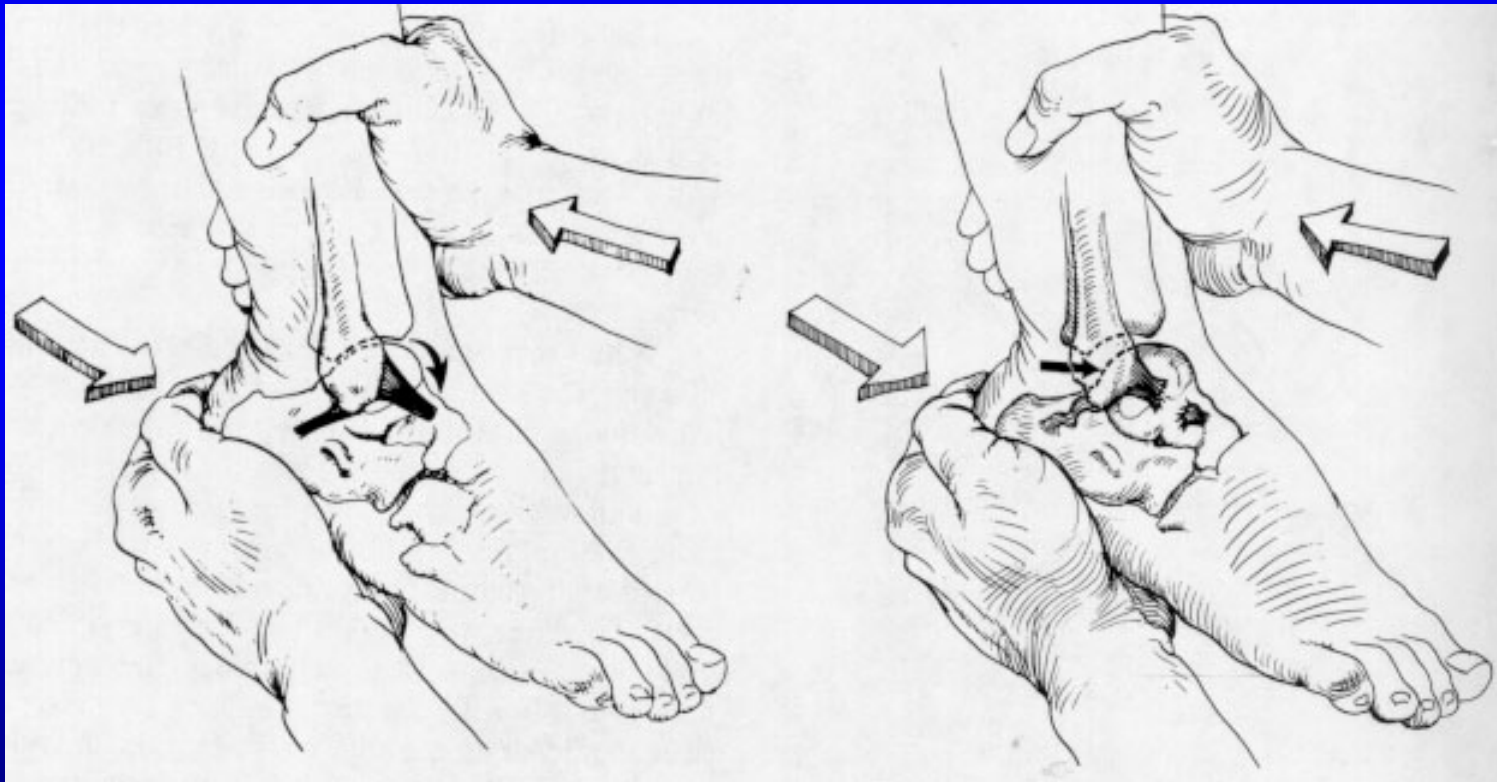


# Ankle Pain After a Sprain

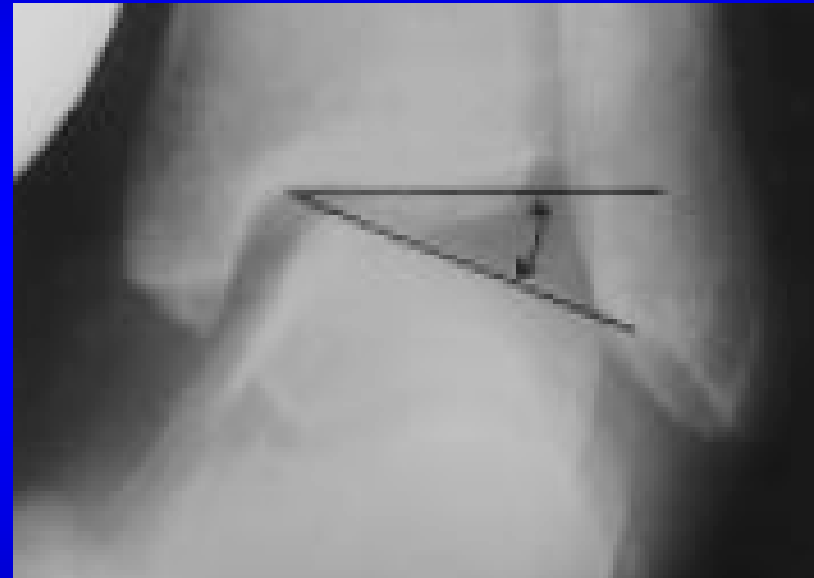
[www.fisiokinesiterapia.biz](http://www.fisiokinesiterapia.biz)

# Anterior Drawer Stress Test



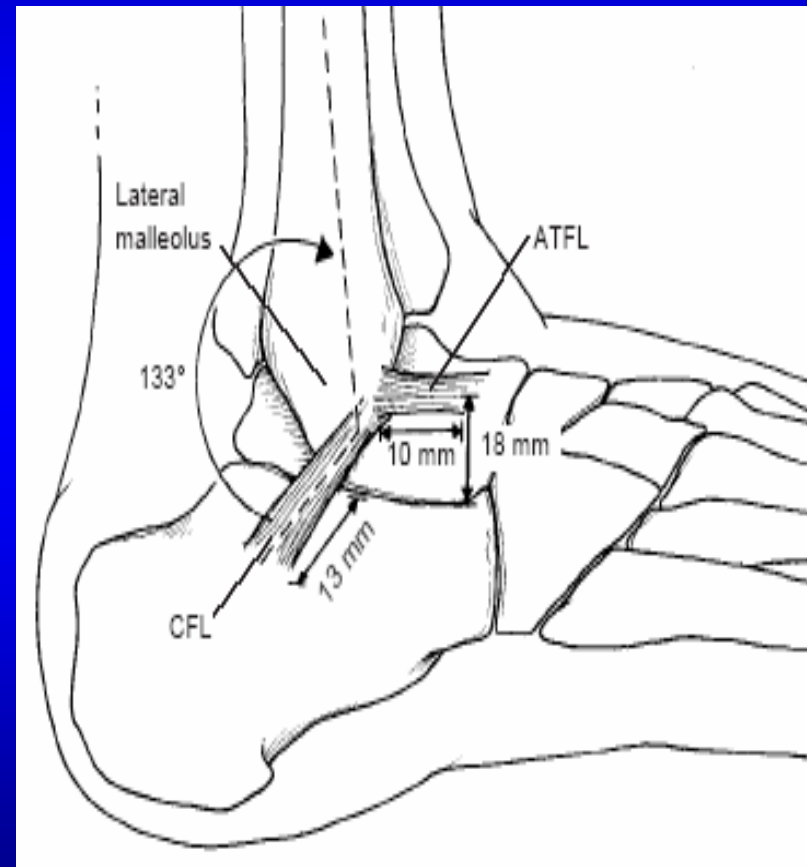
# Talar Tilt

- Talar Tilt (CFL)
- Difficult to isolate from subtalar ROM
- Slight plantar flexion (dorsi = relative subtalar isolation)
- Compare to opposite side
- 5° greater than opposite side or 10° absolute value



