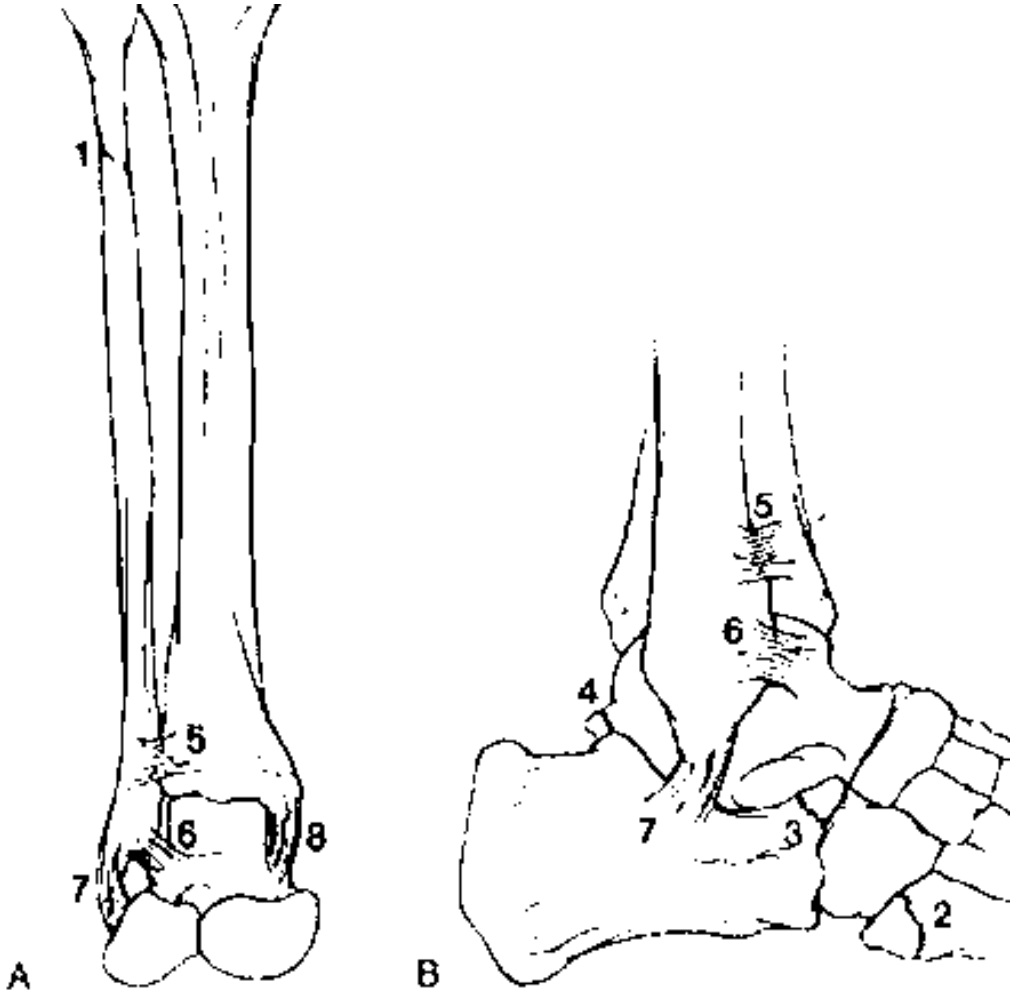
Sequalae of Ankle Sprains: Peri Articular Fractures of the Ankle in Sports Medicine

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 malleollus
- Lateral malleolus
- Posterior malleollus
- 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

