

Ankle Basics

Outpatient Orthopaedics for the
Primary Care Physician

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History

- Chief complaint
 - » Have patient **point** to the area with one finger
- Onset
 - » Acute, chronic, overuse, single event
- Characteristics
- Past Medical History
- Activity History

Physical Exam

- Most diagnoses can be made on the P.E.
 - » Systematic exam
 - » Know the basic anatomy
 - » Don't immediately focus on the injury
 - » Many patients complain of an "ankle sprain" while pointing elsewhere e.g. 5th metatarsal fracture

Imaging Studies

- Examine patient first
- Form a diagnosis
- Know what you want to evaluate
- Don't be skimpy with partial or single views

Imaging Studies

- **Foot**

- » AP weight-bearing
- » Lateral weight-bearing
- » Oblique

- **Ankle**

- » AP
- » Lateral
- » Mortise

- **Full Tibia-Fibula**

- » Must evaluate joints above and below a fracture

Imaging Studies

- **Bone Scan**

- » Suspected stress fractures
- » Diagnosis of unknown pain
- » Complex regional pain syndrome

Imaging Studies

- **Computed Axial Tomography**
 - » Best used for bony anatomy
 - » Fractures, arthritic changes in joints, tarsal coalition

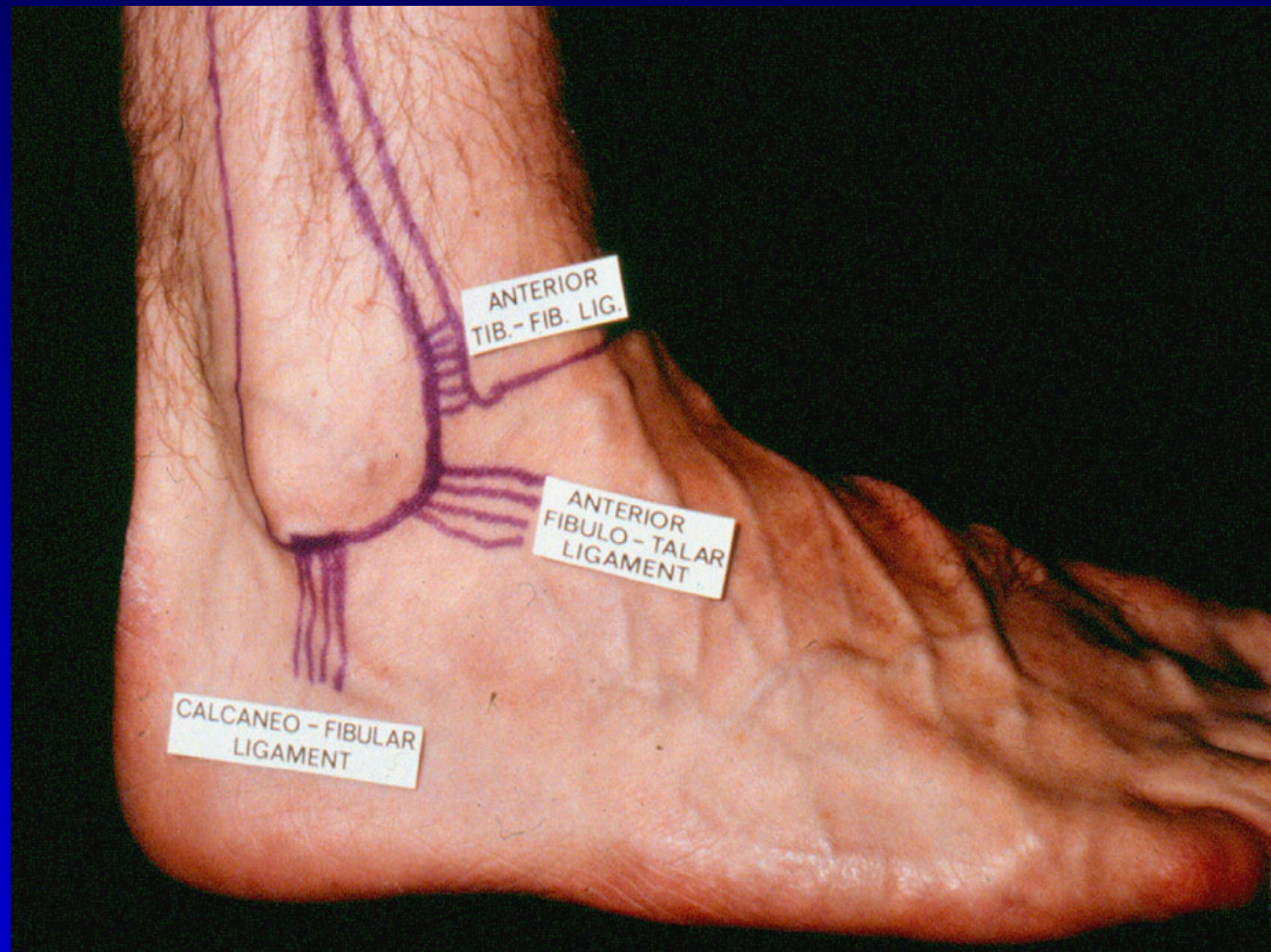
Imaging Studies

- **Magnetic Resonance Imaging**
 - » Osteochondral defects or injury
 - » Tendon ruptures
 - » Infection
 - » Avascular necrosis

Ankle Sprains

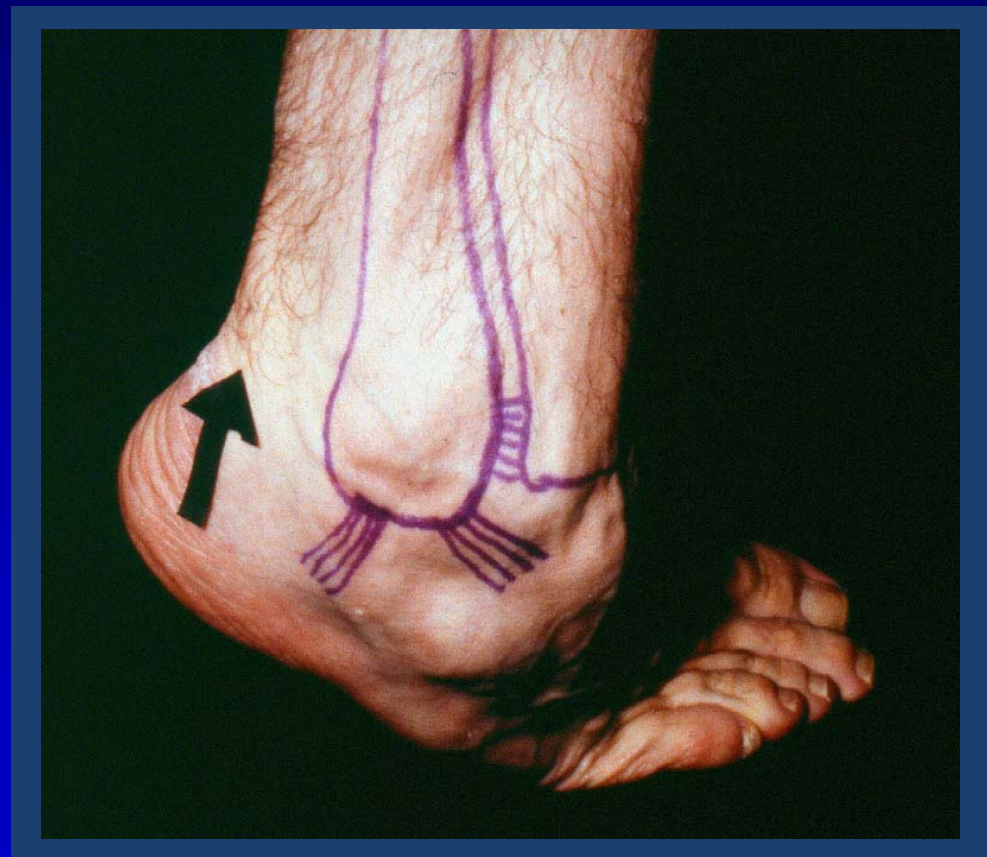
- Lateral ankle sprains
 - » 95% of ankle sprains
 - » Mechanism is forced inversion
 - » Significant risk of re-injury

