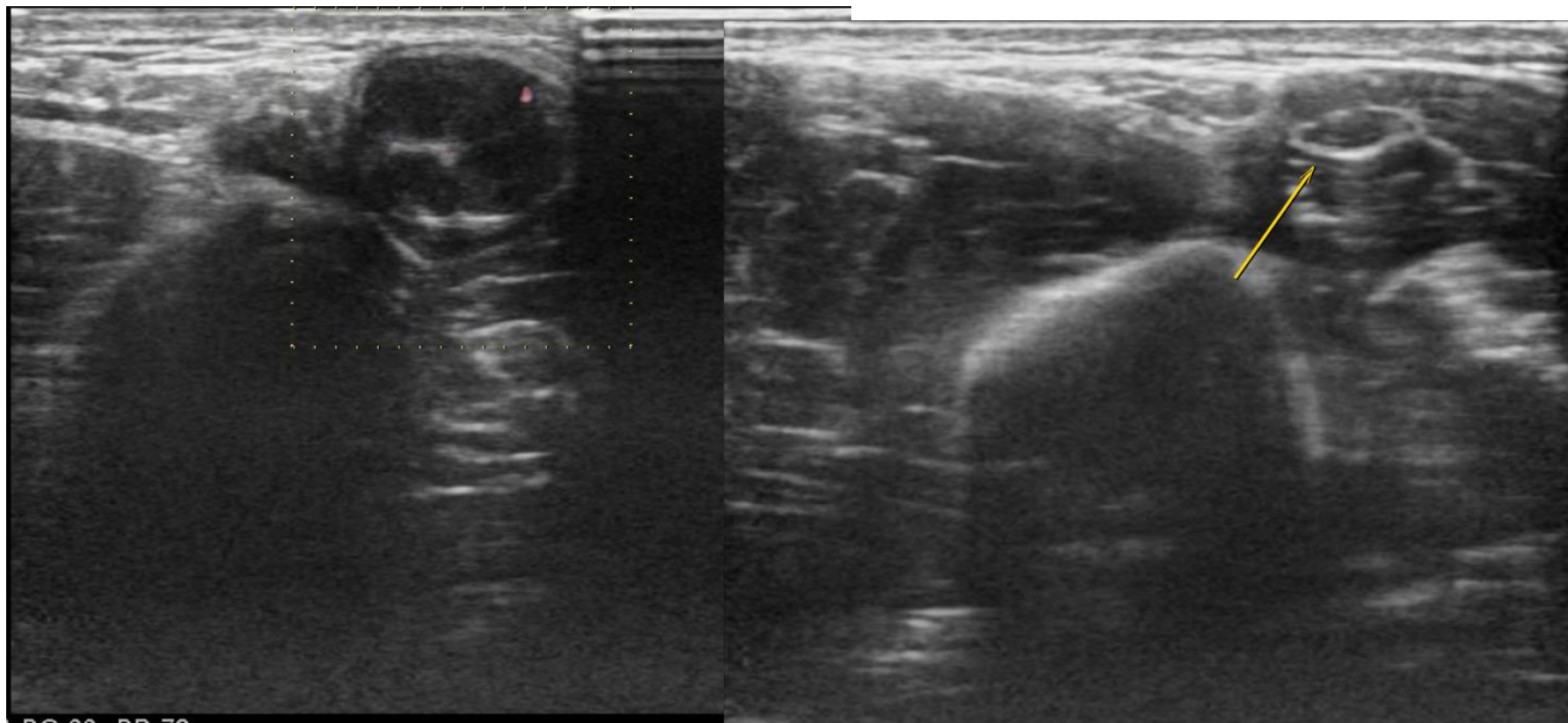
- Adductor longus injuries occurred at three main injury locations; proximal insertion (26%), intramuscular musculo-tendinous junction (MTJ) of the proximal tendon (26%) and the MTJ of the distal tendon (37%).