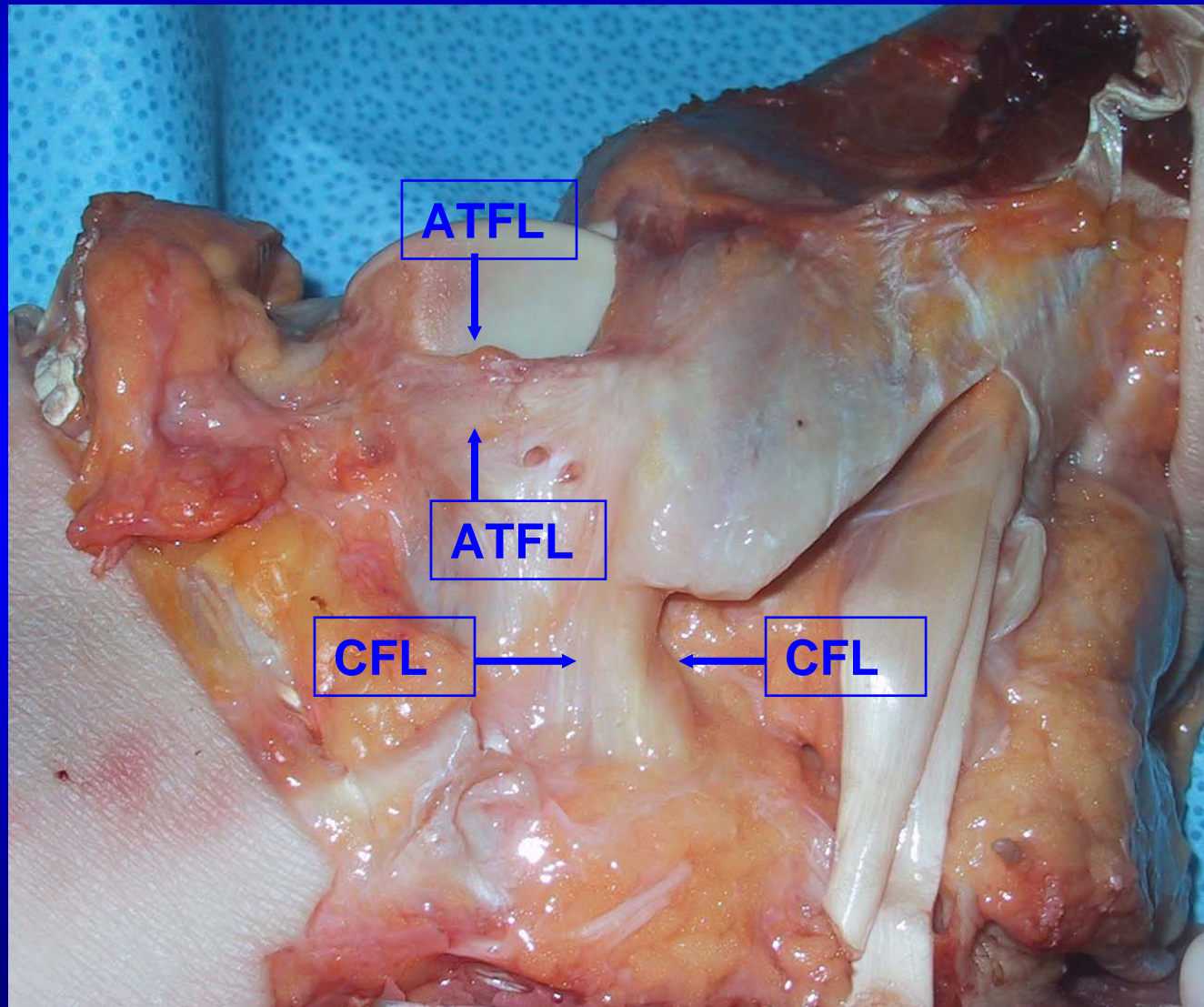
# Lateral Ligament Instability

- ATFL – resists inversion in plantarflexion
- CFL – resists inversion in neutral or dorsiflexion
- PTFL - resists posterior and rotatory subluxation of the talus



