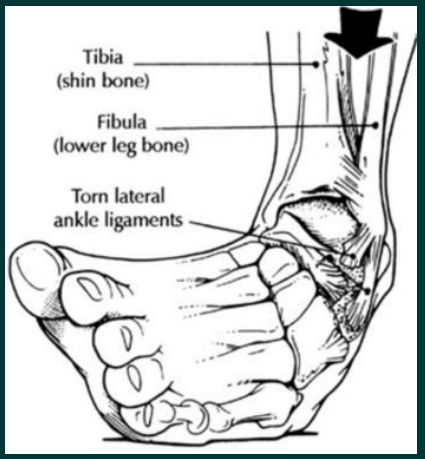
# Posterior Ankle Impingement Syndrome

**Mr Amit Chauhan**

**Mr Rajiv Limaye**

# Ankle Impingement Syndrome

- Anterolateral Impingement
- Anterior Impingement
- Anteromedial Impingement
- Posterior Impingement




# Definition

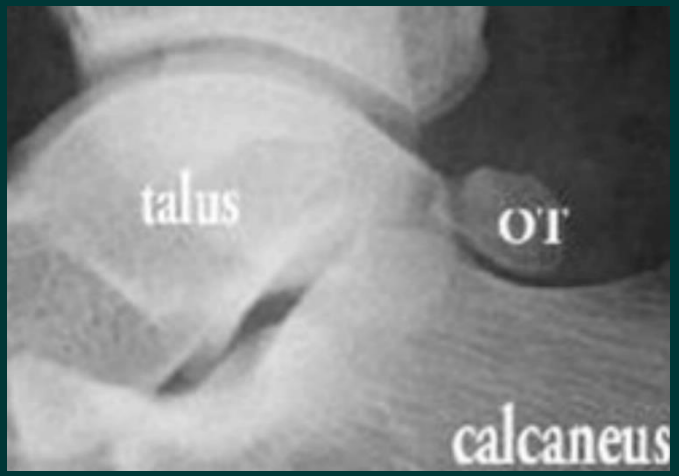
Inflammation of posterior ankle structures due to repetitive plantar flexion

# Posterior Impingement anatomic contributors

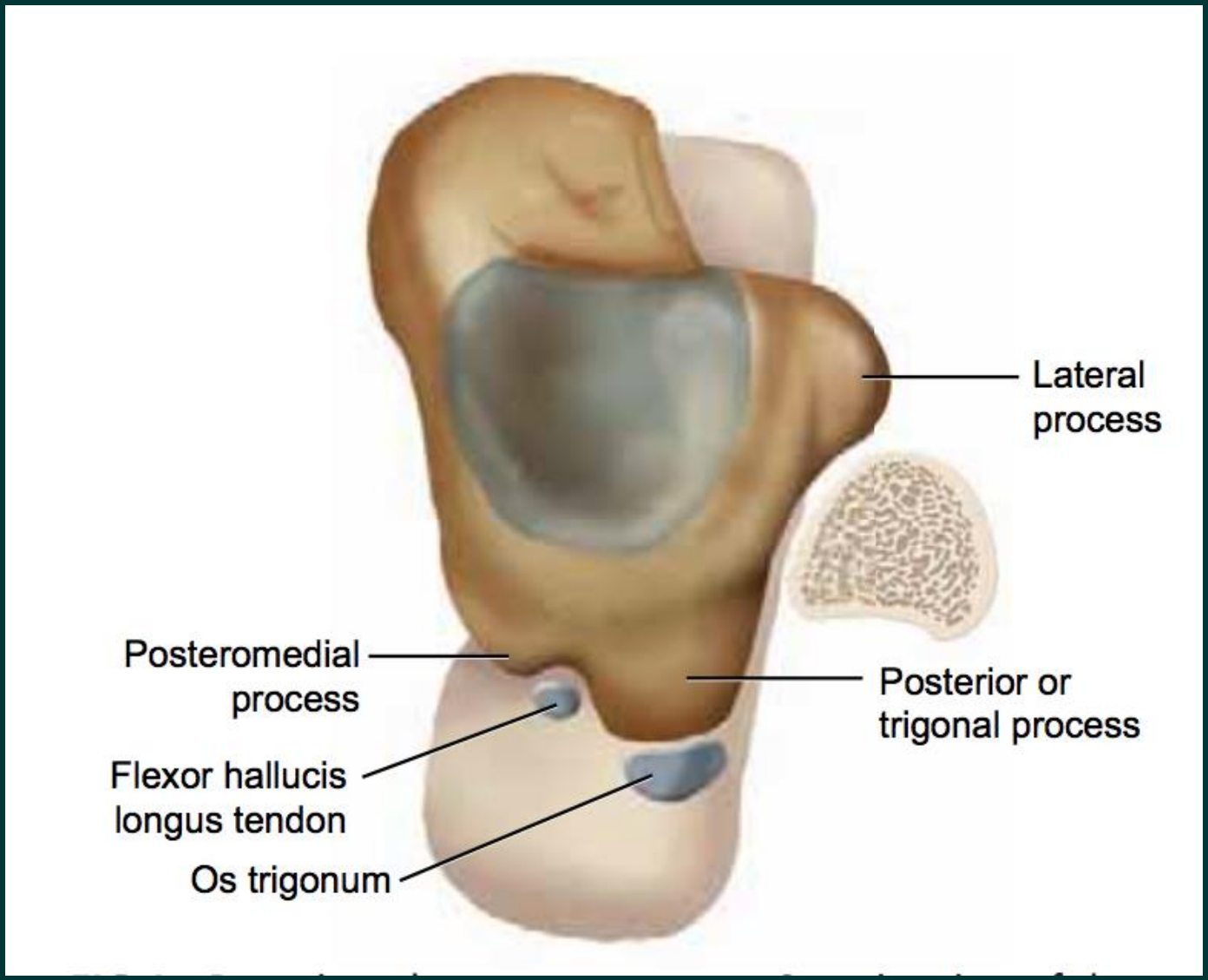
- Os trigonium
- Steida process
- Downsloping of posterior tibia
- Calcaneal tuberosity
- Enlarged posterior process of talus
- Loose bodies
- Ganglia