CASE 2

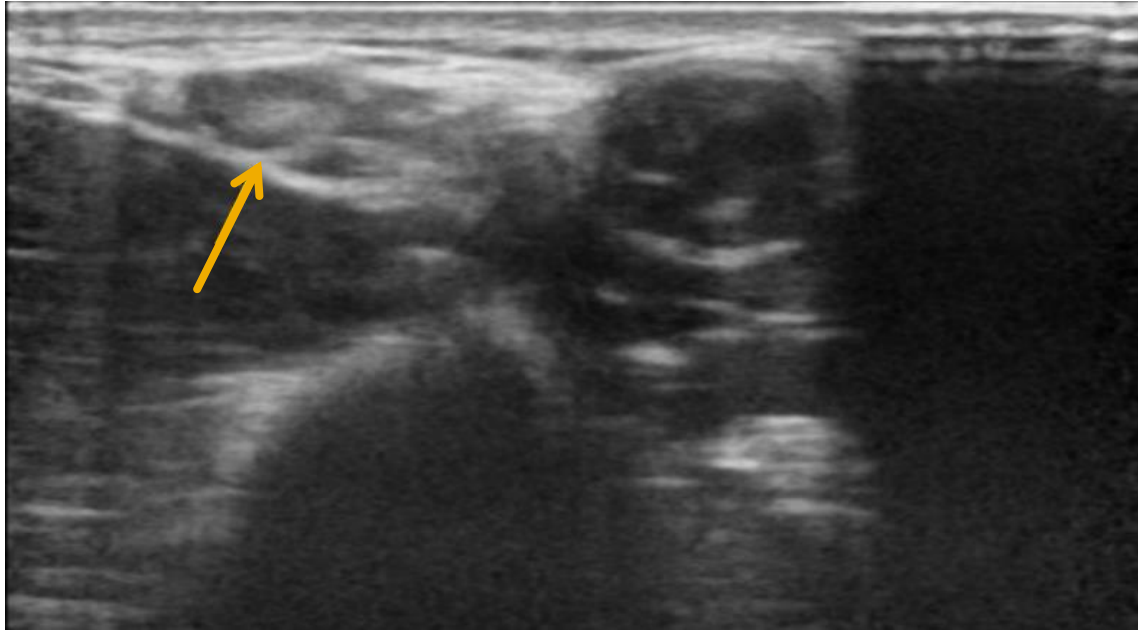
- A 30 year old male patient with ongoing treatment of leprosy comes for an ultrasound of right elbow.

On USG

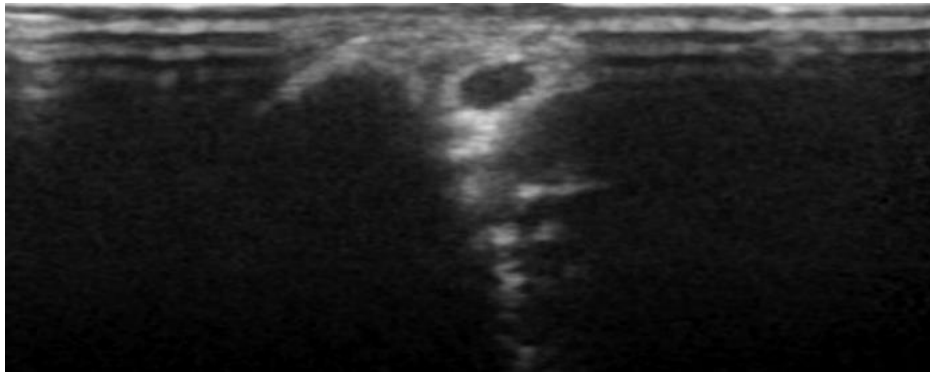
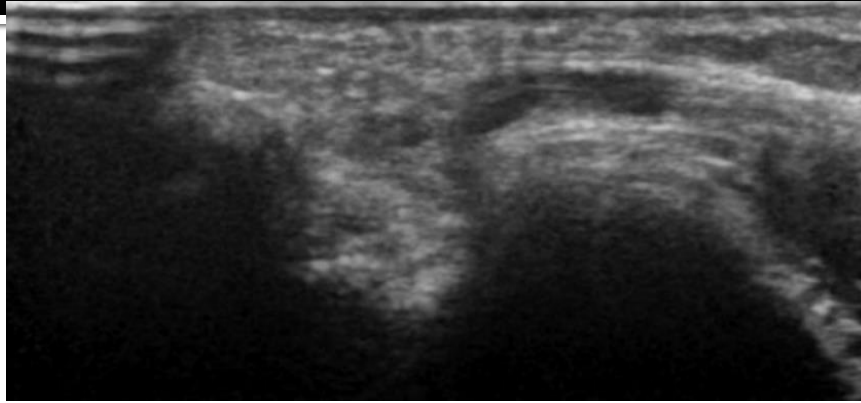