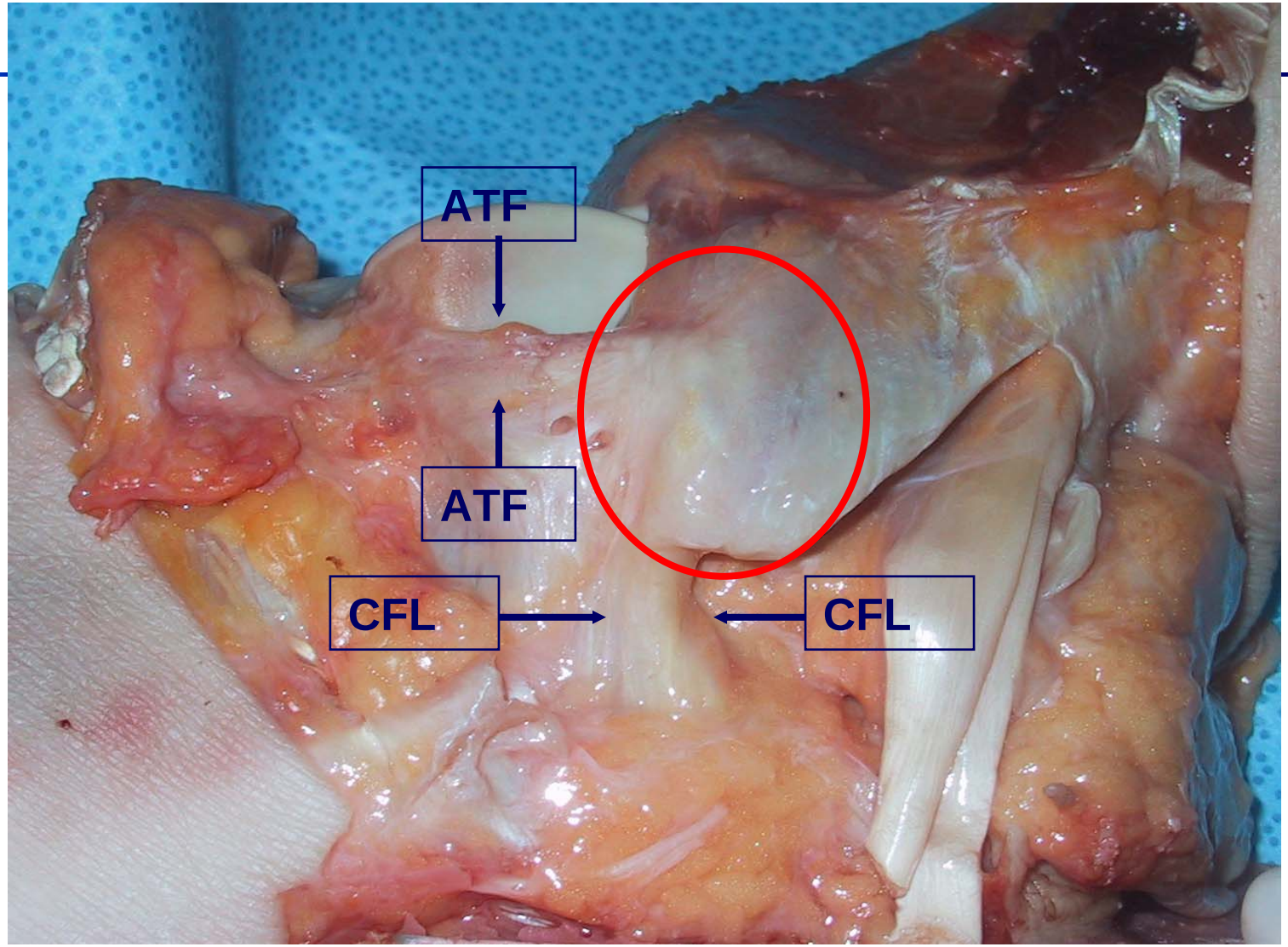
Ankle pain ; history of recurrent sprains

Ankle pain ; recurrent sprains
Anterior impingement and medial malleollar avulsion

Lateral malleollar avulsions

- Usually associated with avulsion of CFL
- Usually not signifcant and CFL scars in or can be repaired to remaining fibula
- Rx if symptomatic
  - Excise if stable , pain only (arthroscopic)
  - Excise if unstable , repair CFL to fibula (open)(video)

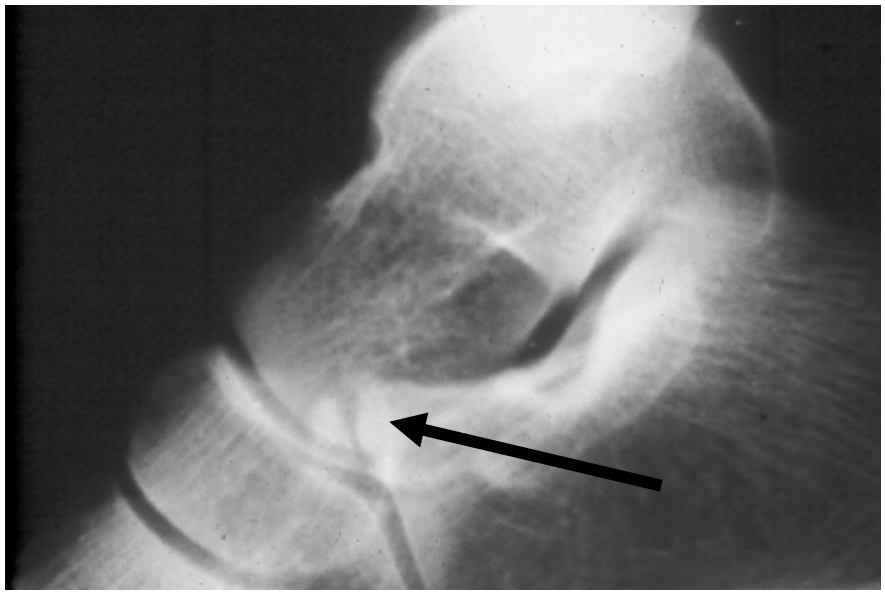
Lateral Ligaments : fibular avulsion (CFL)



