

Dr Todd Gothelf

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Shoulder, Foot & Ankle Surgery

Forefoot Pain

Todd K Gothelf

Foot

Ankle

Shoulder



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Forefoot pain (Lesser Toe)

- Difficult to Diagnose
- Pain nonspecific
- Correct Diagnosis leads to Successful Treatment



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Differential Diagnosis

- Neuroma
- Plantar Plate Rupture
- Bursitis
- Freiberg's Infarction
- Stress Fracture
- Tumour/cyst



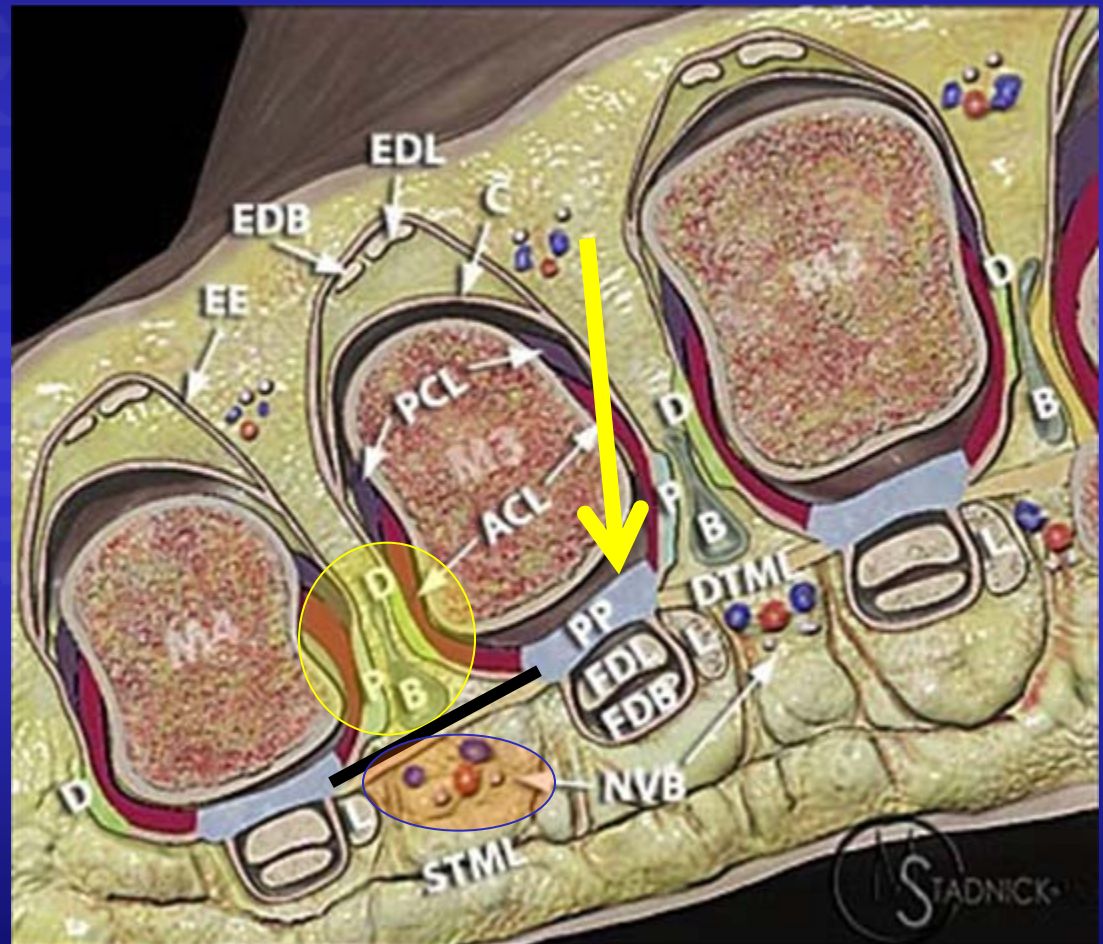
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Forefoot Anatomy