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Normal nerve ultrasound



On MRI

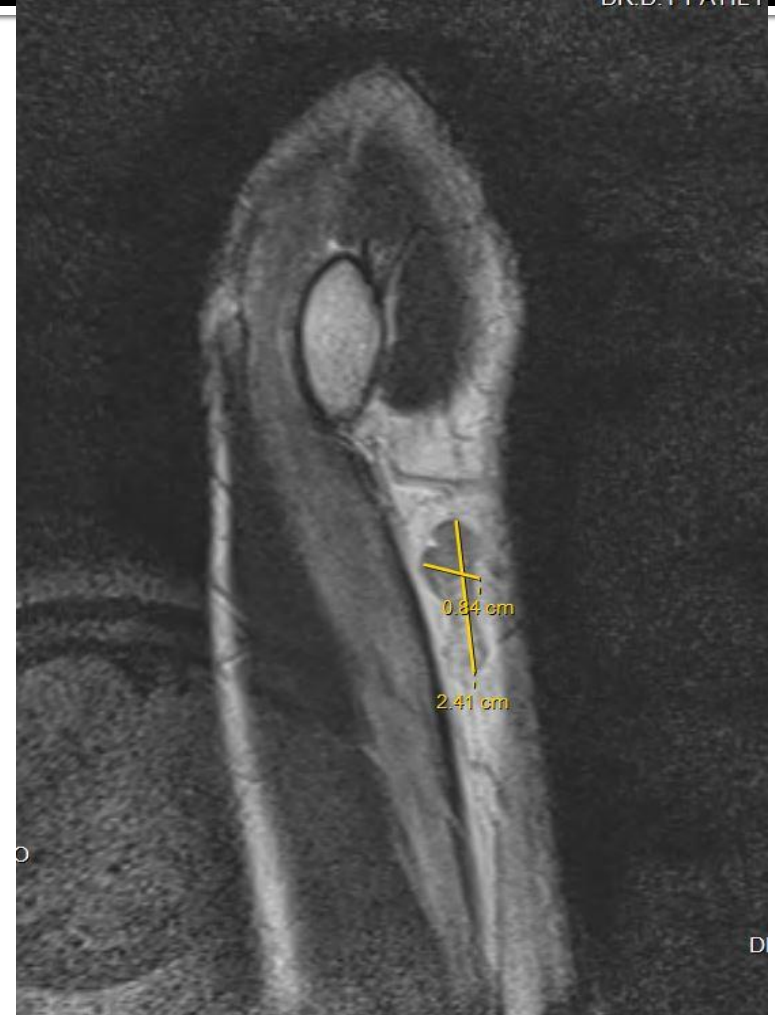
PDFS sagittal images



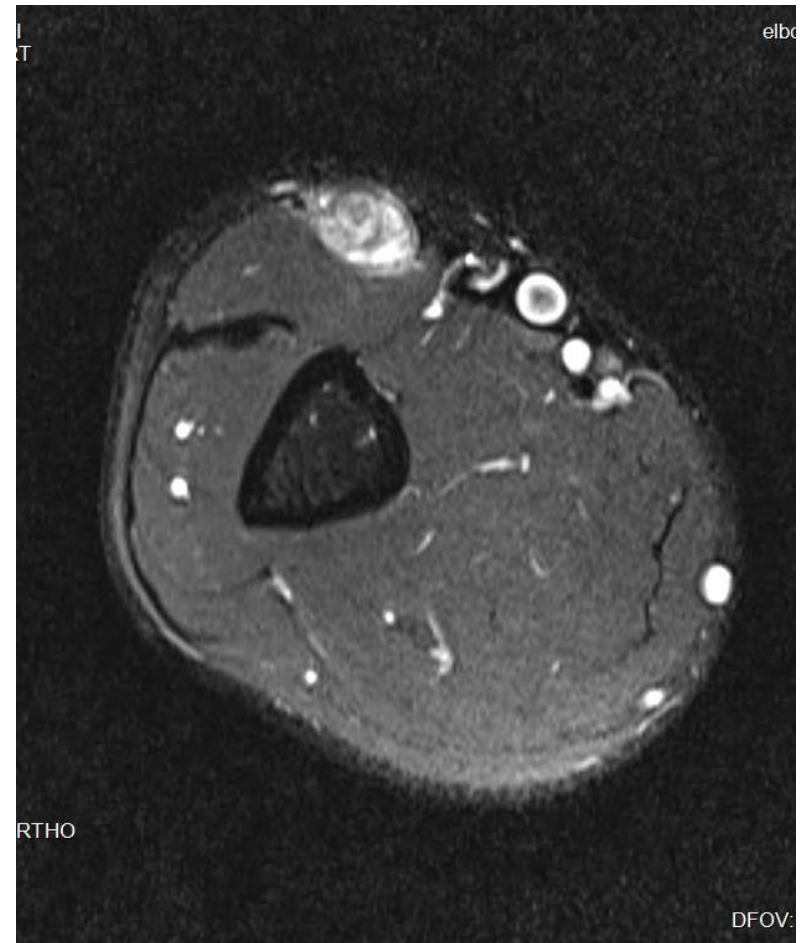
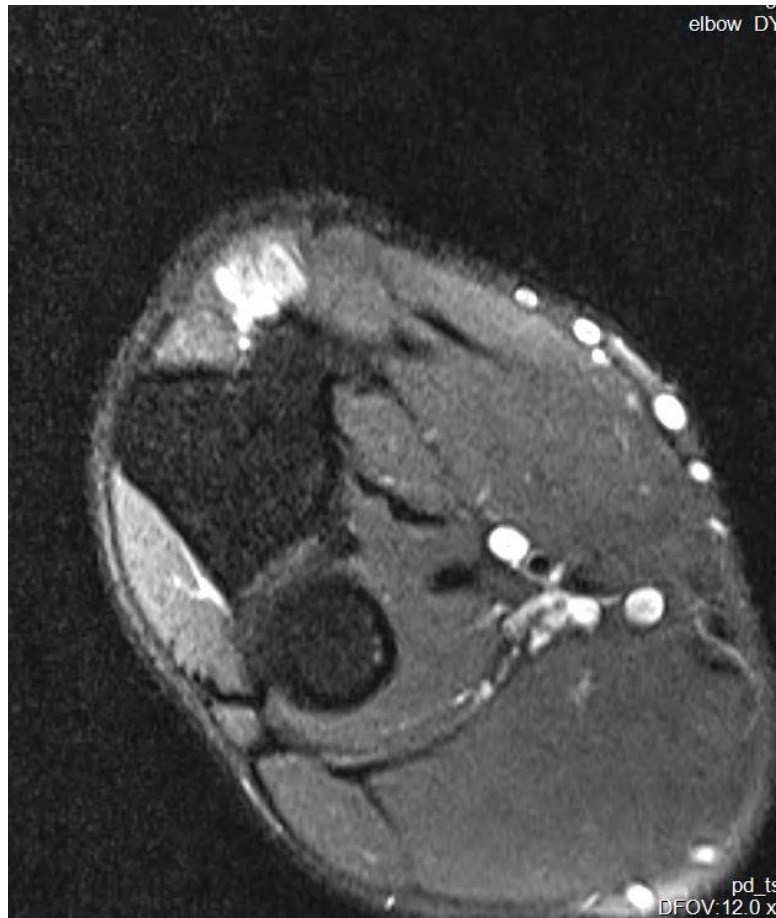
PDFS coronal images