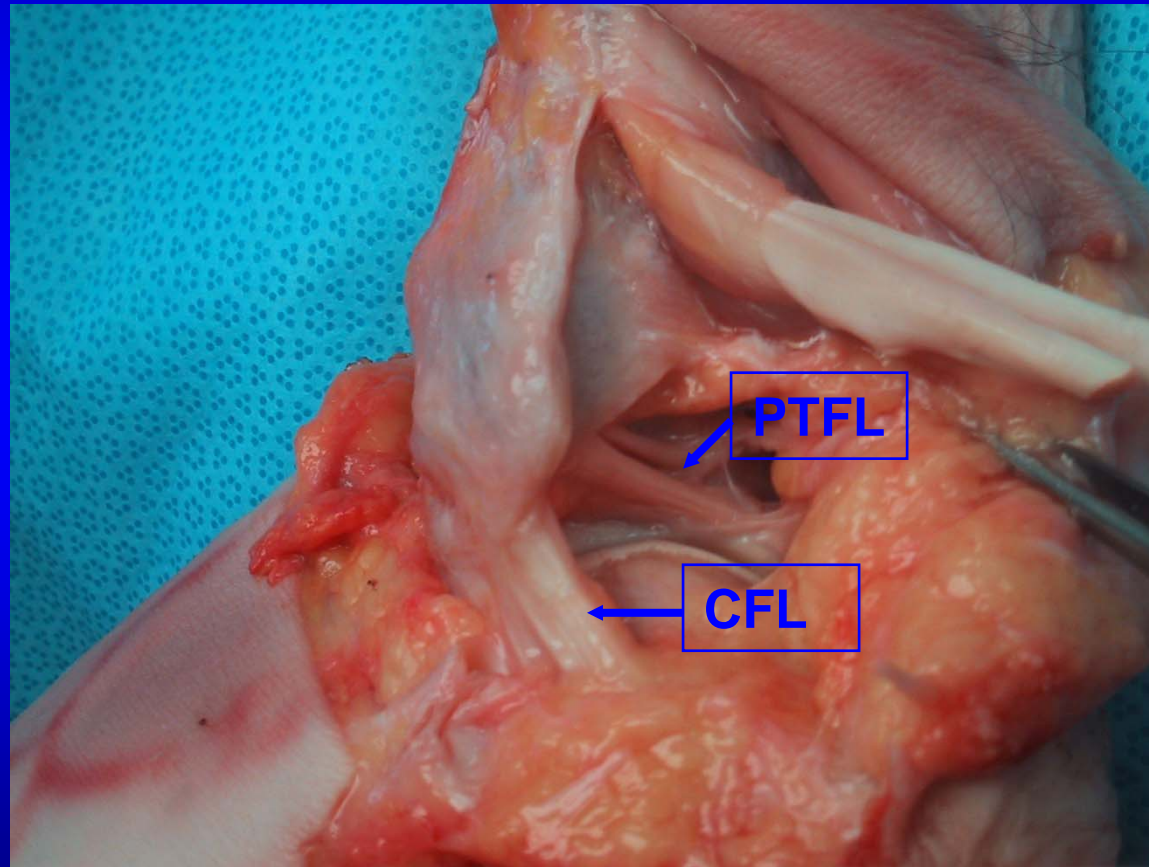
# Lateral Ligaments

Foot



Leg

# Posterolateral Ligaments



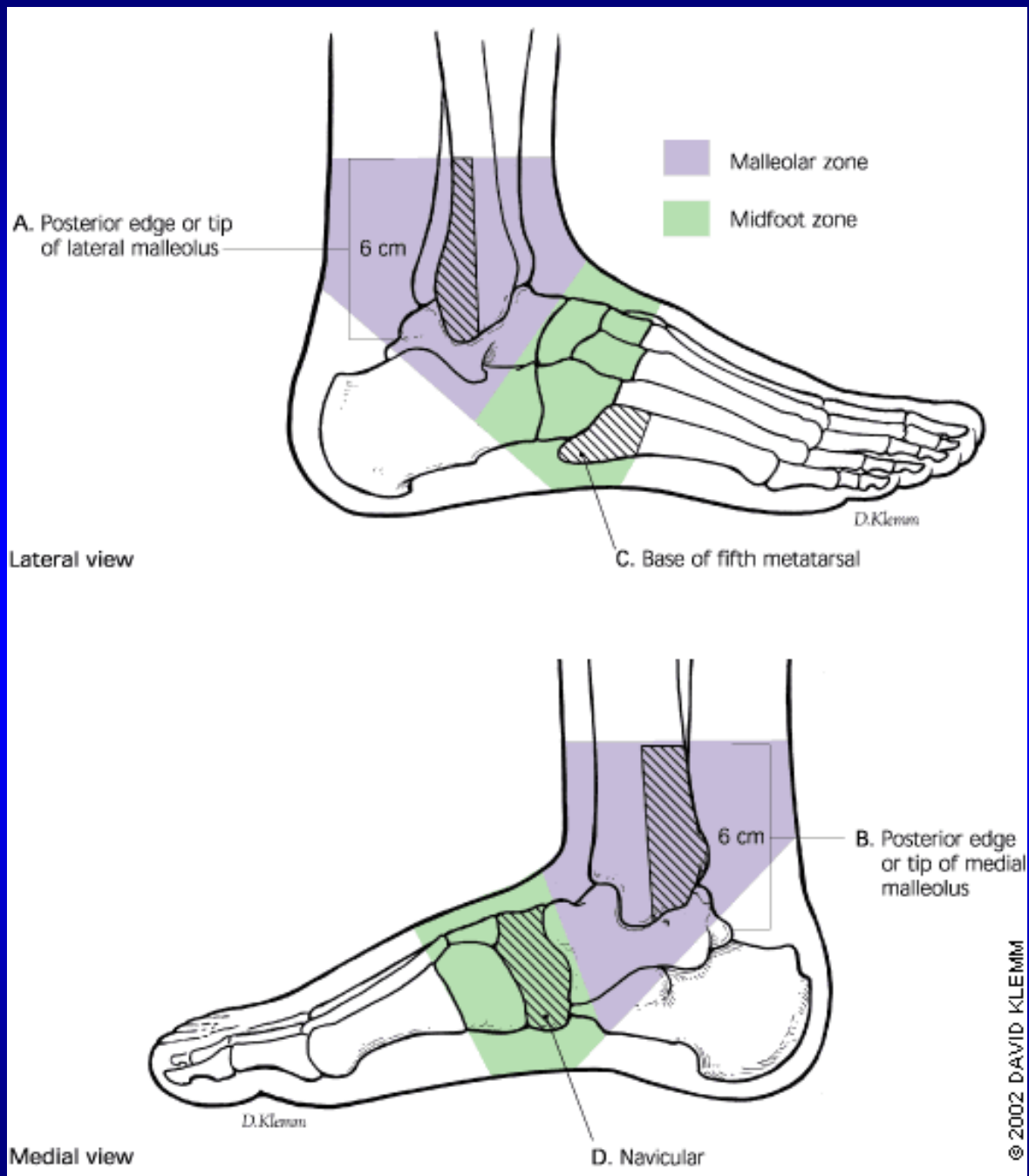
- After physical exam?

# Ottawa foot/ankle rules

- Prospectively validated data
  - Reduces unnecessary radiographs by 30% in ER
  - Requires 1 positive to order an XR
- Tender points (4)
- Ability to bear weight (4 successive steps)
- Age over 55



# Ottawa foot/ankle rules: Tender zones indicating XR's needed



# Grading

- Grade 1 – Stretching of ATFL
  - Mild tenderness.
  - No evidence of mechanical instability.
- Grade 2 – Complete tear of the ATFL and partial injury of CFL.
  - Moderate tenderness.
  - Moderate laxity with anterior drawer, talar tilt test normal.
- Grade 3 – Complete rupture of ATFL and CFL.
  - Severe tenderness.
  - Anterior drawer test and talar tilt test grossly positive.

# Nonsurgical Treatment

- Treatment of choice for all grades of lateral ankle ligamentous injury.
- Grades 1 and 2
  - Elastic wrap, short period of weight-bearing immobilization in a removable boot, ice, range-of-motion exercises.
  - Neuromuscular training – peroneal muscle and proprioceptive training
- Grade 3
  - Extended period of immobilization in weight-bearing boot may be necessary.

# What does the literature say?

- 9 RCTs (level 1 evidence) comparing functional bracing to cast immobilization in the treatment of acute ankle sprains (grade not specified)
- Results for 5 outcomes:
  - Return to work/sport: roughly equivalent (about 90%)
  - Time to return to work: functional bracing slightly better in 4/5 studies

# What does the literature say?

- Results (continued):
  - Subjective instability: slightly better for bracing in 3/5 studies
  - Reinjury: Better with bracing (RR=0.5-0.84)
  - Satisfaction: Better with casting (20% versus 5-15%)
  - *Jones, Amendola. CORR. 2007.*

# Sequelae of ankle instability

- Up to 60% of patients continue to experience symptoms.
- Instability
  - Muscular weakness – neuromuscular rehab
  - Ligamentous instability - surgery
- Pain - continue the search

## Case #2

- 17yo female with lateral ankle pain for 3 years after a left ankle sprain. She may have tweaked it a couple of times but can't quite remember. She played volleyball in braces and tolerated it okay, but now her foot bothers her most of the time.
- PMHx: healthy
- PE: tender laterally over sinus tarsi

What's the differential diagnosis?