- Bursa
- Transverse metatarsal ligament
- NV bundle
- Plantar plate

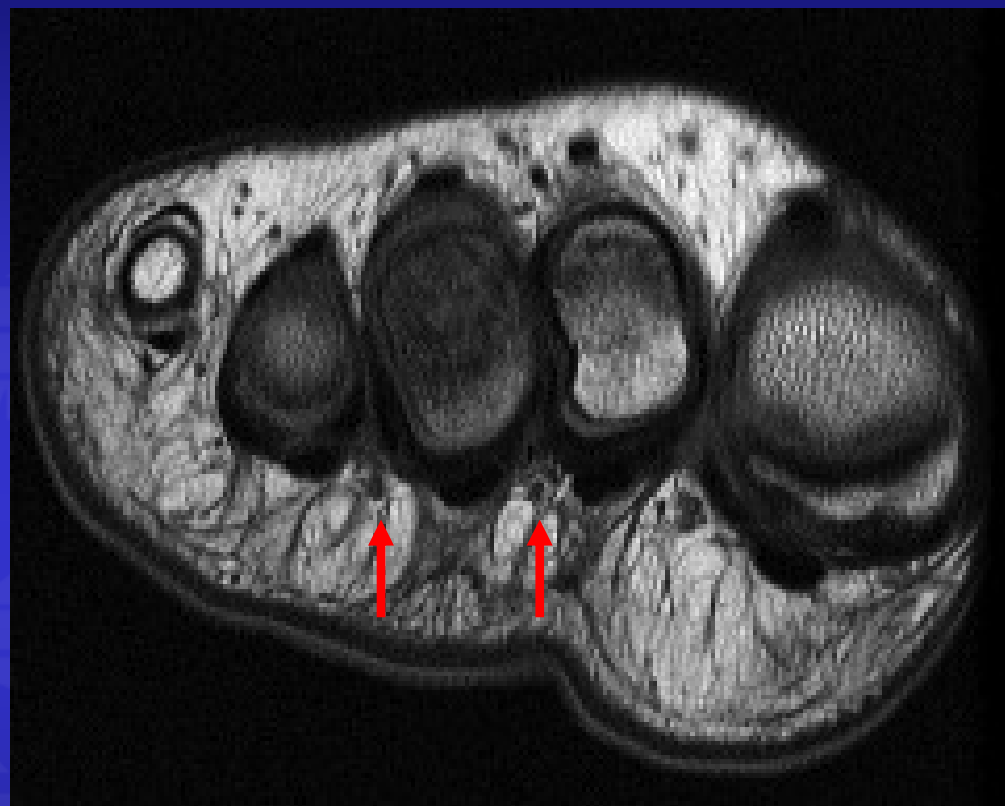
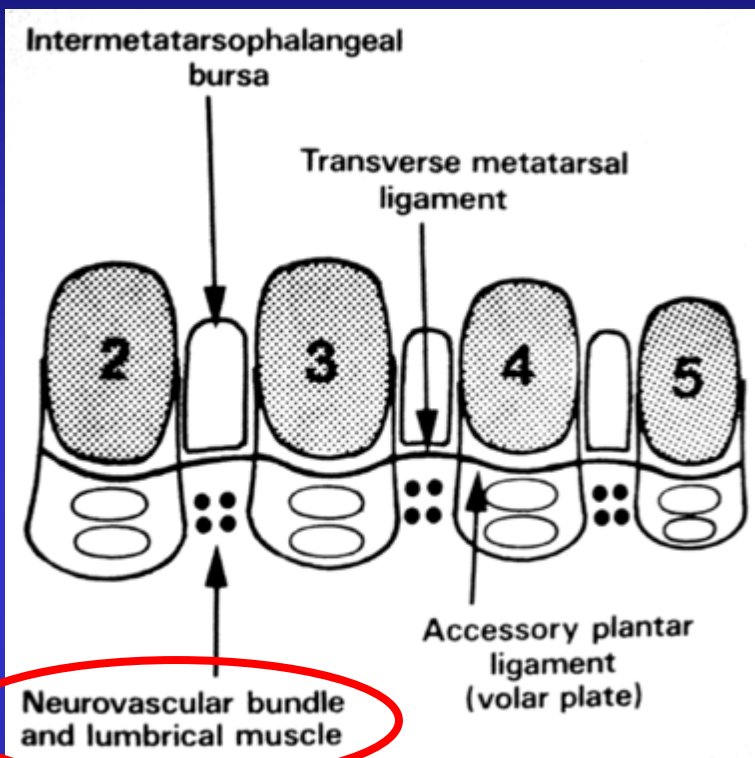