# Os trigonium

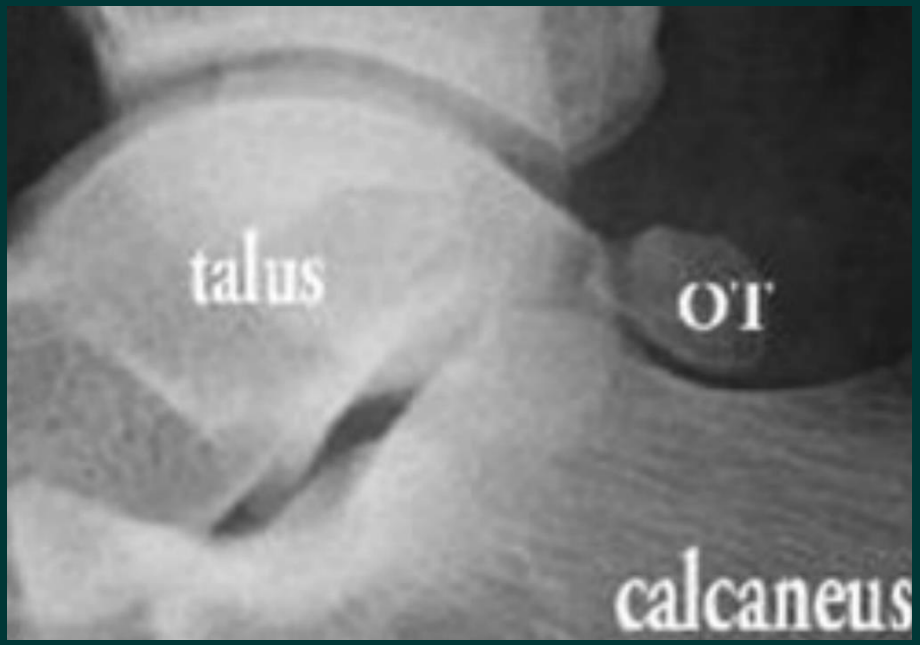
- Failure of fusion of secondary ossification center which forms posterolateral aspect of talus

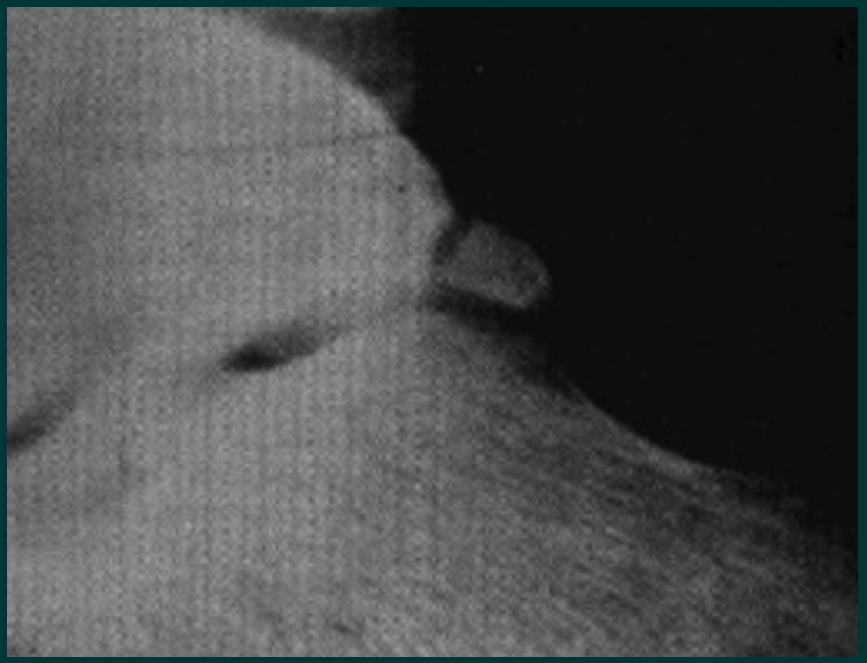



- Incidence 2.5-13 %
- D/D: Shepherd's fracture


Lateral process
Posteromedial process
Posterior or trigonal process
Flexor hallucis longus tendon
Os trigonum

