# PrePodiatryStudy Case Studies

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# Lateral Ankle Stabilization

# Case

HPI: Patient is a 23-year-old female who presents to the clinic with pain in her right ankle. Patient states she is a hip-hop dance instructor and at a gym, and she hurt her ankle during a class. She states her foot turned inward and she had a sharp pain. Now, she is having 4/10 pain, but it increases to an 8/10 when she turns her foot inwards. Patient is having difficulty working. Pain is localized to the outside of her ankle. She has been trying to ice her ankle and taking ibuprofen, which helps some. Patient also states she has noticed some popping in her ankle recently.

What do you want to know next?

# Past Medical History

PMH:

- Illnesses: Denies
- Meds:  Birth control, vitamin supplements
- Allergies: Sulfur drugs
- FH: DM and HTN
- SH: Denies smoking and illicit drugs. Dance instructor. Social drinking. Lives at home with roommate

What do you want to know next?

# Physical Exam

- Vascular
  - DP/PT palpable pulses
  - +1 pitting edema of left ankle
- Dermatologic
  - Mild increase in temperature to lateral ankle
  - Erythema to the anterior and distal lateral malleolus
- Neurologic
  - 10/10 sensation with 10g SWMF
  - Light touch intact
- Musculoskeletal
  - Pain on ankle range of motion
  - Pain with palpation to lateral gutter and distal fibula
  - 4/5 weakness with eversion but all other muscles are 5/5
  - Anterior drawer positive
  - Talar tilt 12 degrees on right and 7 degrees on left

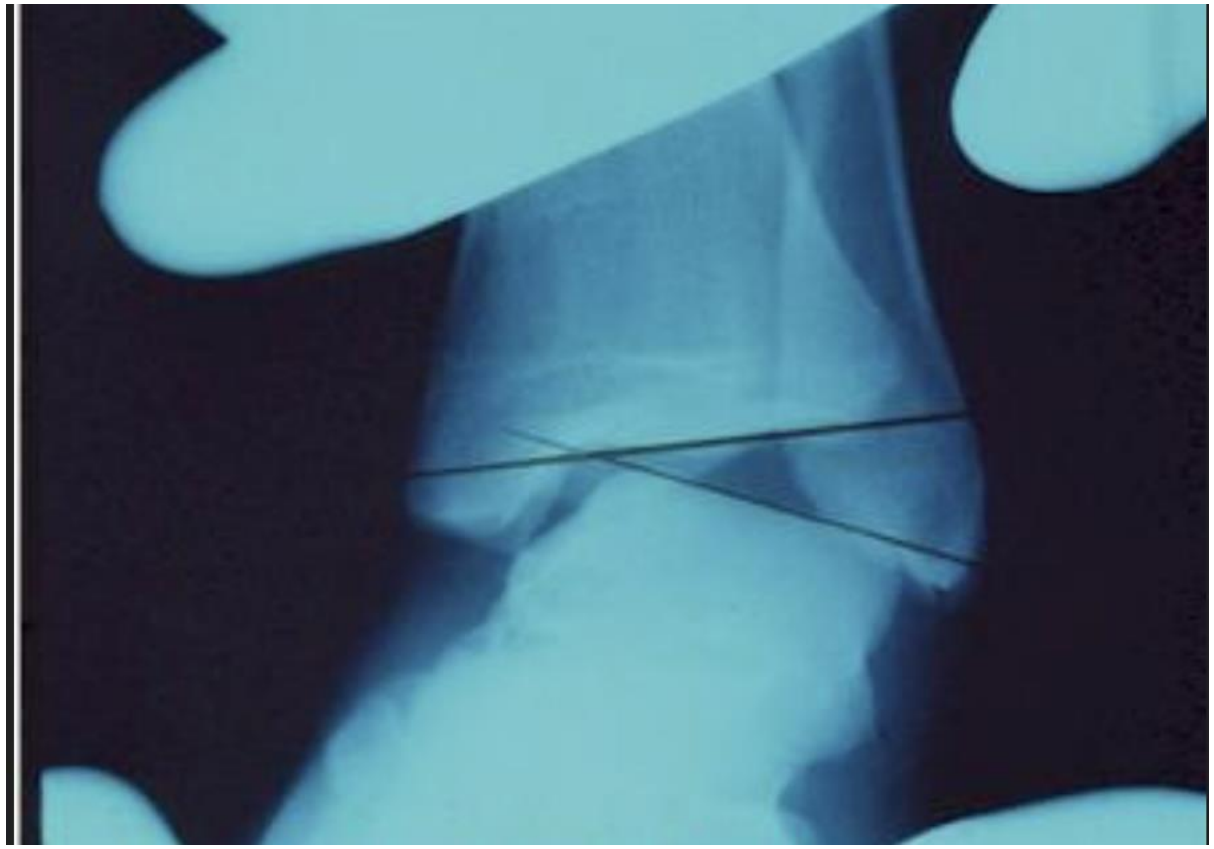
# Clinical Image

What clinical tests are being shown?

# Read This X-Ray

# Imaging

Read the image.



# Imaging

Read the image.

# Imaging

- Anterior-Posterior and Medial-Oblique Ankle
- Talar tilt test

# What's your conservative plan, Doctor?

# Conservative Plan

- What are your initial treatments prior to surgical interventions?
- What justifies surgical intervention?