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Central Forefoot Anatomy



- Nerves below transverse metatarsal ligament
- Bursa above between metatarsals



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Plantar Plate Rupture

- Commonly over 2nd MTP joint
- Focal Pain, like marble
- Worse Barefoot
- DEFORMITY



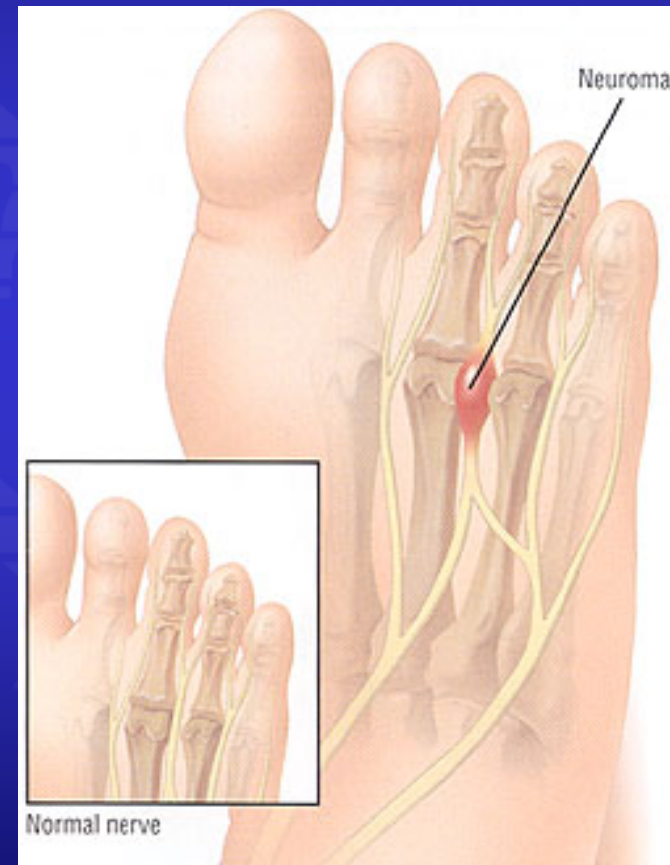
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Neuroma

- Commonly in 3,4 wespace
- Burning pain in toes
- Worse with shoes
- No deformity



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Neuroma

- 90% in 3,4 Webspace
- 10% in 2,3 webspace
- NEVER in 1,2 and 4,5 spaces



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Neuroma

- Tender webspace
PLANTAR
- Positive Mulder Sign
 - Click and pain



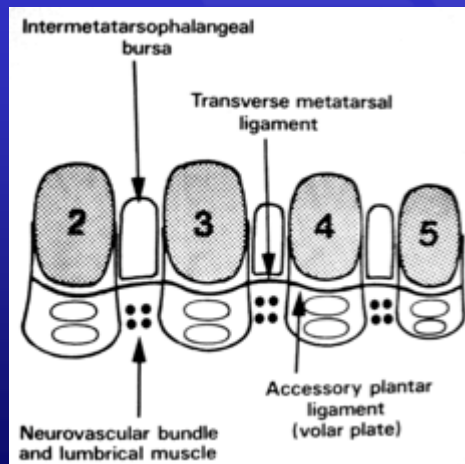
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Neuroma

- Injection test
- Below transverse lig
- Should relieve pain and NUMB toes



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What if it is not that obvious?