Ankle Sprain

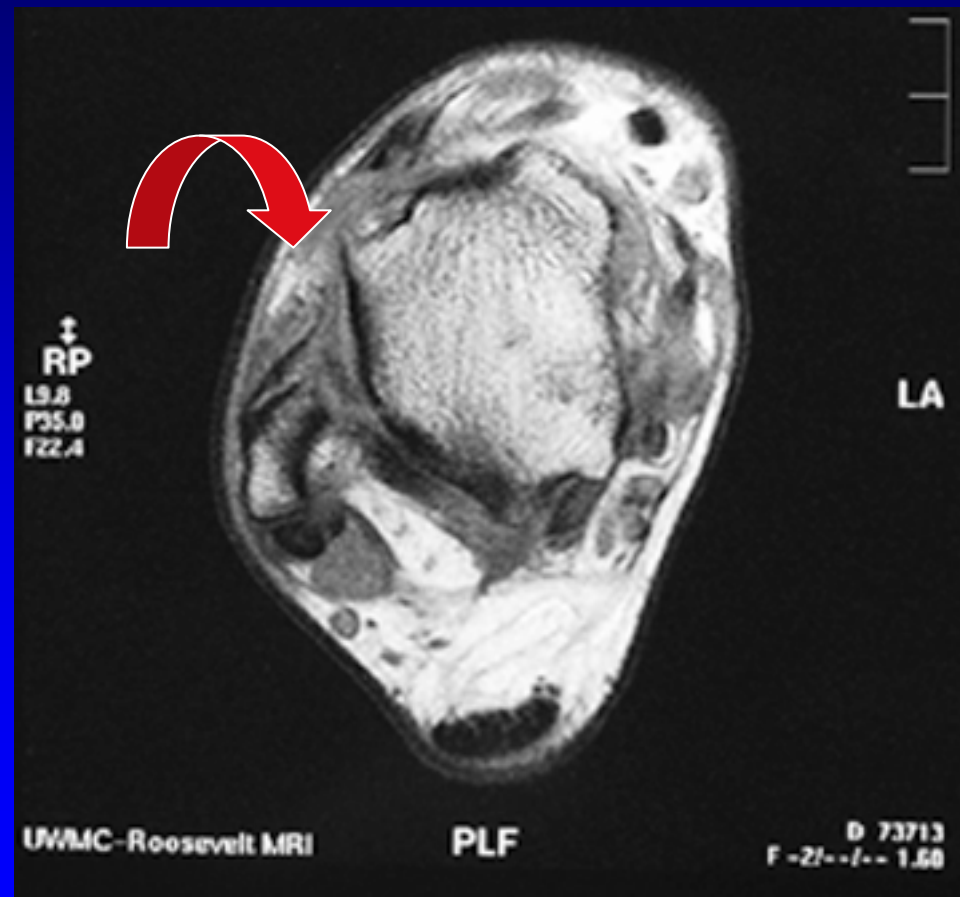


Ankle Sprain

- Inversion most common type of sprain
- Lateral ligaments may be torn



ATFL Tear



Ankle Sprain

- Treatment: think **RICE**
- *R*est
- *I*ce
- *C*ompression
- *E*levation

Lateral Ankle Sprains

- Involvement in lateral ankle sprains:
 - » ATFL 65-75%
 - » ATFL + CF 25%
 - » ATFL + CF + PTFL occasional

Ankle Sprain Treatment

- Grade I
 - » Brace for 10-14 days (stirrup brace or similar)
 - » RICE
 - » Rehab: peroneal strengthening and proprioceptive training
- Grade II, III
 - » SLWC (cast boot) 3 weeks
 - » RICE, rehab as above
 - » May require brace or taping for sports for 6 months

Chronic Ankle Instability

- **Functional**

- » Repeated episodes of giving way or unreliable ankle, may or may not have ligamentous instability

