Sequalae of Ankle Sprains: Peri Articular Fractures of the Ankle in Sports Medicine

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Chronic Ankle Pain

- The most common cause of chronic pain following an ankle sprain is a missed or associated injury.

From Alexander, *Foot and Ankle Examination*
Chronic Ankle Pain

Differential Diagnosis

**Extra-articular**
- Bone (avulsions)
- Soft tissue
- Neural
- Venous stasis

**Intra-articular**
- OLT / tibia
- Impingement
- OA / chondromalacia
- Synovitis
Bone Injuries (peri-articular avulsions)

Differential Diagnosis

- medial malleolus
- Lateral malleolus
- Posterior malleolus
- Talus
  - Posteromedial (Cedell #)
  - Posterior (os trigonum)
  - Lateral wall
- Anterior process calcaneus
Chronic Ankle Pain

**Approach**

- Detailed clinical exam
- Correlate symptoms with exam and imaging
- Most of these injuries are palpable (tenderness)
- Operative approach: open vs arthroscopic
Ankle pain; history of recurrent sprains
Ankle pain; recurrent sprains
Anterior impingement and medial malleolar avulsion
Lateral malleolalar avulsions

- Usually associated with avulsion of CFL
- Usually not significant and CFL scars in or can be repaired to remaining fibula
- Rx if symptomatic
  - Excise if stable, pain only \textit{(arthroscopic)}
  - Excise if unstable, repair CFL to fibula \textit{(open)} (video)
Lateral Ligaments: fibular avulsion (CFL)
Lateral malleololar avulsions
Calcaneus: Anterior process avulsion fracture

- Pain post sprain
- Easily missed on X-rays
- High index of suspicion
- Scrutinize X-rays
- Bone tenderness always present
- Rx: *Open* excision if problematic
Talus Fractures

- Osteochondral
- Shear / sagittal / coronal
- **Posterior process**
  - Os trigonum
  - Posteromedial (Cedell) / posterolateral process
- Lateral process
Video Os trigonum fracture, 17yoM
Lateral Talar process fx

- “Snowboarder’s fracture ”
- Diagnosis delayed & associated with ankle sprains
- Need a high degree of suspicion
Treatment: lateral process #

- Acute - nondisplaced: cast treatment NWB
- Acute - displaced: ORIF or excise
- Late: excise or ORIF based on size (usually chronic subfibular pain)
  - Excise open or arthroscopic
Lateral talar process avulsion

- Rx: excision
Excision lat talar process : chronic
Post Talar Body fracture
Post talar body fracture (video)
Post talar body fracture fixation
ARIF (video)
Summary:

- Common cause of Chronic dysfunction / pain
- Ankle arthroscopy is an excellent procedure for evaluation and treatment
- Minimal morbidity with careful technique
- Excision is the common treatment, unless fixation warranted
Ankle Arthroscopy

Acute Ankle Fractures:

- **Advantages**
  - avoids extensive exposure
  - improves visualization of articular surface
  - maintains existing blood supply

- **Disadvantages**
  - time consuming
  - technically more challenging
  - swelling of soft tissues
Ankle Arthroscopy

**Acute Ankle Fractures:**

- **Indications**
  1. *Mild to moderate pilon fractures/impaction*
     - To ensure articular surface reduction
     - Remove loose fragments/hematoma/chondral injury
50 yo M, impacted pilon #
Case: fibular #; medial dome talus
Case :: fibular # ; medial dome talus
Case: fibular #; medial dome; talus
Case: fibular #; medial dome talus

Arthroscopic findings in acute fractures of the ankle. Prospective study
Ankle # in 288 consecutive patients (148 men and 140 women) AO-Danis-Weber , 14 type-A,198 type B and 76 type C.

- Chondral lesions in 228 ankles (79.2%), the talus (69.4%); distal tibia (45.8%), the fibula (45.1%), medial malleolus (41.3%).

- Worse in patients under 30 years and in those over 60 years of age.
- The frequency and severity of the lesions increased from type-B to type-C fractures (p < 0.05).

Arthroscopically assisted treatment of ankle fractures: arthroscopic findings and surgical outcomes.

- 105 patients (105 joints); malleolar fractures
- Cartilaginous damage was noted in 21 patients
- Distal tibiofibular joint diastasis + fixation in 8 patients.
- Good result in 100 cases and a fair outcome in 5
- (no control group).
Use of Ankle Arthroscopy with Fractures

Summary

- Useful adjunct in diagnosis and treatment
- Biologic exposure
- Needs further experience and investigation