Lateral malleollar avulsions

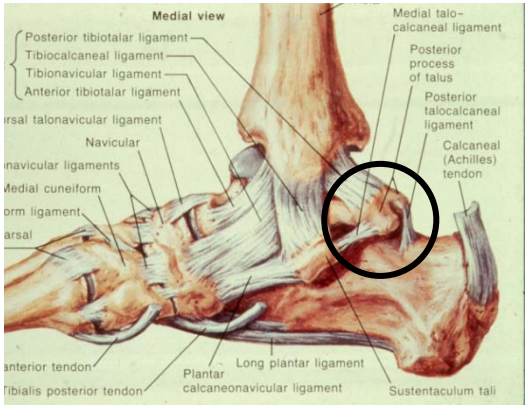
Calcaneus : Anterior process avulsion fracture

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

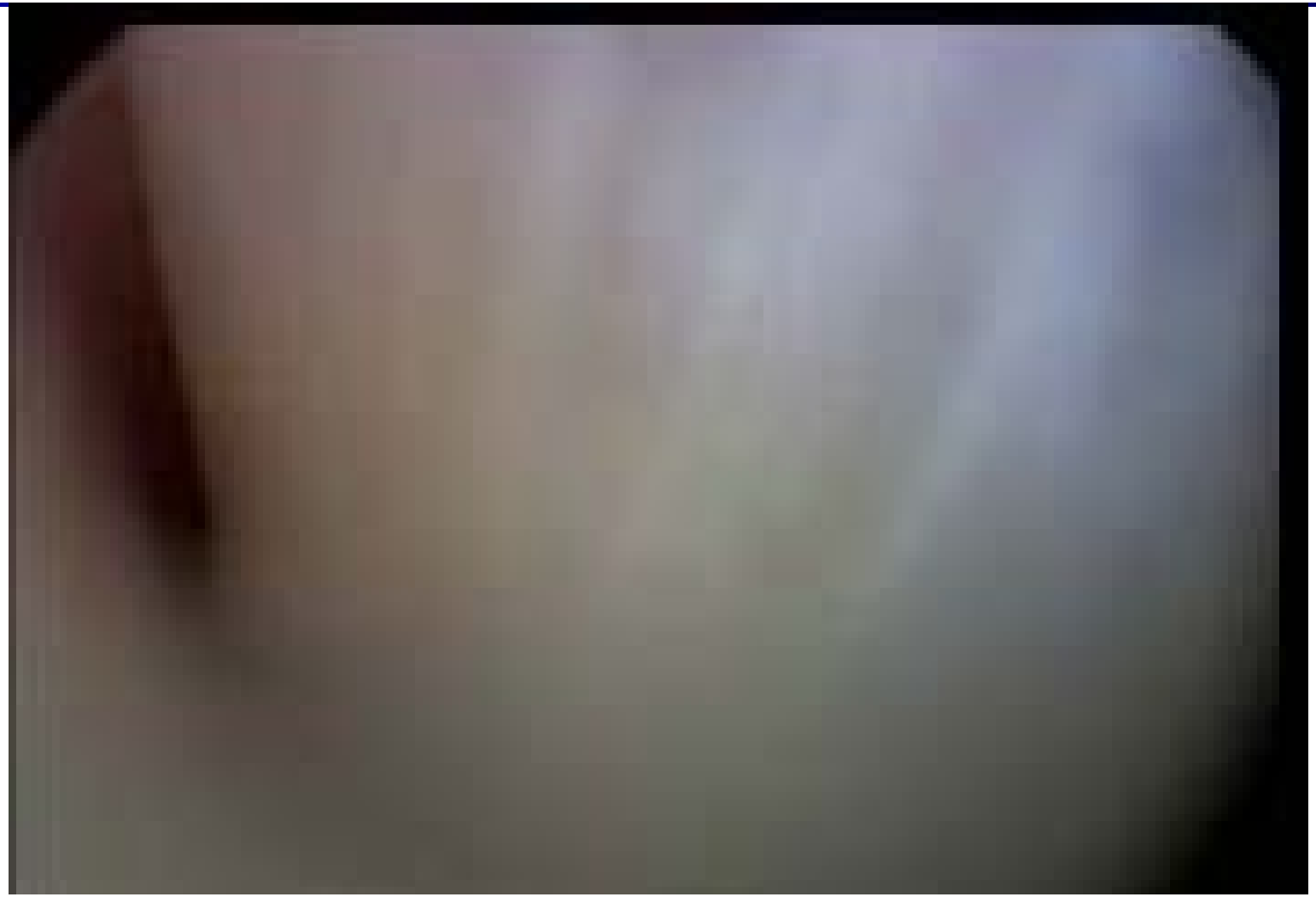


Talus Fractures

- Osteochondral
- Shear / sagittal / coronal
- Posterior process
  - Os trigonum
  - Posteromedial (Cedell) / posterolateral process
- Lateral process