- No Deformity
- Can't localise pain
 - Webspace and MTP



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Inspection

- Calluses
 - Metatarsalgia
 - 2nd MTP instability



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X-rays

- Freiberg's Infarction
 - Collapse of joint



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X-rays

- Long 2nd Ray
- 2nd MTP joint instability
- metatarsalgia



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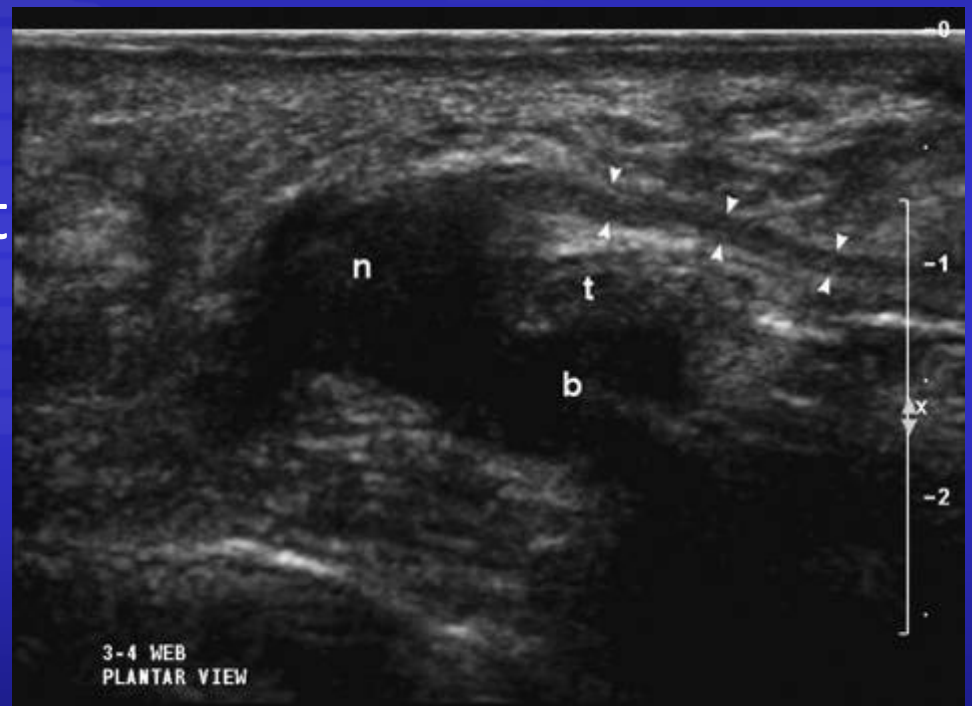


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Ultrasound

- Bursitis
- Neuroma
- Technician dependent
- MUST Correlate with clinical examination



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Ultrasound

- 2nd MTP joint
 - Ruptures
 - degeneration



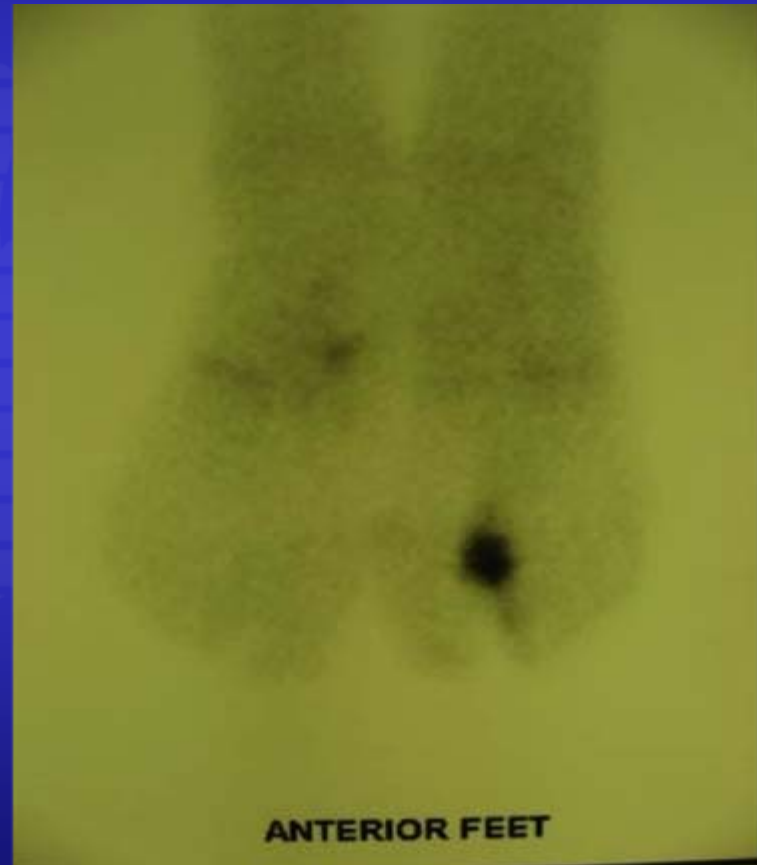
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Bone Scan

- Nonspecific
- Often read as a stress fracture
- Same appearance with:
 - Synovitis
 - MTP instability
 - Freiberg's infarction