- **Mechanical**

- » Ligamentous instability, but may not be functionally unstable



Beware of What is Not an Ankle Sprain

- Anterior process fracture calcaneus
- Lateral process talus fracture
- Posterior process talus fracture
- Osteochondral fracture talar dome
- Fracture of 5th metatarsal
- Syndesmosis injury with proximal fibula fracture

Beware of What is Not an Ankle Sprain

- Achilles tendon rupture
- Posterior tibial tendon rupture or dysfunction
- Peroneal tendon injury
- Subtalar joint instability or fracture
- Sensory nerve injury
- Systemic inflammatory disease

Ankle Fracture

- Tender over the fibula
- Often unable to bear weight
- Medial tenderness, widened mortise = unstable fracture



Ankle Fracture



Anterior Process Calcaneus Fracture



Anterior Process Calcaneus Fracture

- Avulsion fracture (bifurcate ligament)
- 4 weeks NWB in cam walker then WBAT in cam walker until healed
- Excision if nonunion
- Prolonged recovery



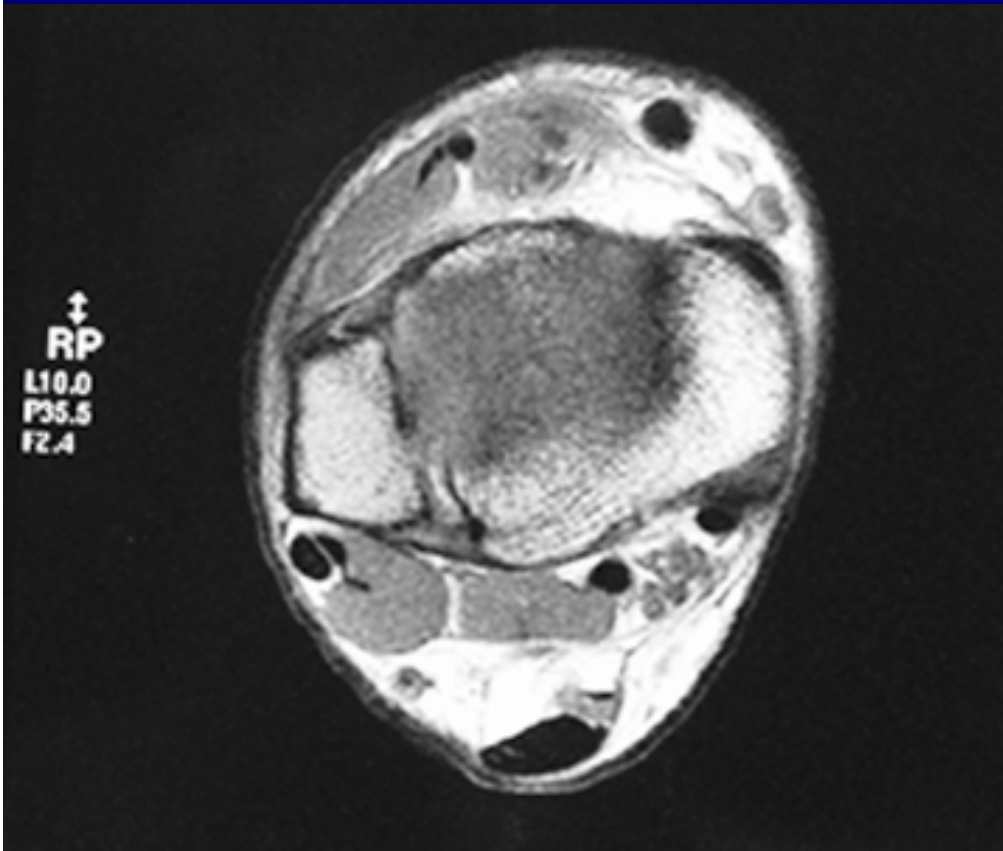
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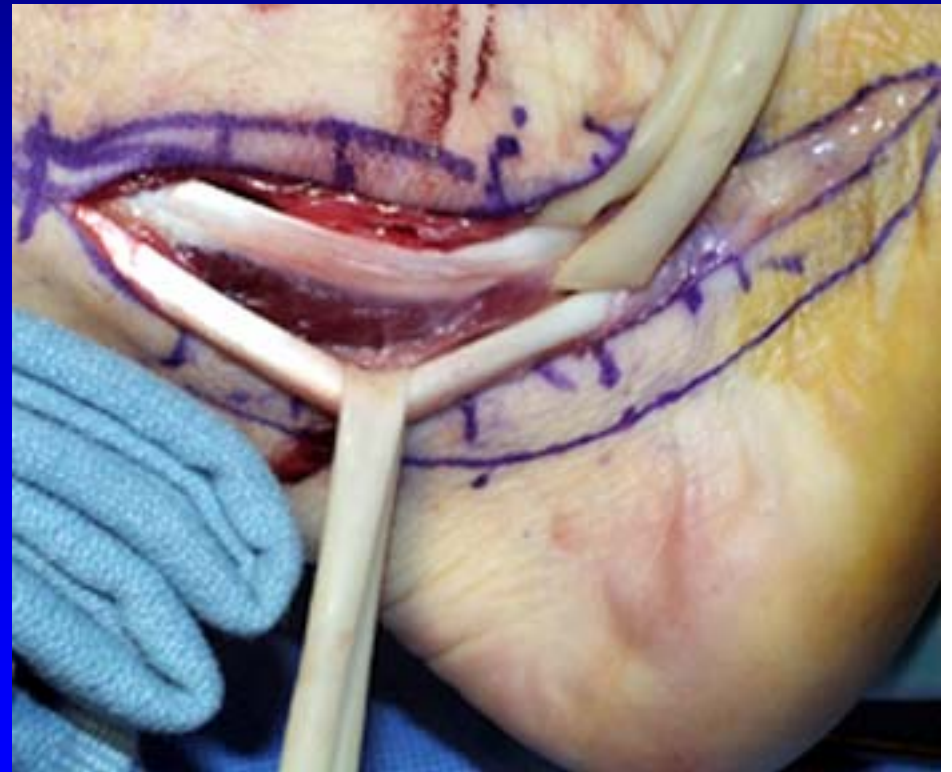