Video Os trigonum fracture , 17yoM



Lateral Talar process fx

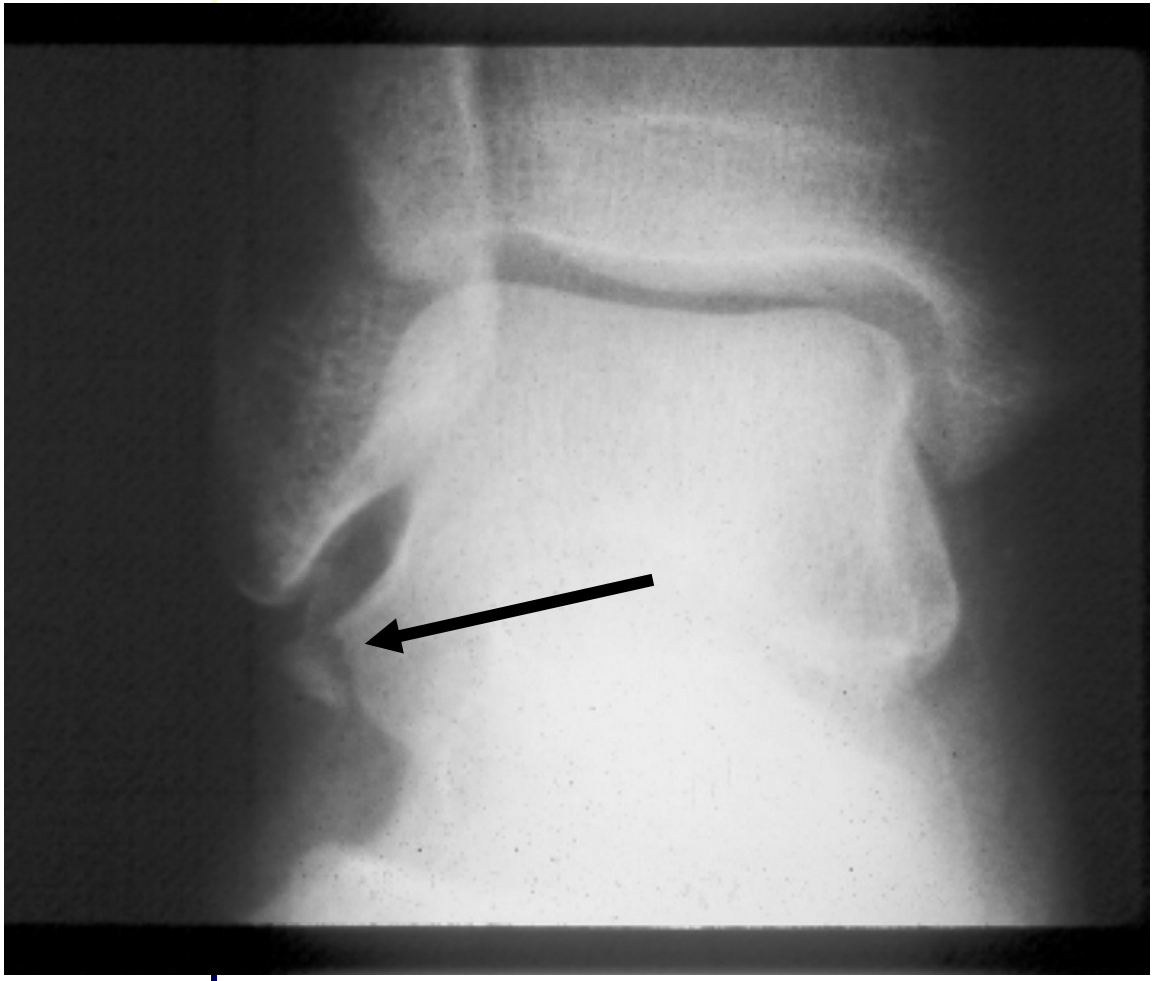
- "Snowboarder's fracture "
- Diagnosis delayed & associated with ankle sprains
- Need a high degree of suspicion



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)