# Differential Diagnosis

- Fracture of the lateral process talus
- Fracture of anterior process calcaneus
- Osteochondral injury
- Loose body
- Peroneal tendon tear
- Peroneal tendon subluxation
- Traction injury to SPN
- Arthritis

# What does our patient have?

- XR:

# Tarsal coalition

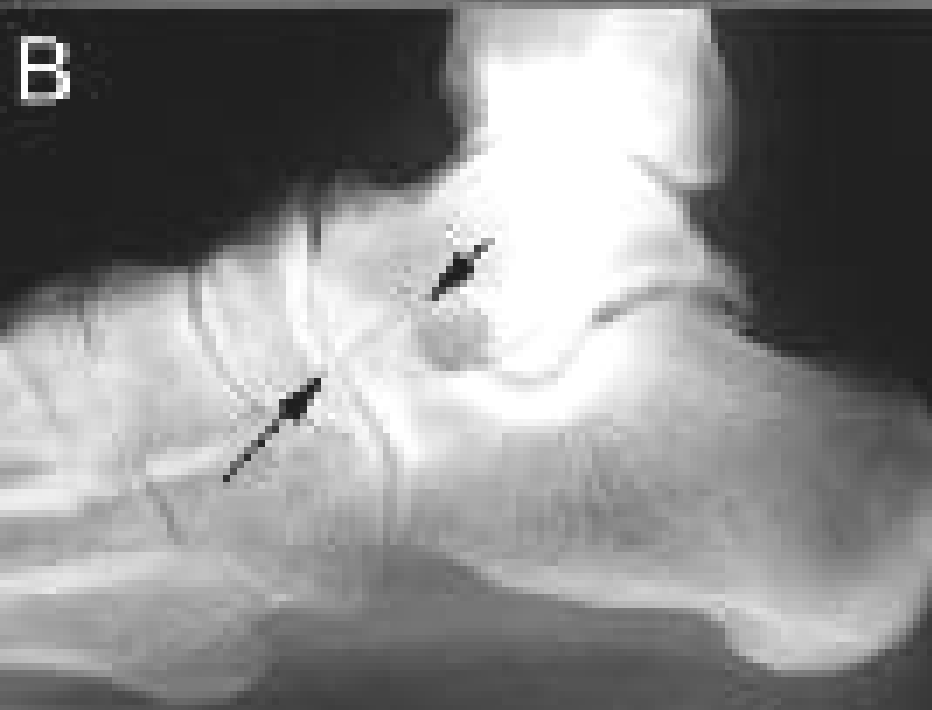
- What is it?
- Not completely known but it seems to be a failure of segmentation of tarsal bones and formation of normal articular cartilage
- Circumstantial evidence from fetal feet shows intertarsal bridging supporting that etiology

# Tarsal Coalition

- Incidence: 1% - unknown how many are asymptomatic with a coalition
- Bilaterality: 50-60%
- Genetics: autosomal dominant with high but not complete penetrance

# Tarsal coalition

- Radiographic signs
  - Anteater
  - Talar beaking
  - C-sign





# Tarsal coalition

- Treatment
  - Conservative
    - Period of casting
    - Inserts
  - Surgical
    - Calcaneonavicular – resection with EDB interposition graft
    - Talocalaneal – resection with fat graft versus fusion