# Os trigonium

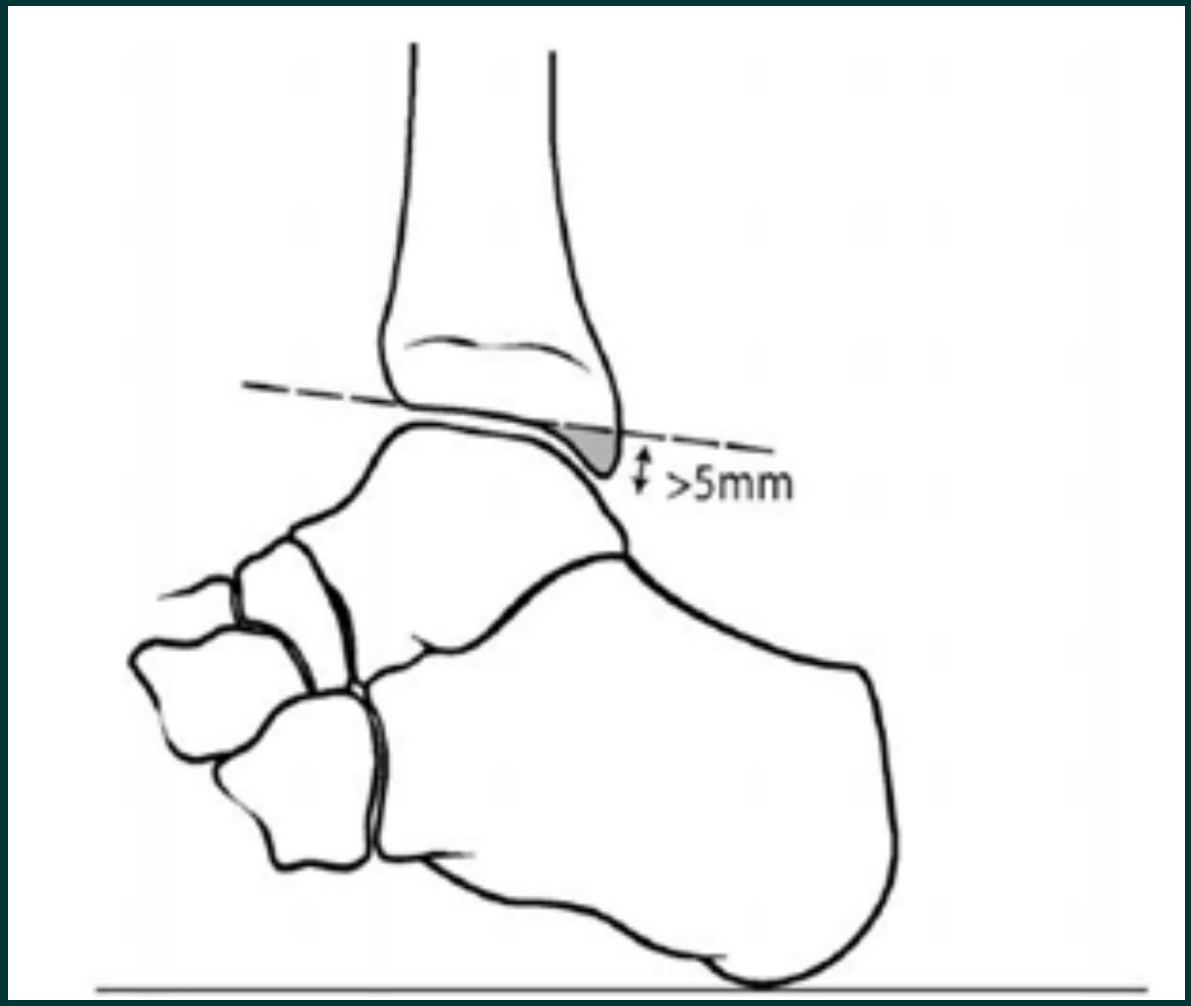


# Steida process

- Refers to elongated lateral tubercle of talus

# Downsloping of posterior tibia



# Posterior Ankle Impingement

Chronic injury repetitive forced plantar flexion

most common

stress fracture

Acute injury avulsion fx of PTaF ligament, talar fx

disruption of os trigonum

# PAIS-plantar flexion

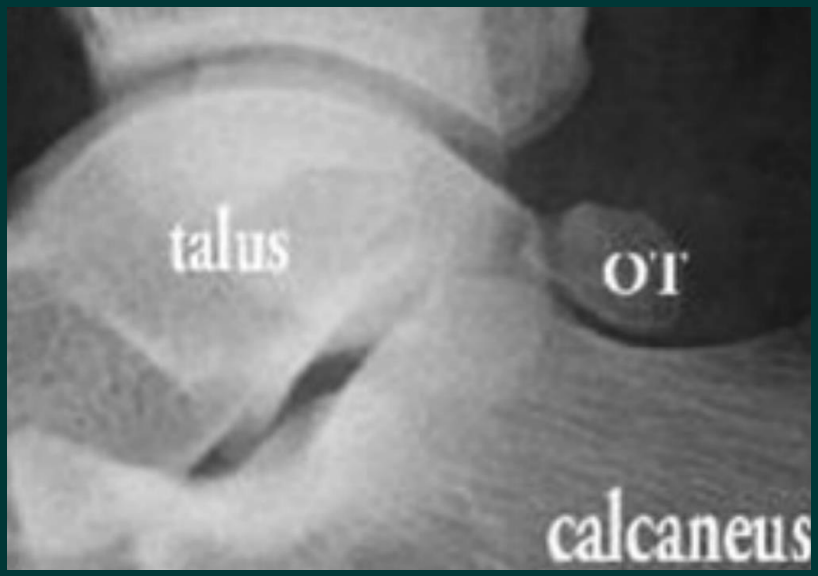
- Swimming (i.e. kicking or pushing off wall during lap swimming)
- Kicking ball
- Pointe work (dancing)
- Kneeling
- Walking or running (especially downhills)
- Jumping or hopping

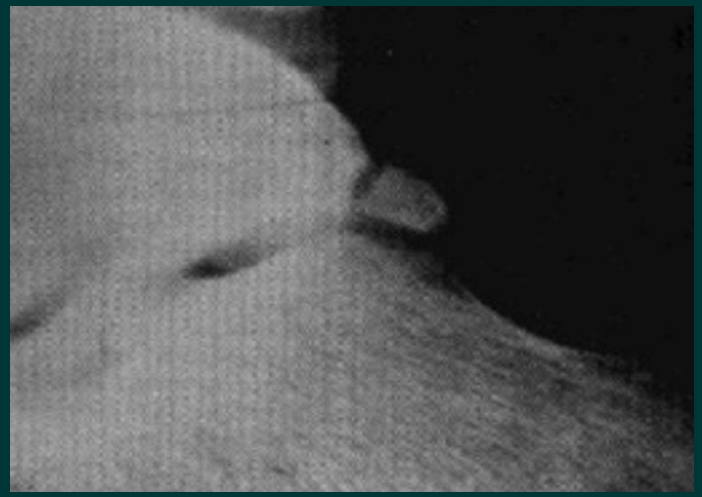
# PAIS-On examination

- posterior ankle pain
  exacerbated by plantar flexion
- posterior tenderness
- anterior to & not involving Achilles tendon
- palpable soft tissue thickening

# PAIS-Imaging

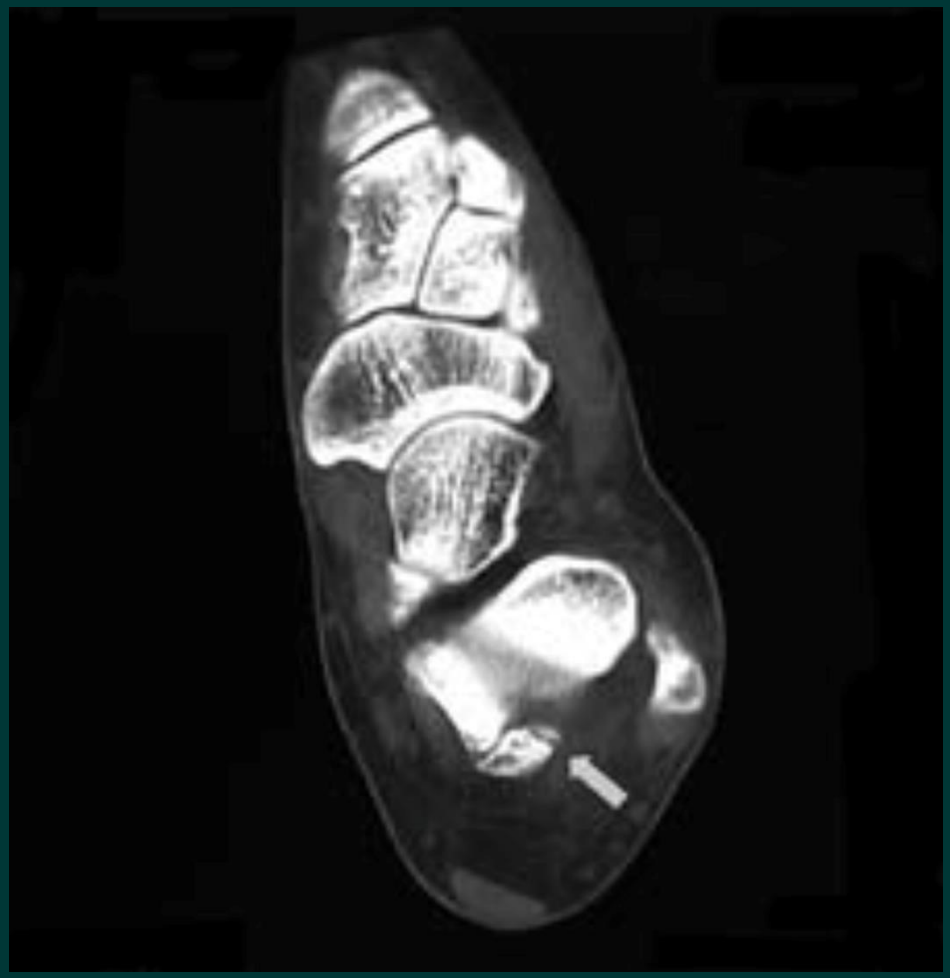
- **Plain X ray**



# PAIS-Imaging

- CT scan



# PAIS-Imaging

- **MRI**

**-Bone abnormality**

**bone marrow edema in lateral talar tubercle or os trigonum**
**fracture line or fluid in synchondrosis (os trigonum fracture)**