PDFS sagittal images



PDFS axial images



Diagnosis

- Ulnar nerve abscess in a k/c/o leprosy

- Nerve involvement in leprosy is noted across the disease spectrum and in lepra reactions.
- Usually the neural lesion is a granuloma, however uncommonly they may form an abscess, particularly in patients with BT leprosy.
- Ulnar nerve is the commonest nerve to develop abscesses. In India, a nerve abscess develops in approximately 1.3 per cent of leprosy patients and some of these may calcify.

- Involved nerves reveal
 - 1) focal thickening (more marked proximal to the medial epicondyle)
 - 2) hypoechoic focal areas (granulomata)
 - 3) peripheral hyperechogenicity (epineural fibrosis)
 - 4) abscesses and increased vascularity on colour-Doppler imaging .

TAKE HOME MESSAGE

- Nerve and muscle- a part of musculoskeletal radiology.
- Ultrasound plays a very important role in diagnosis of musculo-skeletal diseases and it should be the first modality of choice.
- MRI too is equally important and is useful in confirming the diagnosis provided by ultrasound and further comment on any additional or new findings.

- 1. Martinoli C, Derchi LE, Bertolotto M, Gandolfo N, Bianchi S, Fiallo P, et al. US and MR imaging of peripheral nerves in leprosy. *Skeletal Radiol.* 2000;29(3):142–50. [CrossRefPubMedGoogle Scholar](#)
- 2. Elias J, Nogueira-Barbosa MH, Feltrin LT, Furini RB, Foss NT, Marques-Jr W. Role of ulnar nerve sonography in leprosy neuropathy with electrophysiologic correlation. *J Ultrasound Med.* 2009;28:1201–9. [PubMedGoogle Scholar](#)
- 3. Jain S, Visser LH, Praveen TLN, Rao PN, Surekha T, Ellanti R, et al. High-resolution sonography: a new technique to detect nerve damage in leprosy. *PLoS Negl Trop Dis.* 2009;3(8):e498. doi: [10.1371/journal.pntd.0000498](#). [CrossRefPubMedPubMedCentralGoogle Scholar](#)
- 4. Frade MAC, Nogueira-Barbosa MH, Lugão HB, Furini RB, Júnior WM, Foss NT. New sonographic measures of peripheral nerves: a tool for the diagnosis of peripheral nerve involvement in leprosy. *Mem Inst Oswaldo Cruz.* 2013;108(3):257–62