Posterior Ankle Impingement Syndrome

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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
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
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

Crural fascia
Anterior superficial band of deltoid ligament
Talus
Medial malleolus
Deep portion of deltoid ligament
Posterior tibial tendon
Flexor digitorum longus
FHL tendon
Neurovascular bundle

Anterior talofibular ligament
Fibula
Peroneal tendons
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
55 patients treated endoscopically, average improvement of AOFAS score was from 75 points preoperatively to 90 points postoperatively.

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