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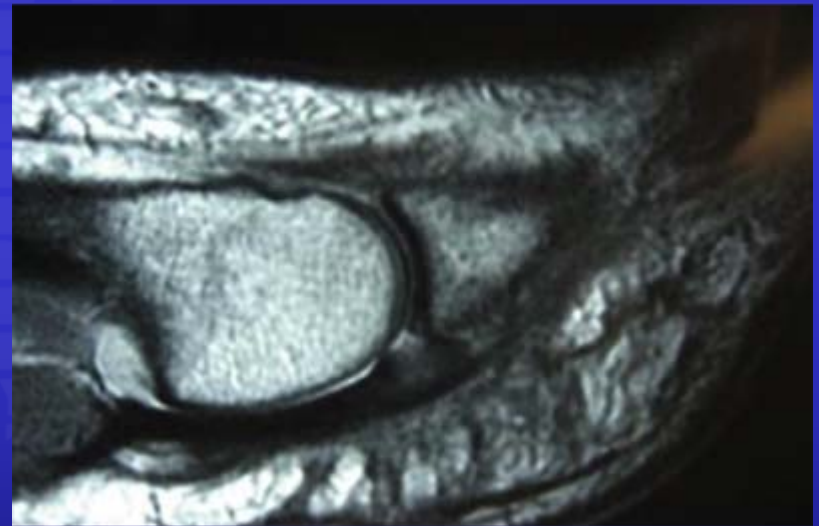


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MRI

- Can demonstrate all pathologies
- Must be small slices for plantar plate
- Experienced radiologist

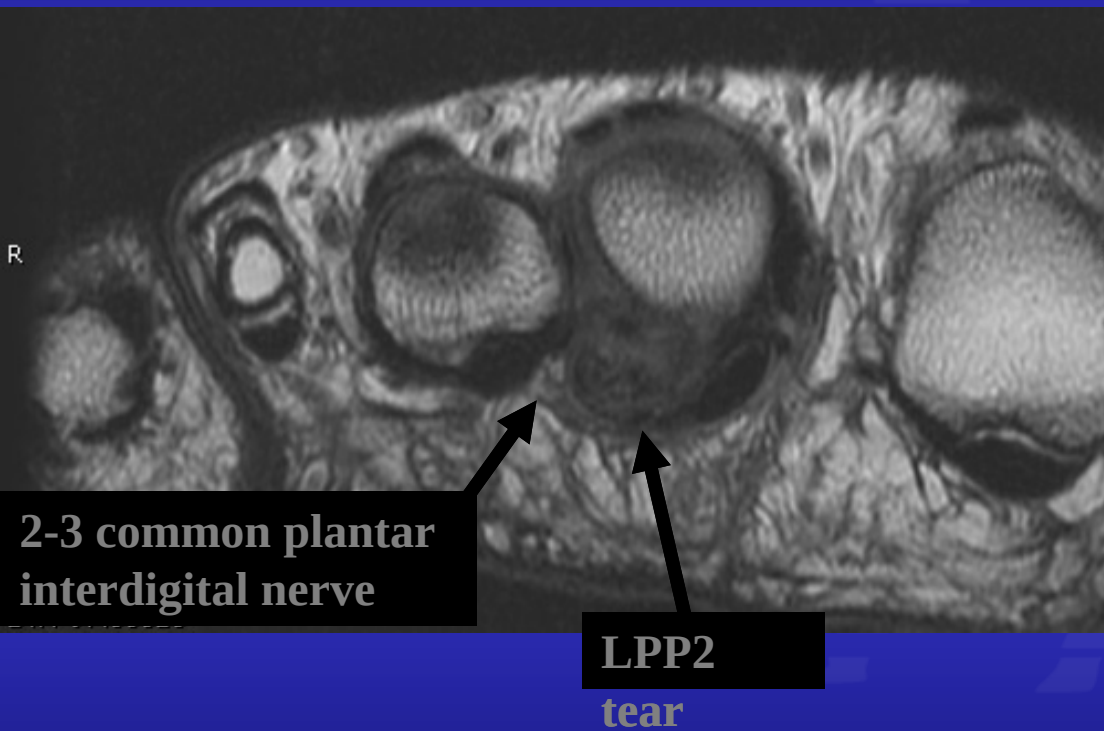


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2nd MTP Jt LPP Degeneration & Tear