**-Posterior capsular or ligament thickening**

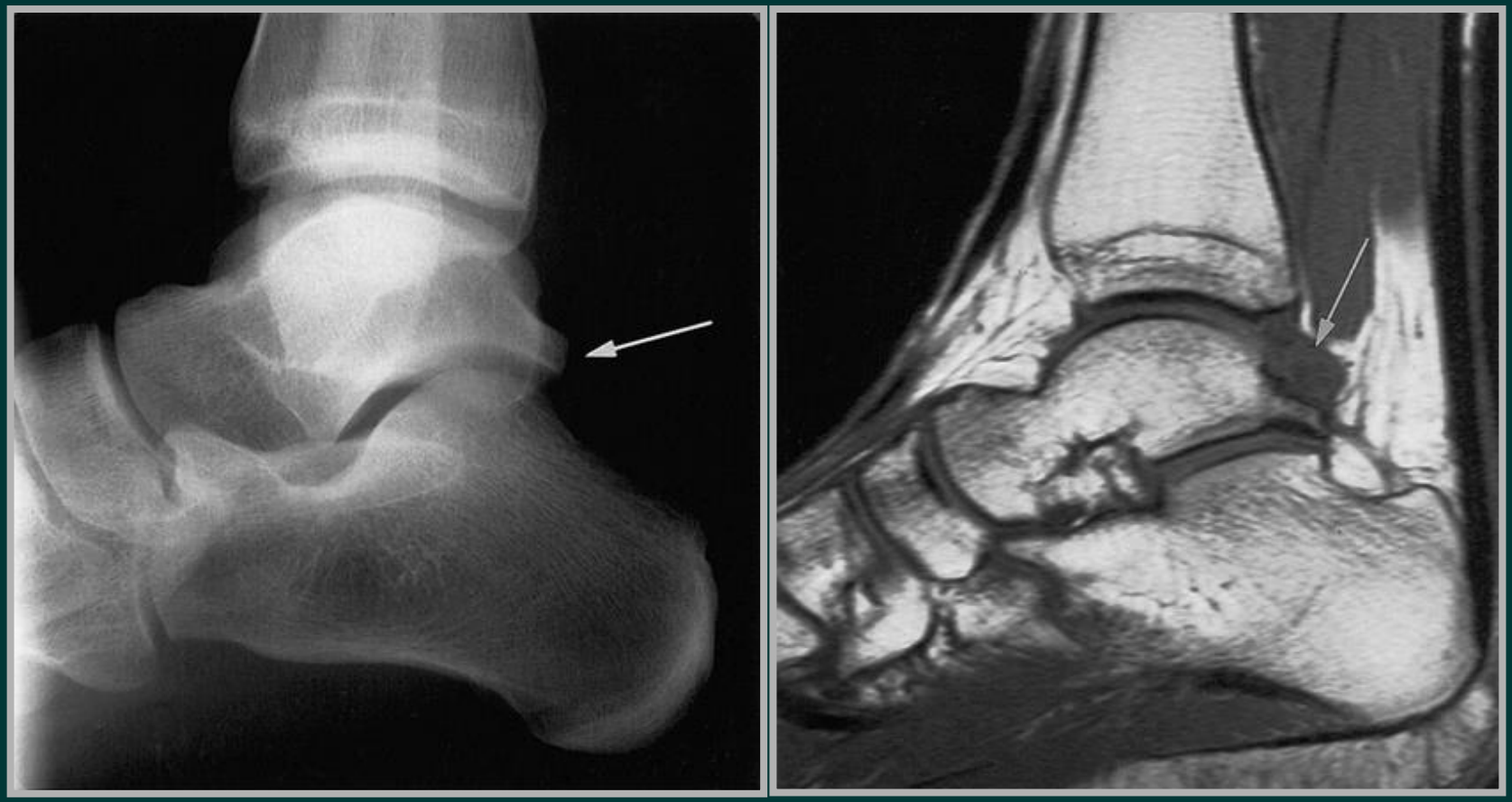
**low to intermediate SI on T2-WI**

**-Synovitis**

**posterior synovial recess of subtalar and tibiotalar joint**

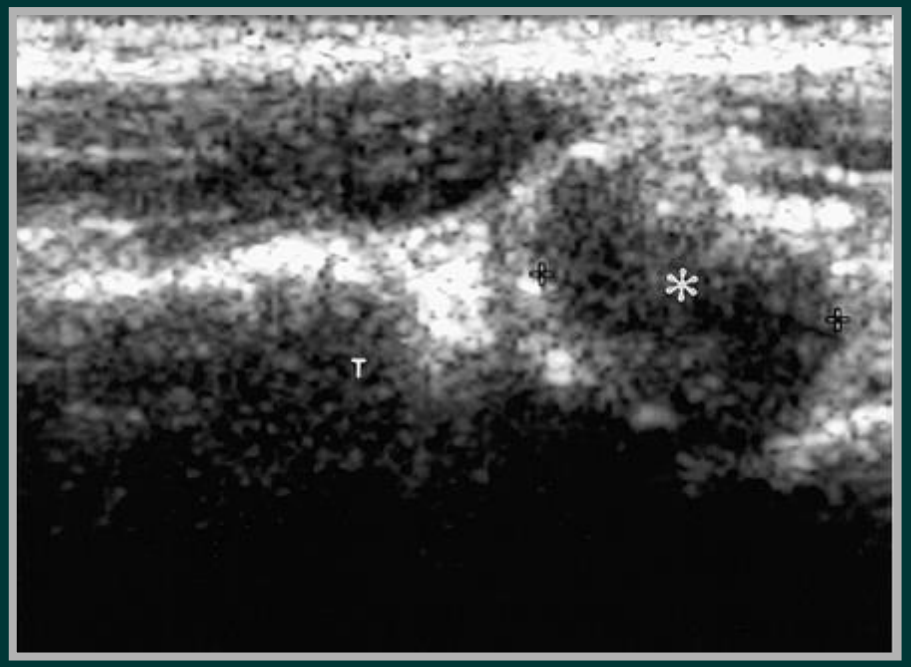
**FHL tendon sheath**

# PAIS-MRI



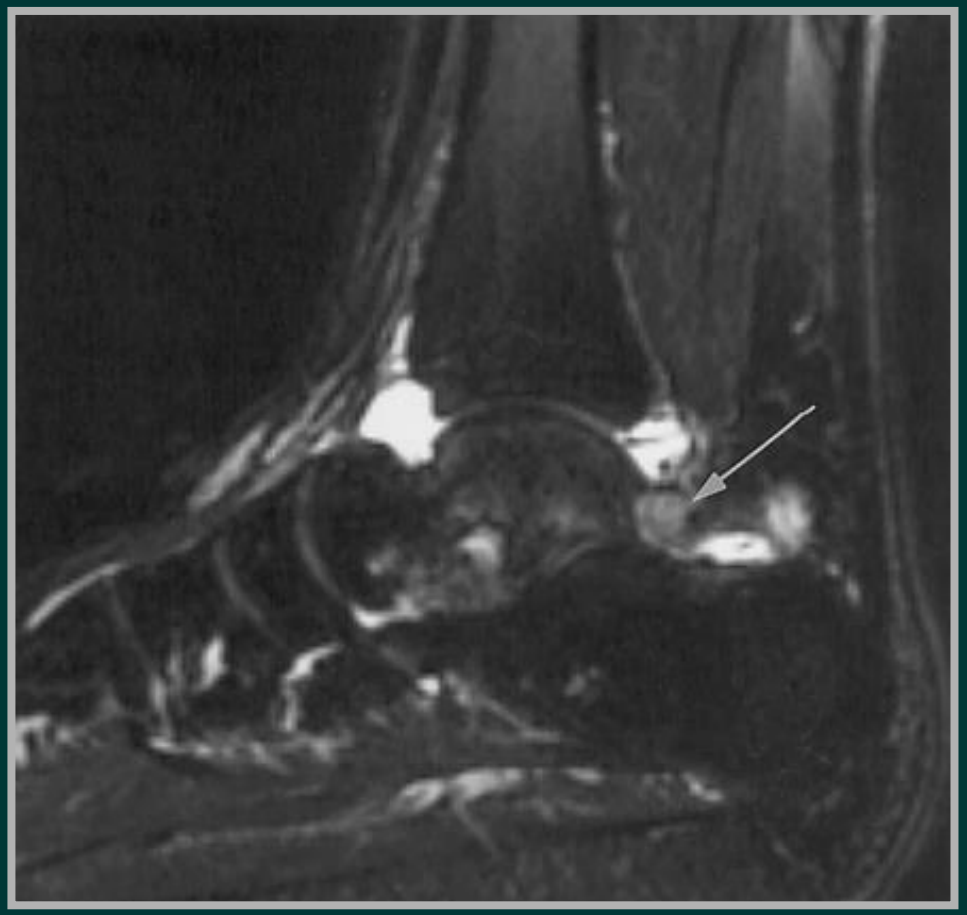
**Prominent lateral talar tubercle**
**focal thickening of posterior capsule**