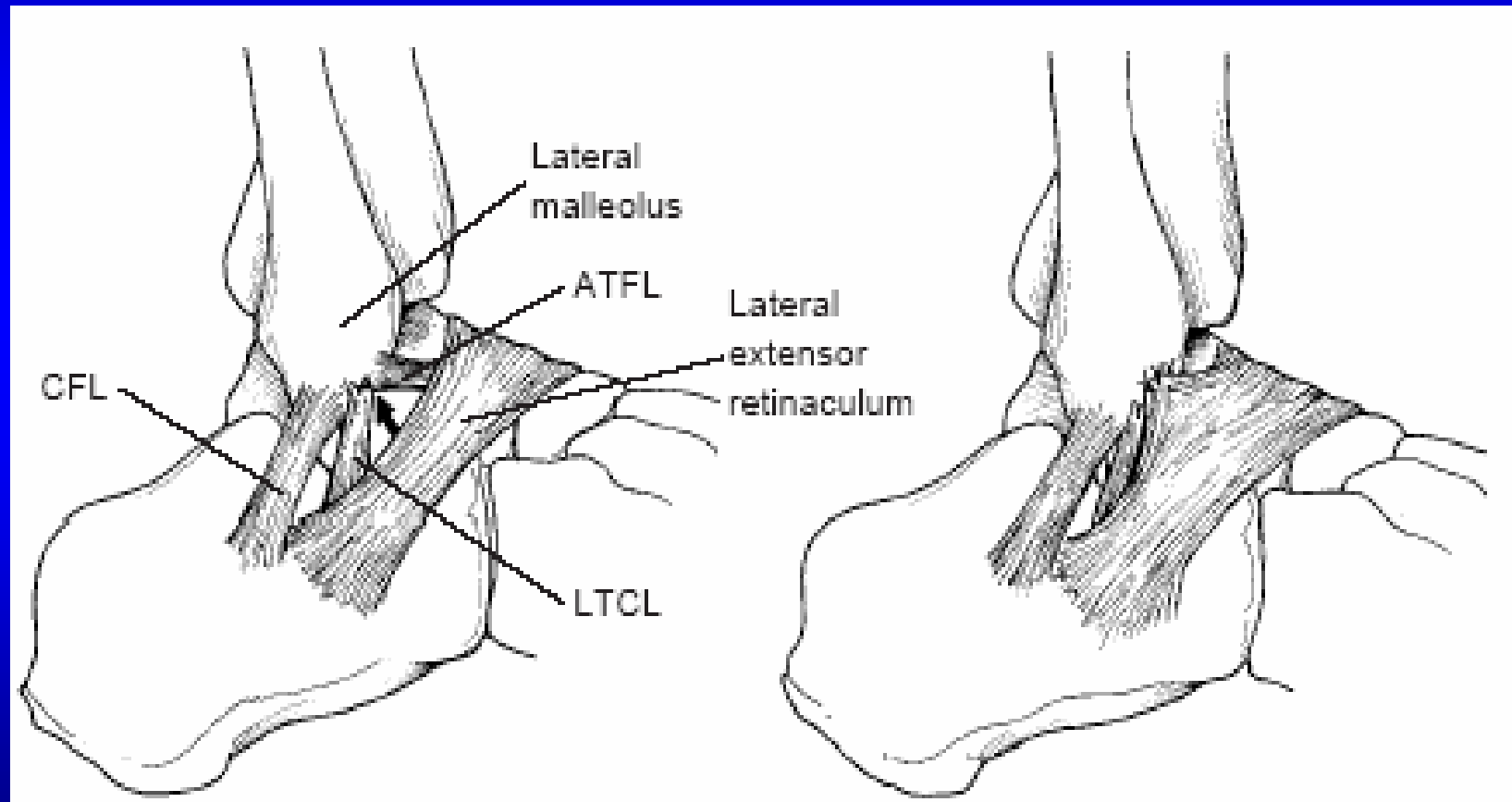
# Instability

- Mechanical – ligamentous laxity
- Functional – muscular weakness
- Initial treatment involves therapy program for peroneal muscle strengthening and proprioceptive training.
- Successful in 90%

# Gould Modification of Broström Repair

- ATFL, CFL = condensations of capsule
  - usually attenuated, elongated
- Direct repair (shortening) of ATFL, CFL
- Reinforce repair with
  - (i) inferior extensor retinaculum
  - (ii) periosteal sleeve distal fibula

# Gould Modification of Broström Repair



# Outcomes of Modified Broström

- 91% good or excellent  
Messer, 2000 FAI
- 27/28 good or excellent  
Hamilton, 1993 FAI

# Mechanism

- Position of instability in plantar flexion and inversion.
  - Narrow diameter of the talus posteriorly.
- Failure of:
  1. Anterolateral joint capsule
  2. ATFL
  3. CFL

# Anterior Drawer Stress X-Ray

- Posterior edge tibia to posterior edge talus.
- 5mm greater than opposite side or 9mm absolute value.
- Highly variable and not useful.

– *Clin J Sport Med 1999*