Periarticular (avulsion) Fractures Sports Trauma

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

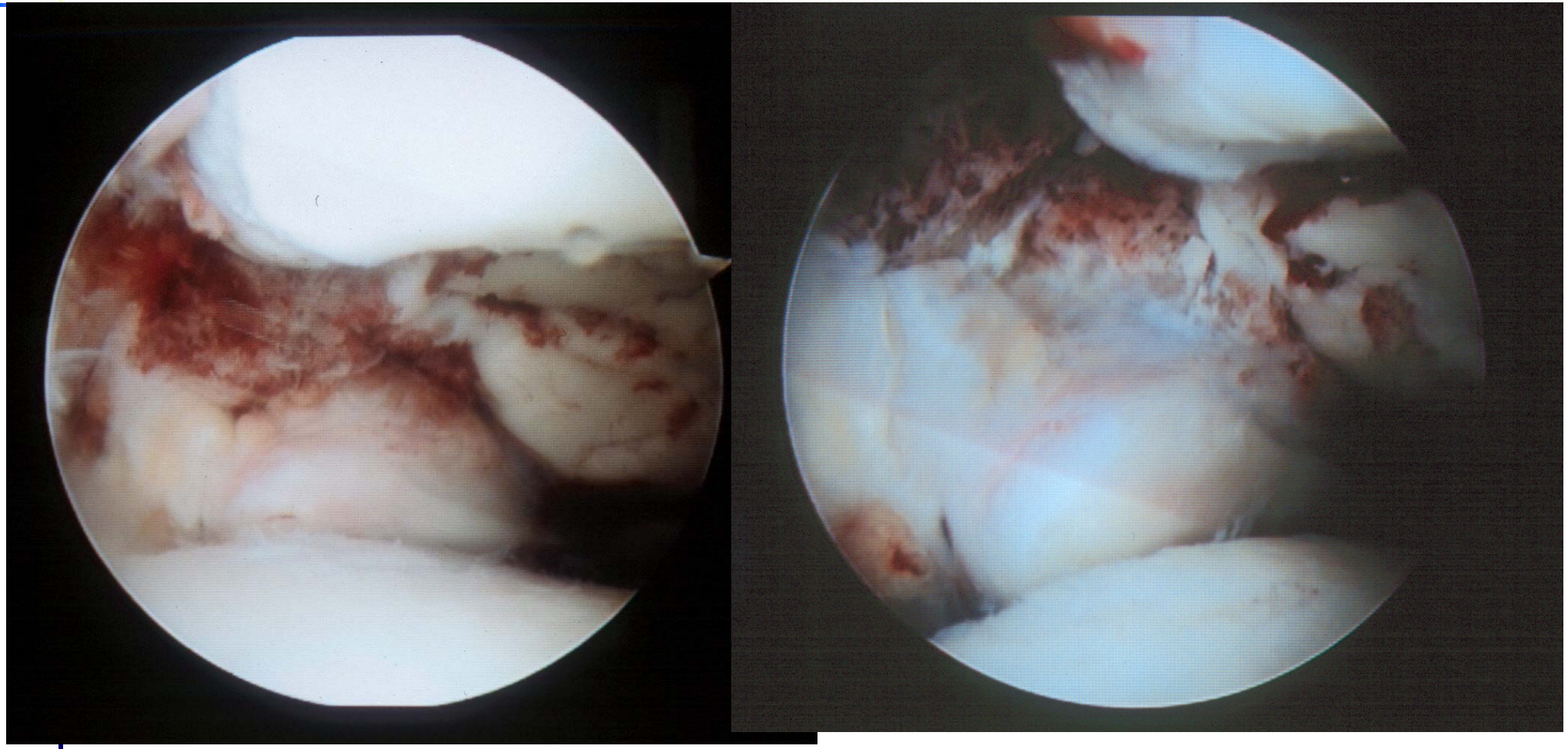
Ankle Arthroscopy

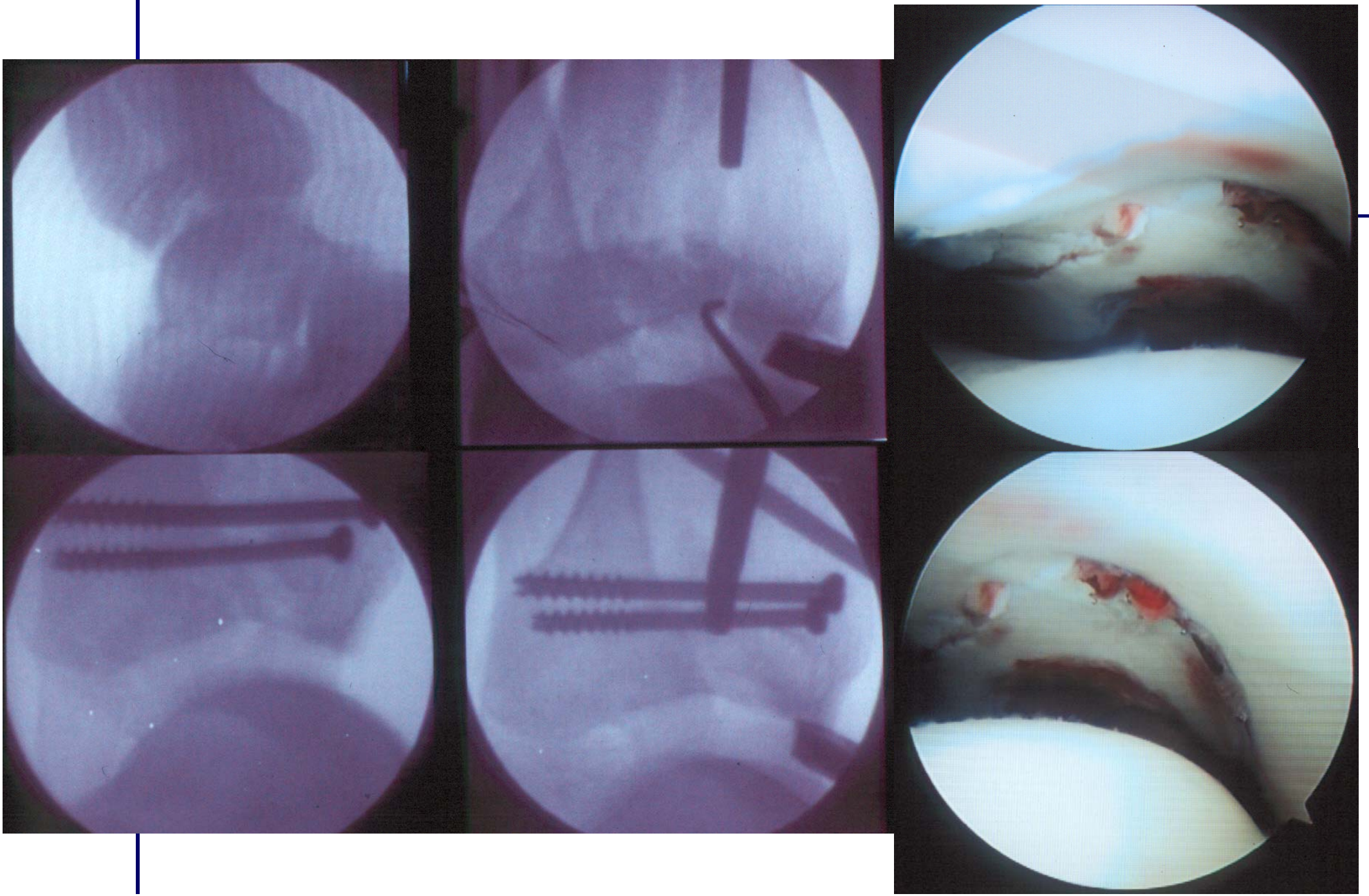
Acute Ankle Fractures:

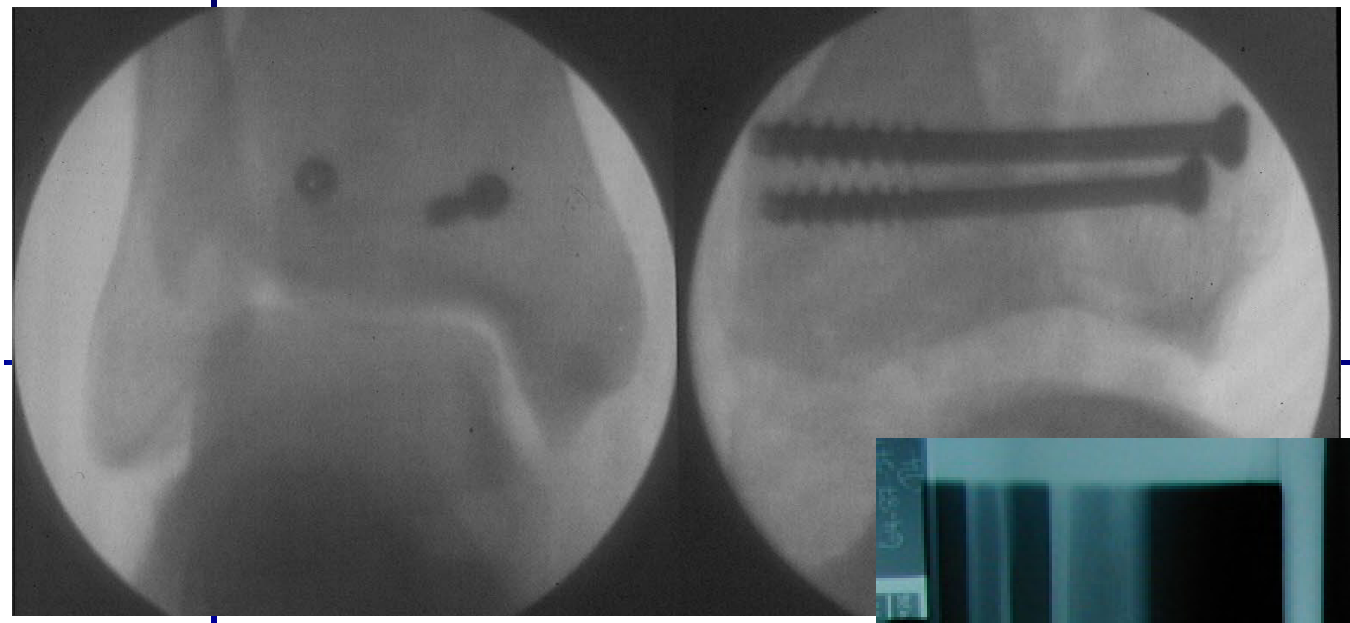
- **Indications**

1. *Mild to moderate pilon fractures/ impaction*
   - **To ensure articular surface reduction**
   - **Remove loose fragments/ hematoma/ chondral injury**