# PAIS



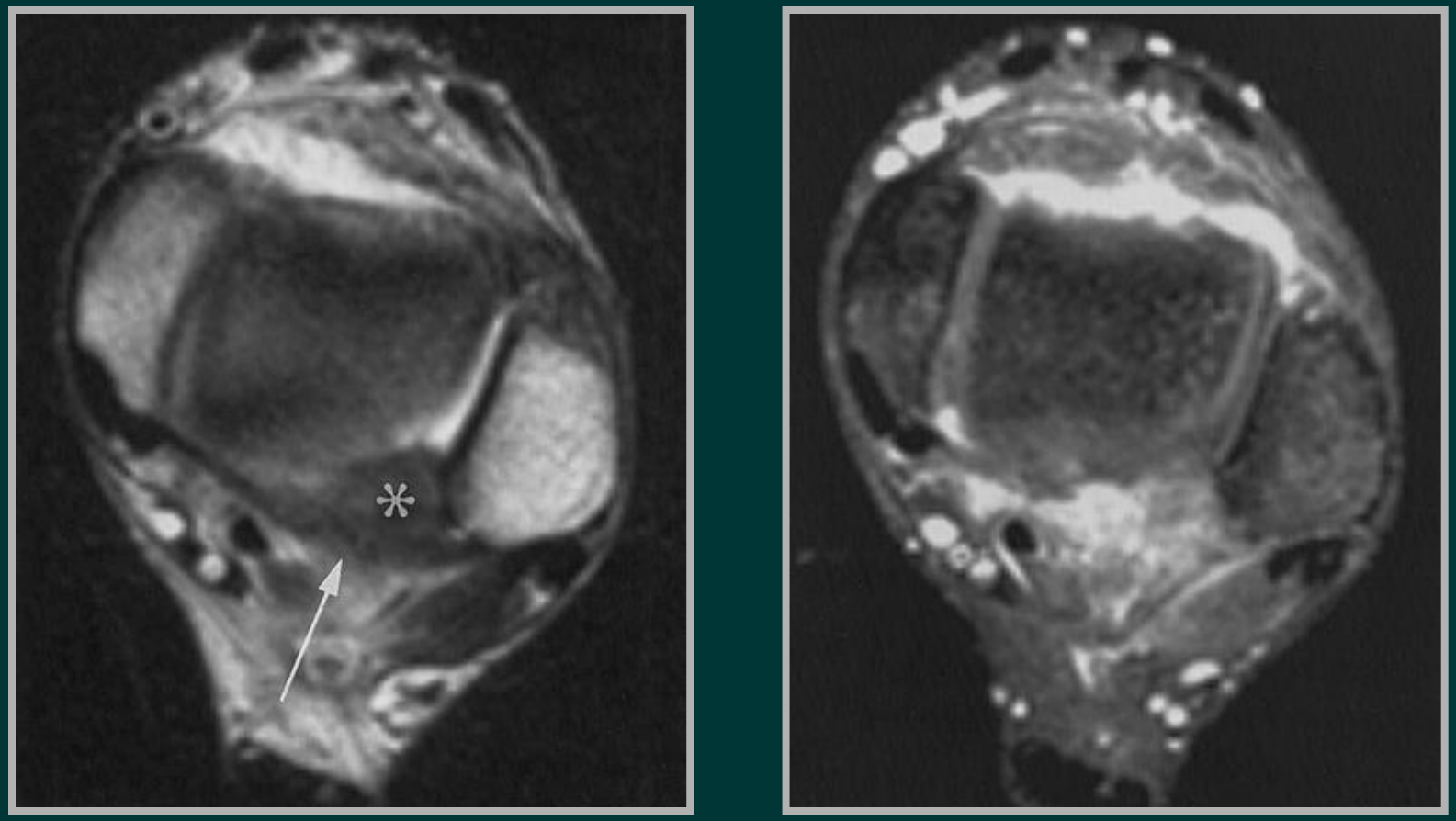

**focal thickening of posterior capsule adjacent to posterior talus (T)**

# Posterior Impingement



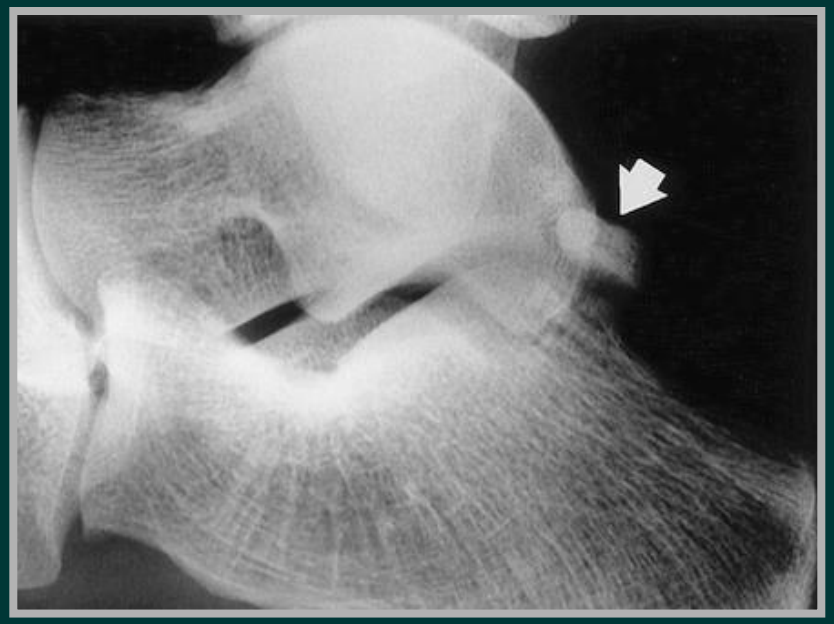
**BM edema within os trigonum**

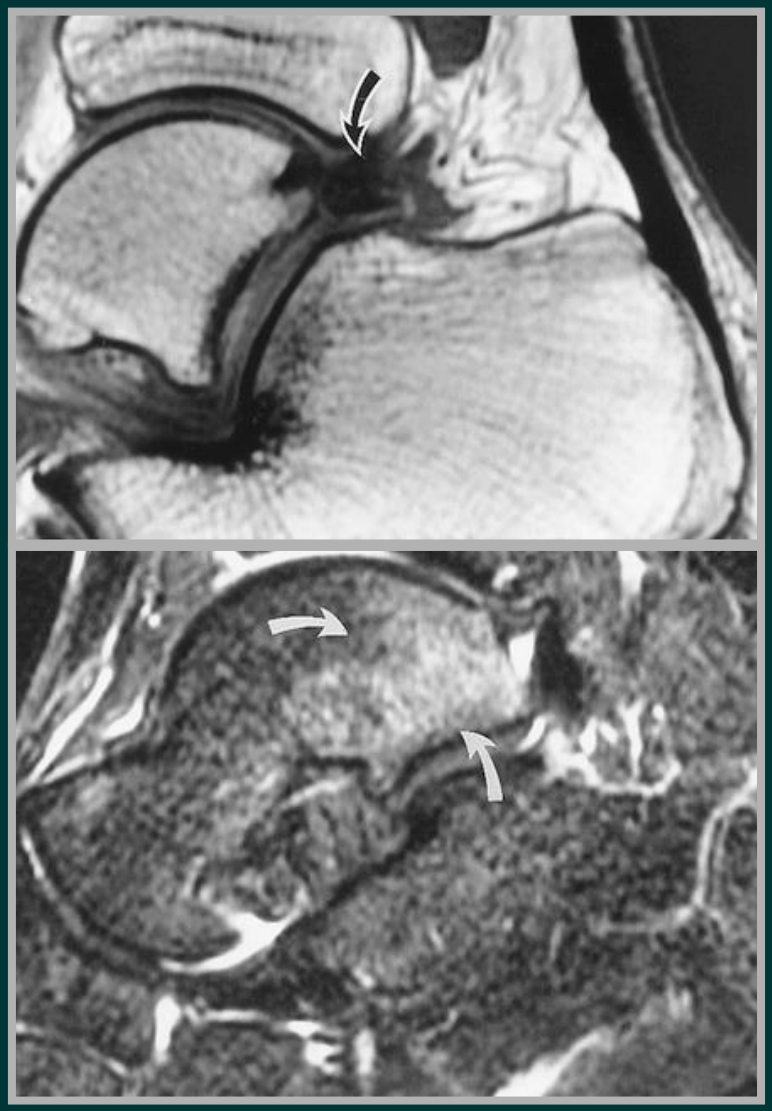
# Posterior Impingement



**focal thickening of posterior capsule**

# Posterior Impingement





**Prominent os trigonum**

**BM edema in posterior talus**

# Posterior Impingement

**limited plantar flexion**

**BM edema in posterior talus and adjacent bone fragment**

# Posterior Impingement

**BM edema in posterior talus**
**Inflammation of posterior recess of tibiotalar and subtalar joint**
**Incomplete fracture with osteosclerosis**

# PAIS- Management

- **Rehabilitative physiotherapy-Mainstay**

- **Imaging guided injection of steroid or local anesthetic into area of focal capsular thickening or os trigonum synchondrosis**

- **Surgery**
  **arthroscopic resection of osseous abnormality and soft tissue abnormality with washout of joint**

# Nonoperative Management

- Rehabilitative physiotherapy-Mainstay-ROM
- Rest
- NSAIDS
- Avoidance of activities that require forceful plantarflexion
- Acute bony injuries- casting for brief period

*….60% successful*

# Nonoperative Management

- Steroid injection (image guided)

- for trigonal process pathology or other chronic causes; effectively provides pain relief

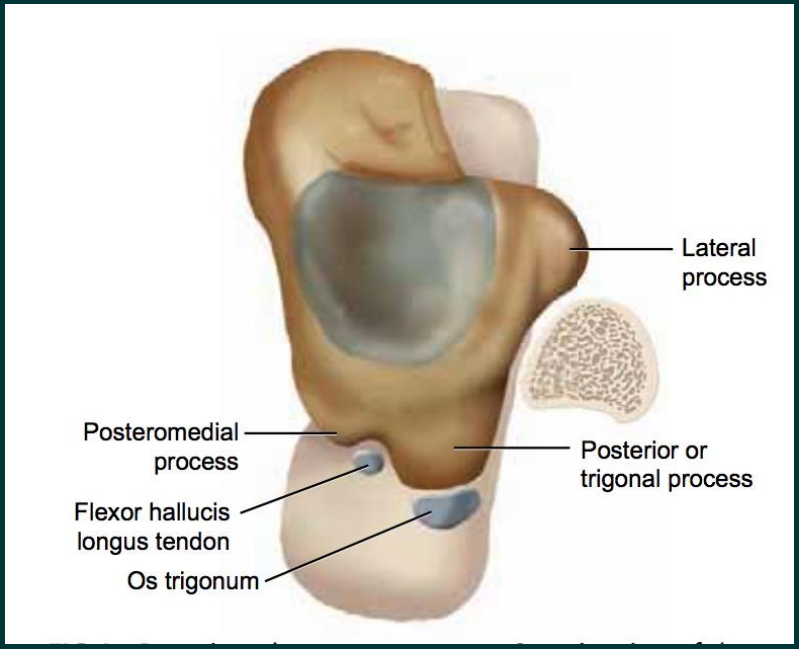
- should be tried at least once before surgery