Peroneal Tendon Problems



- Tendon tears
- Low lying muscle belly p. brevis
- Subluxing peroneal tendons

Peroneus Brevis Pathology



Lateral Process Talus Fracture

- Snowboarders, wakeboarders
- Usually the forward foot
- Often delay in diagnosis
- Early Tx ORIF-- late Tx Excise non-union fragment
- Poor outcome with stiffness, pain and subtalar arthrosis

Lateral Process Talus Fracture

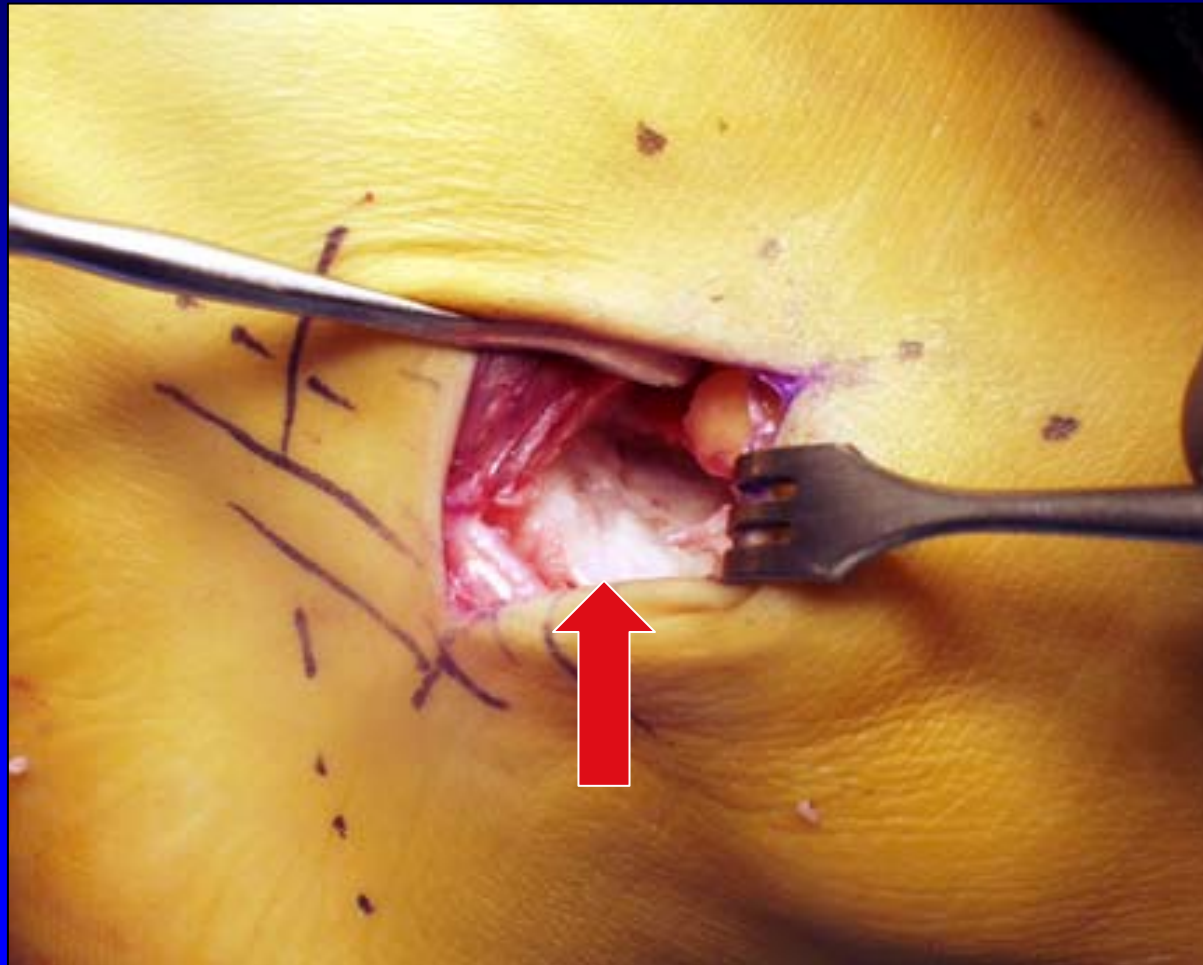


Lateral Process Talus Fracture

- Cast / NWB 6 wks
- If fragment large may need ORIF
- Subtalar arthrodesis often needed



Lateral Process Talus Fracture





Posterior Process Talus Fracture

- Inversion/plantarflex.
- Non-op if minimally displaced
- Excise if large, displaced or symptomatic