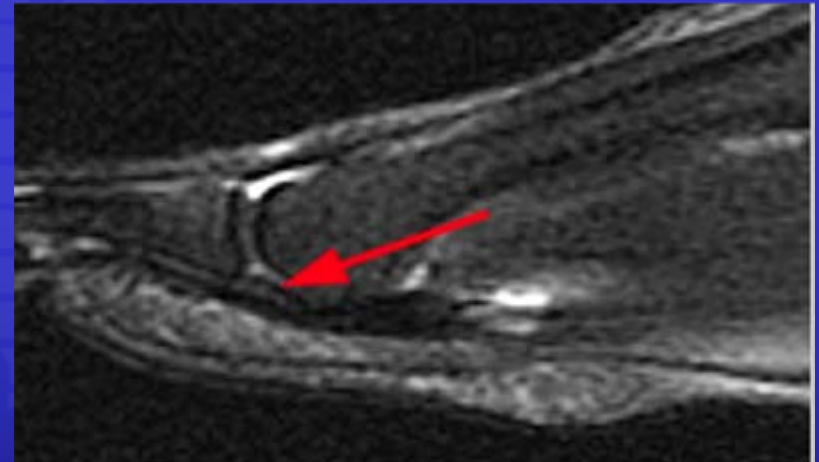
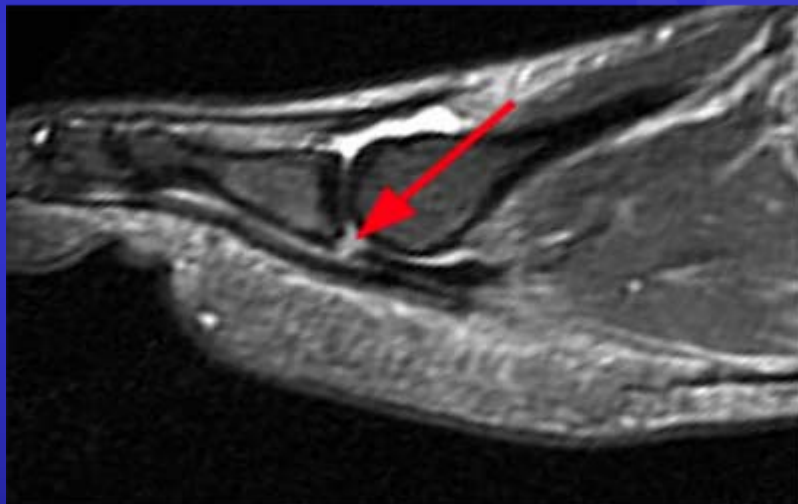
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MRI

Tear

Normal

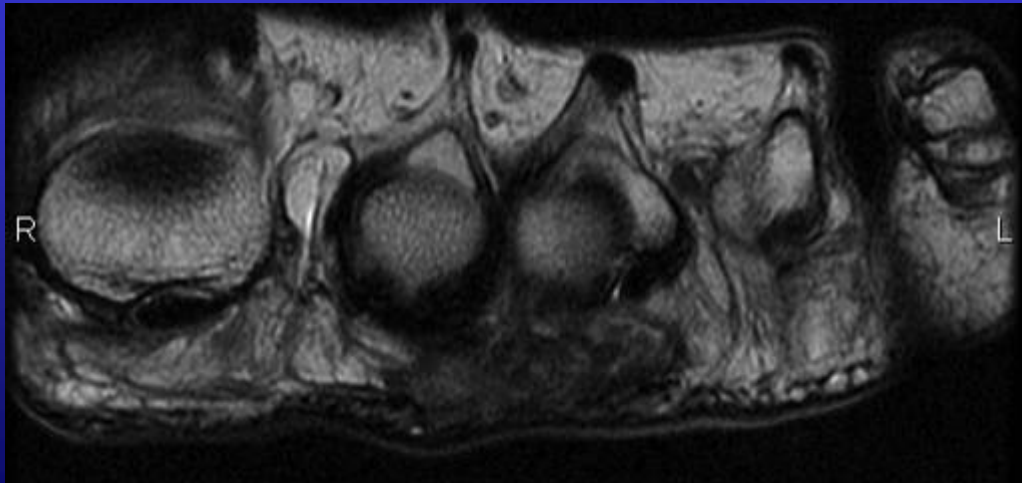
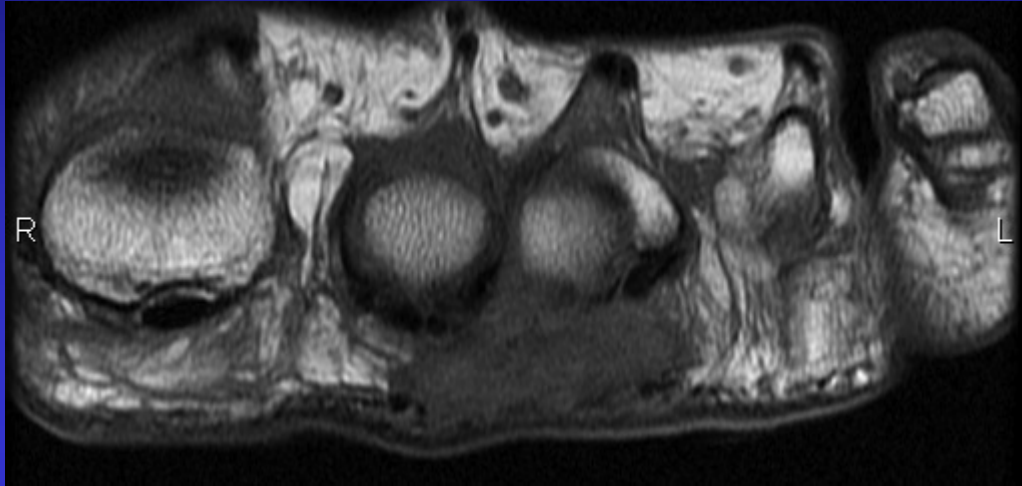