# Surgery

- Open- posterolateral : isolated bony impingement

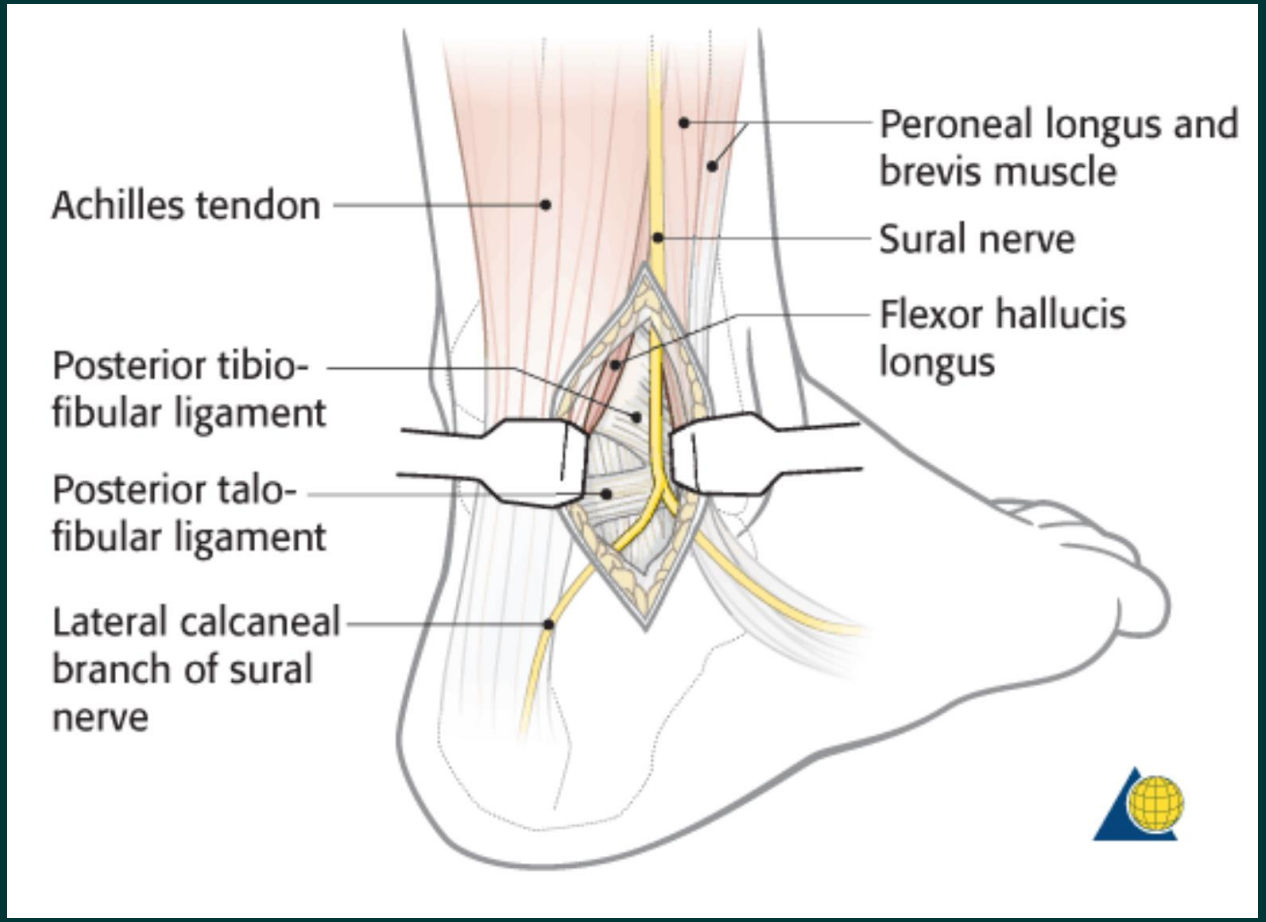
  - posteromedial : associated FHL pathology