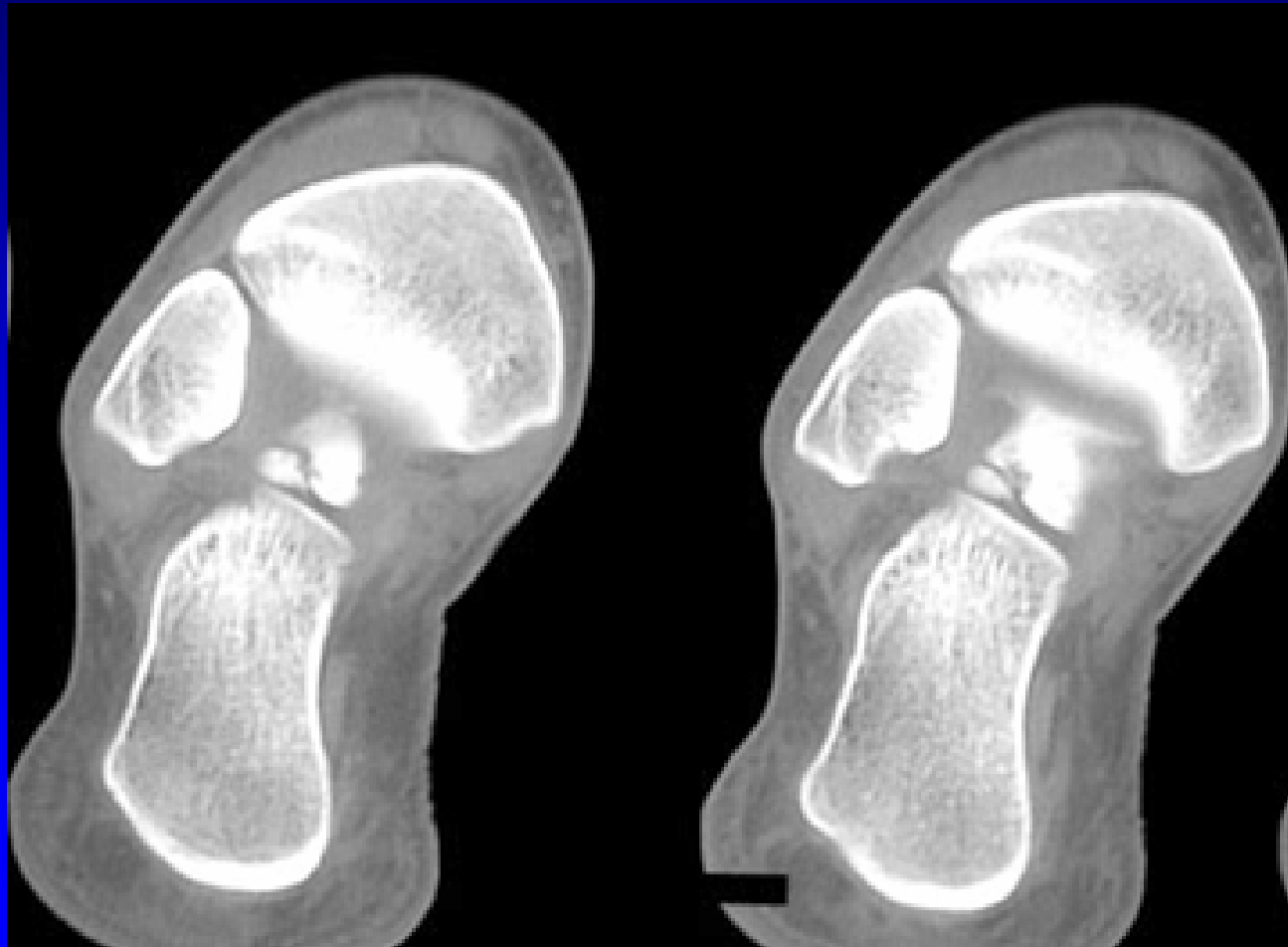


Posterior Process Talus Fracture

- Tender more posterolateral
- Inversion + plantar-flexion
- Camwalker 6wks, crutches 3-6 wks



Posterior Process Talus Fracture





Osteochondral Lesions of the Talus

- Determine if lesion is source of symptoms before surgical treatment
- Acute- reduce displaced fragment and pin if enough bone left to heal
- Chronic- drilling, microfracture, mosaicplasty, chondrocyte transplantation, osteochondral allografts

» Hangody et al, *Foot Ankle Int* 1997;18:628-634

Osteochondral Fracture



Osteochondral Fracture



Achilles Tendon

- Don't miss an acute rupture
- Can still have active plantar flexion
- Do a Thompson's Test
 - » With patient prone, squeeze calf- foot should plantar flex
- Palpate for defect in tendon

Achilles Tendon Rupture



Achilles Tendon

- Chronic Tendinitis
 - » Rest, immobilization in cast boot
 - » Heel lift, night splint
 - » Physical therapy
 - » Avoid corticosteroid injections around tendon- risk of rupture
 - » Surgery only if failure prolonged conservative treatment

Posterior Tibial Tendon Insufficiency



- Unilateral flat foot
- Usually a degenerative condition of the tendon
- Medial pain and swelling
- Camwalker/SLC 6 weeks
- UCBL
- May require reconstructive surgery

Anterior Impingement