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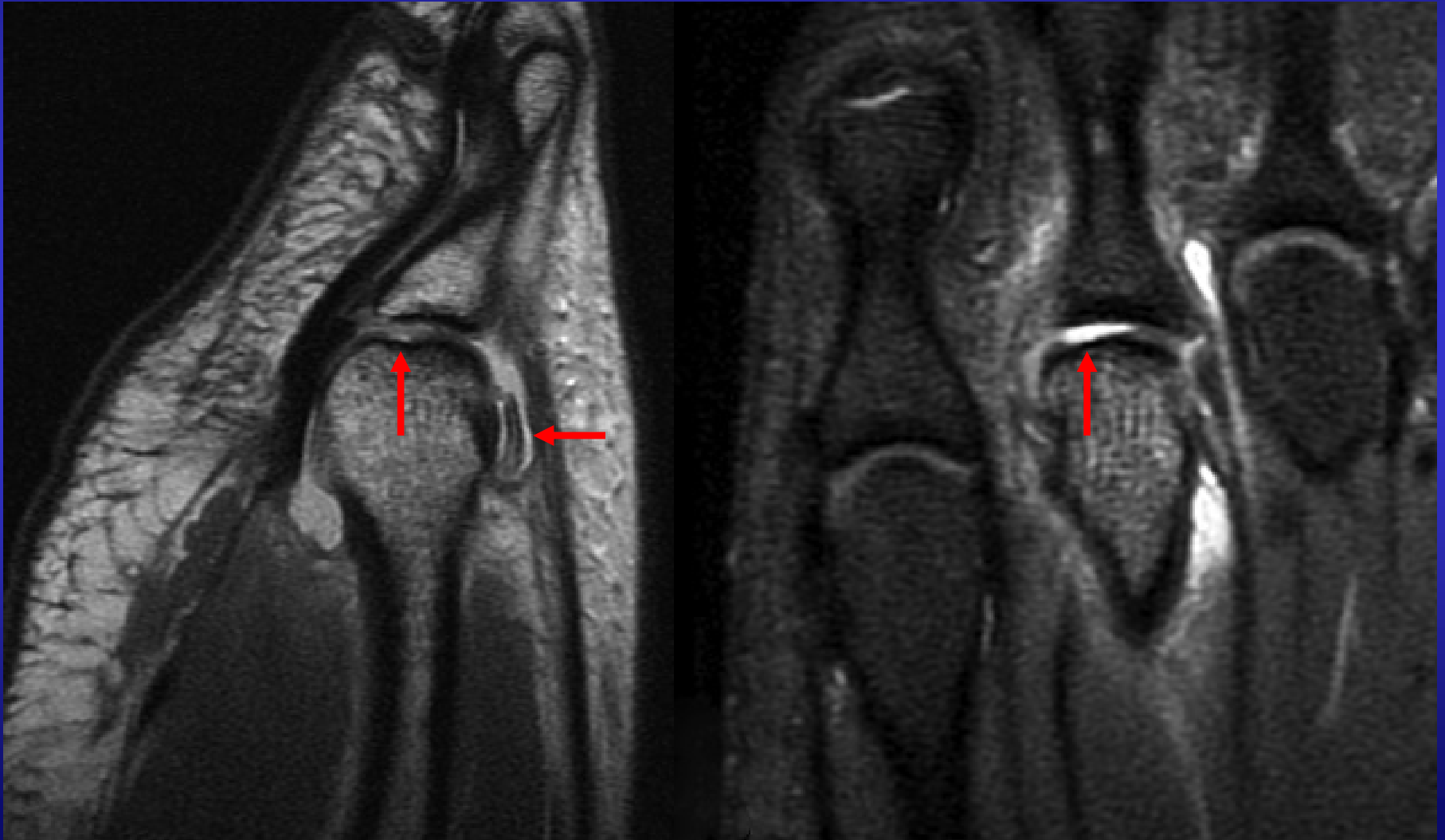
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Plantar Bursopathy