50 yo M , impacted pilon





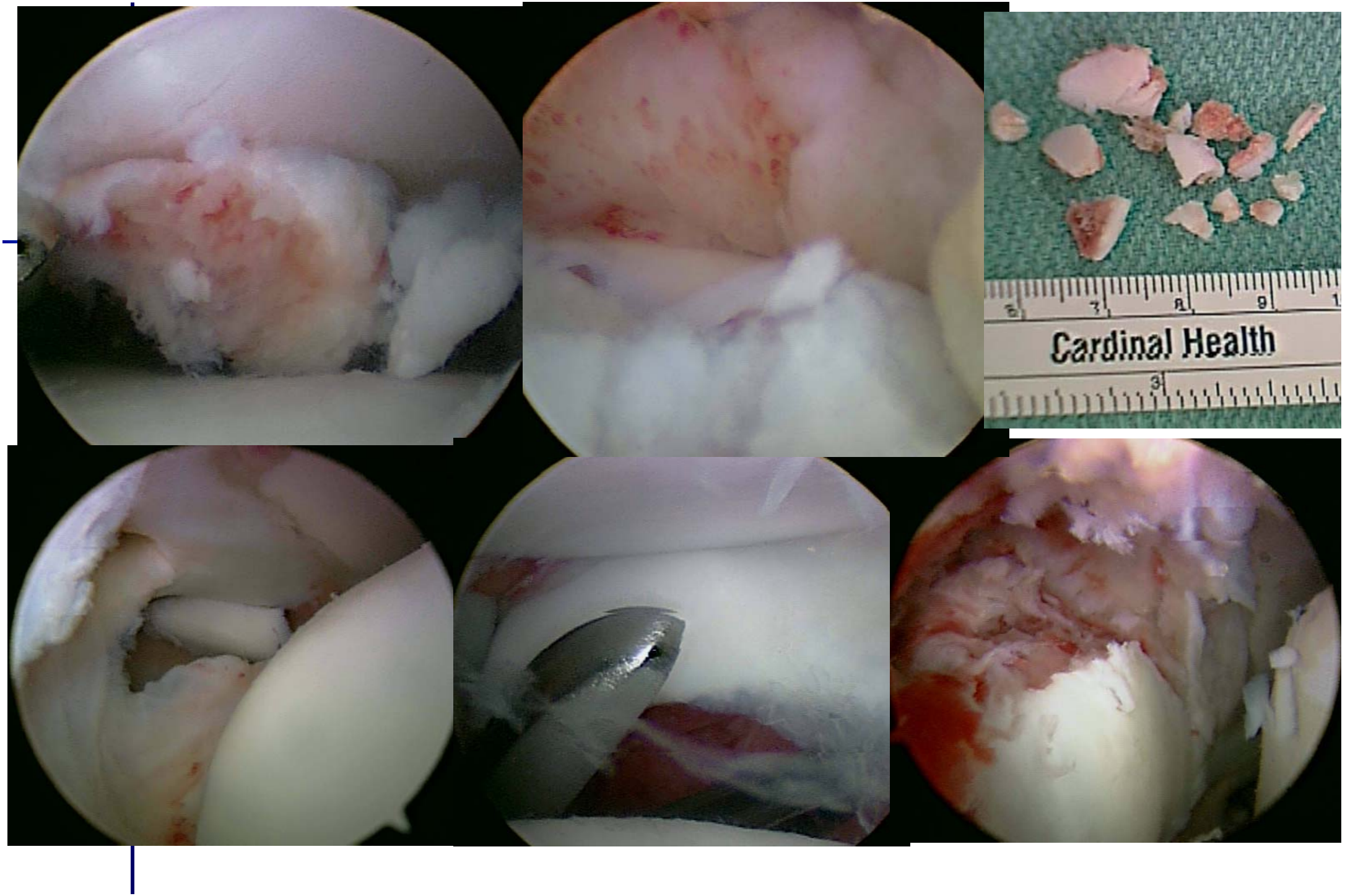


Post op

1 year post op

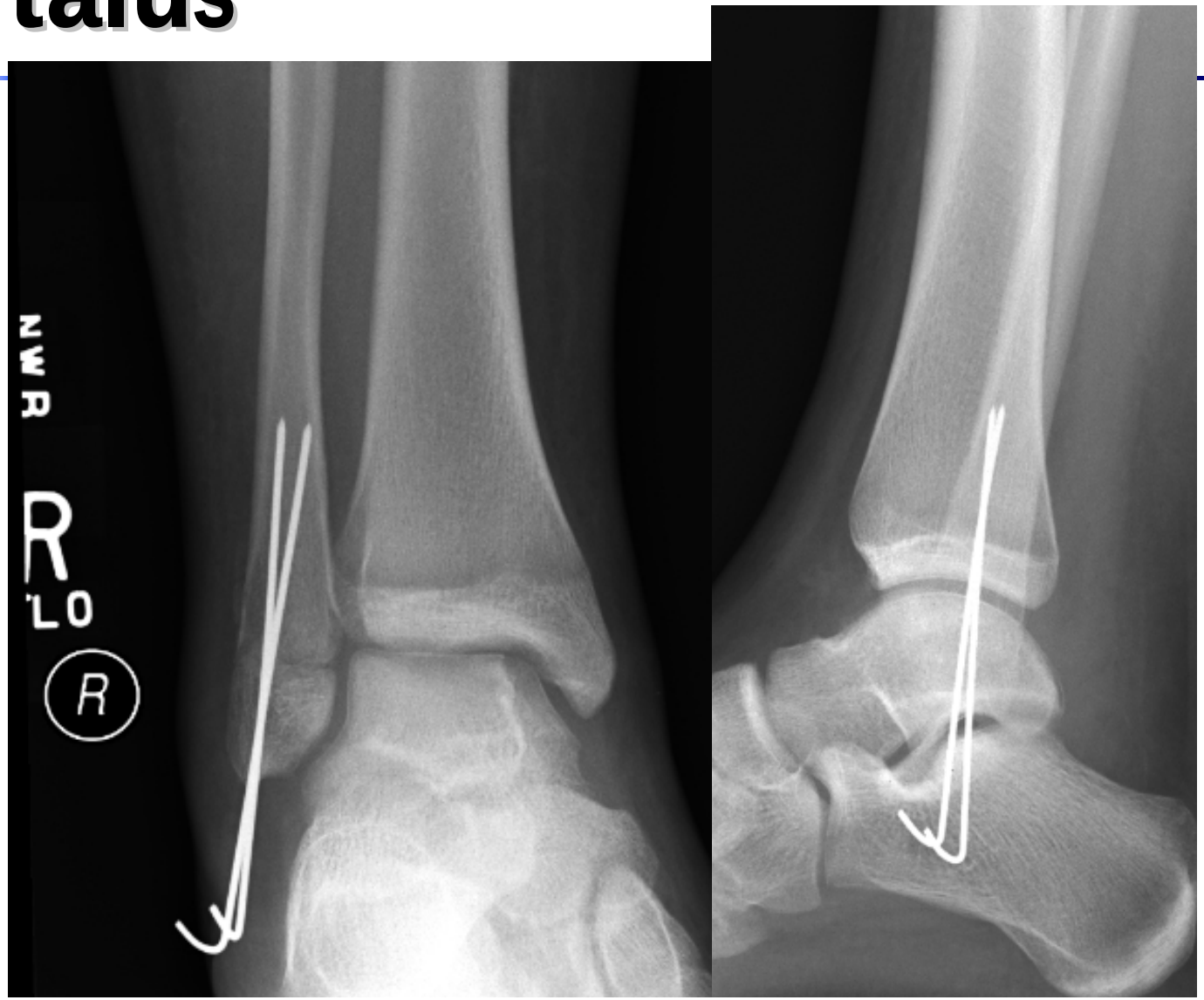
Case : fibular # ;medial dome talus

Case :; fibular # ;medial dome talus


Cardinal Health

Case : fibular # ;medial dome talus

Case : fibular # ;medial dome talus



Literature Review

Hintermann B, Regazzoni P, Lampert C, Stutz G, Gachter A.
Bone Joint Surg Br. 2000 Apr;82(3):345-51.
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 ($p < 0.05$).

Literature Review : ARIF Ankle

Ono A, Nishikawa S, Nagao A, Irie T, Sasaki M, Kouno T. Arthroscopy. 2004 Jul;20(6):627-31.

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