- Arthroscopic : difficult



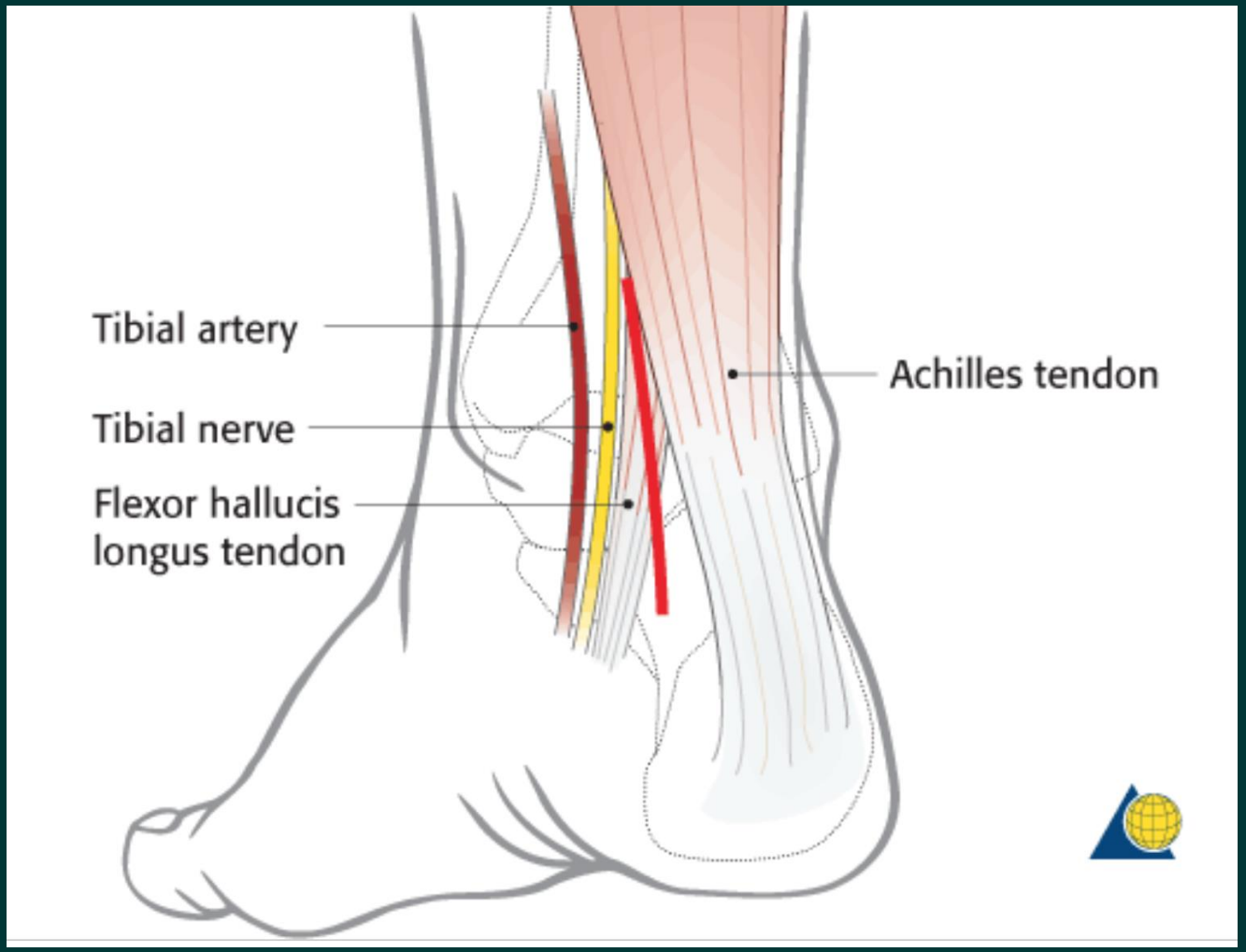
# Surgery

- Open- posterolateral : isolated bony impingement



# Surgery

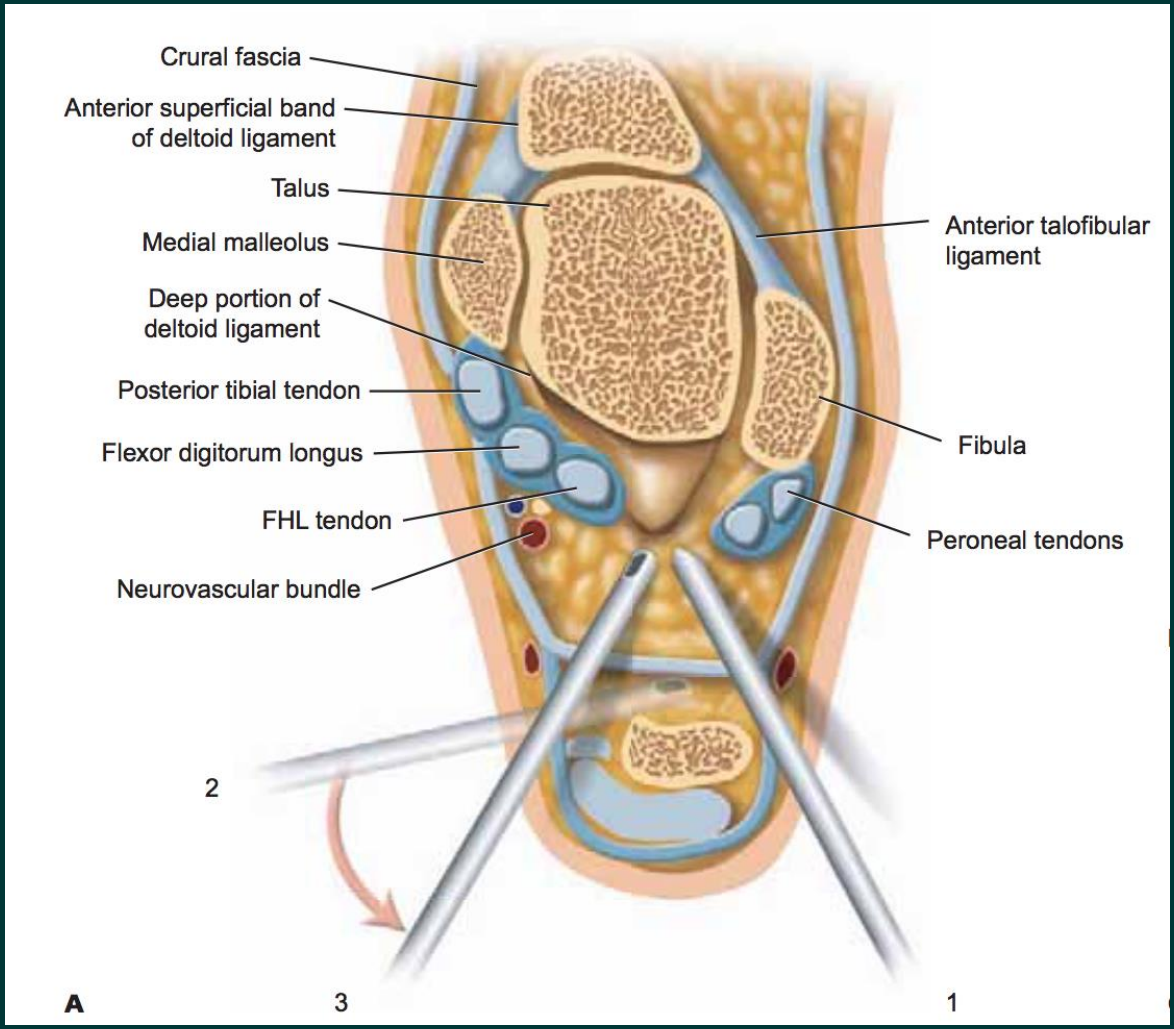
- Open - posteromedial : associated FHL pathology



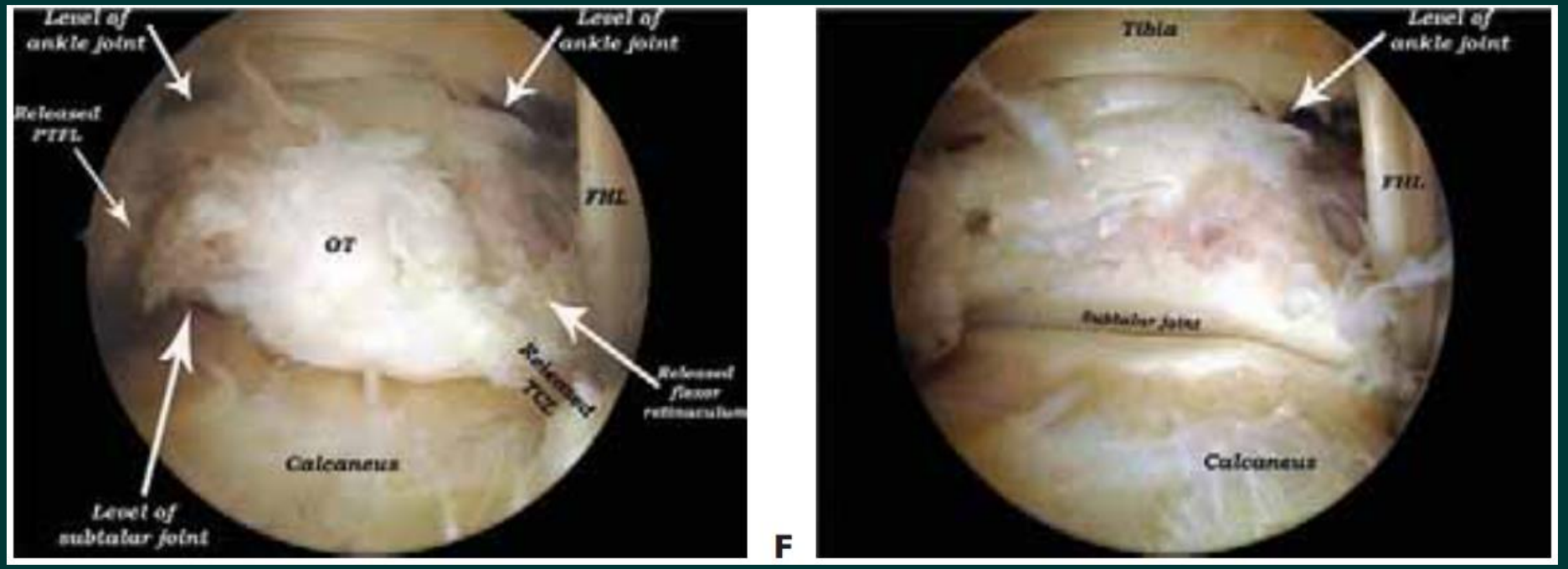
# Arthroscopy

- Posterior portals
- Difficult

# Arthroscopy



# Arthroscopy



# Surgery

- Sural nerve injury
- Peroneal tendon fibrosis
- Tibial nerve injury
- FHL injury
- Infection
- Wound healing problems
- Ankle stiffness

# Surgery-Outcomes

- Most experts agree surgery for PAIS is highly satisfactory
- Surgery for overuse have better results than those following trauma(chronic better than acute)
- Osseous impingement do better than those with soft tissue impingement

# Surgery-Outcomes

55 patients treated endoscopically , average improvement of AOFAS score was from 75 points preoperatively to 90 points postoperatively.

. . . . . Van Dijk CN, de Leeuw PA, Scholten PE. Hindfoot endoscopy for posterior ankle impingement. J Bone Joint Surg Am 2009;91A (Suppl 2):287–298.

# Take Home Message

- Not an uncommon condition, important to diagnose and treat early
- 60% improve with non operative management
- Surgery has good outcomes after failure of non operative treatment