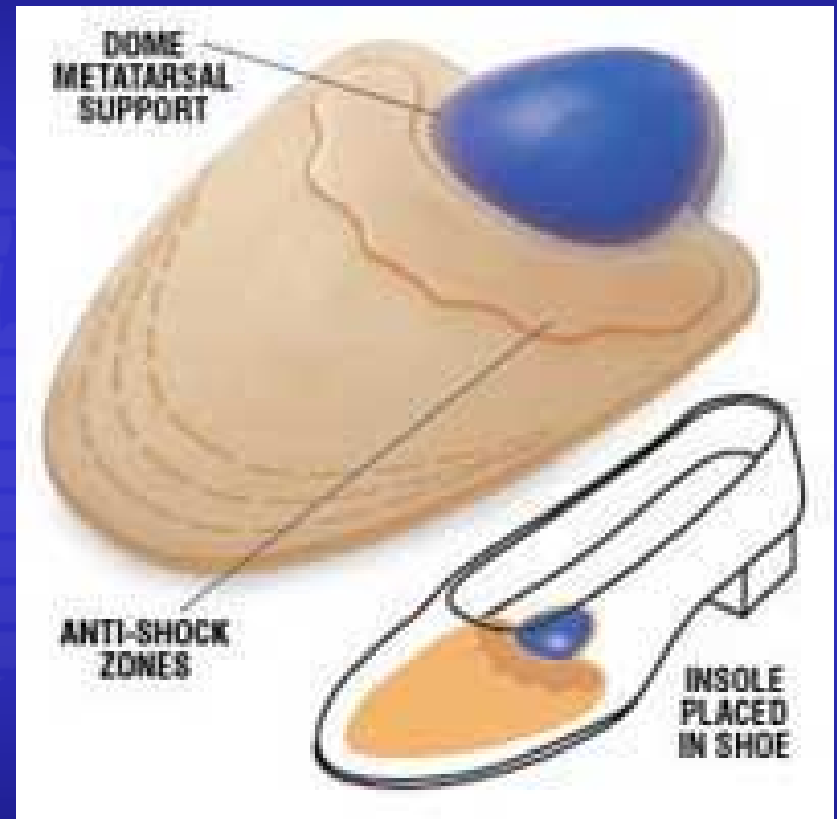


Displaced Chondral Fracture



Treatment

- Initially Non-operative
- Wide, flat shoes
- Metatarsal Dome to offload the MTP joint or webspace
- Toe Straighteners
 - 2nd MTPJ
- Podiatrist



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Cortisone injections

- 2nd MTP instability
- Neuroma
- bursitis



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Surgery

- When non-operative treatments fail.
- Injections fail to relieve pain



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Neuroma

- Incise transverse metatarsal ligament
- Dorsal Incision
- Neurectomy
- Numbness, but no pain
- 75% successful
 - Correct diagnosis!!



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Summary

- Most common dx
 - 2nd MTPJI
 - Neuroma (3,4)
- When nondiagnostic
 - Xray
 - Ultrasound
 - MRI
- Technician dependent



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Thank You



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