# What's your surgical plan, Doctor?

# Surgical Plan

- What are the options for surgically correcting a patient with lateral ankle instability?

# Surgical Post-Operative Plan

- Pain Meds?
- Post-Op protocol?
- Return to clinic in how many days?
- When to take sutures out?
- When to take X-rays?
- When do you start weightbearing? Why?
- When to return to regular shoe?

# Rapid Fire Questions

# Rapid Fire Questions

- What 3 ligaments are most commonly involved in the lateral ankle sprain?
- What is the most common ligament injured?
- What is the strongest lateral ankle ligament?
- What are the attachments of the ATFL?
- What are the attachments of the CFL?
- The CFL prevents what joint movement?
- Which tendons cover the CFL?
- What is the angle between the ATFL and the CFL?

# Rapid Fire Questions

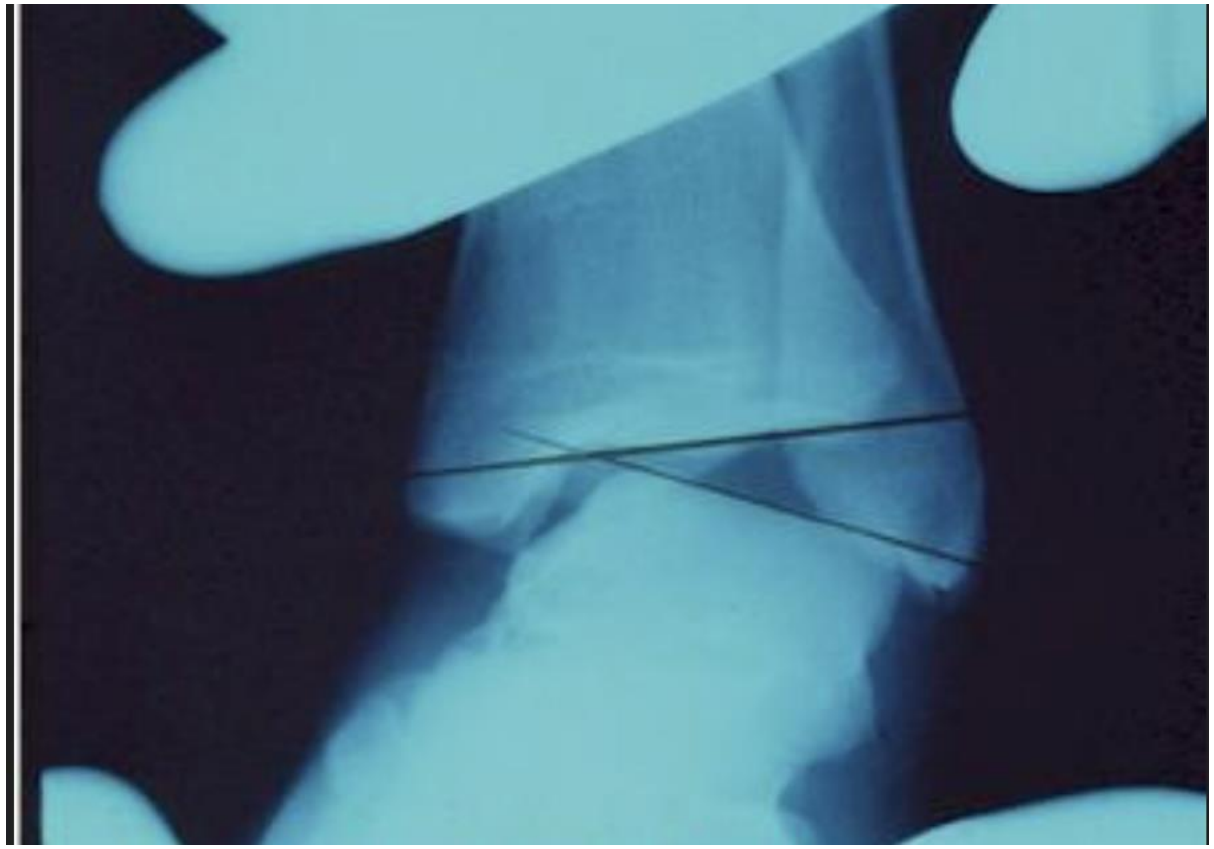
- What is a mechanical ankle sprain the result of?
- What is the most common clinical complaint of a functional ankle sprain?
- Which type of ankle sprain (mechanical or functional) has positive radiographic evidence?
- Which type of ankle sprain (mechanical or functional) results in neuromuscular damage?
- How can a mechanical sprain lead to a functional sprain?
- Surgical techniques are designs or address which etiology of chronic ankle sprains?
- What imaging is best to examine lateral ankle instability or sprains (aka imaging of choice)?
- What radiographic images are utilized in lateral ankle instability?

# Answers

# Imaging

## Read the image.

"This is a radiograph of a skeletally mature female's ankle in the AP and mortise view. No fractures are noted. No cortical or bony irregularities. Medial and lateral gutters are congruent. No syndesmotic gapping. No displacement or subluxation noted. Overall, relatively unremarkable."



# Imaging

## Read the image.

"This is a radiograph of an AP inversion stress radiograph of a skeletally mature female. Subluxation of the tibiotalar joint with stress inversion. Talar tilt is estimated to be approximately 29 degrees. Indication of ligamentous laxity or rupture of of lateral ankle ligaments, specifically the CFL."

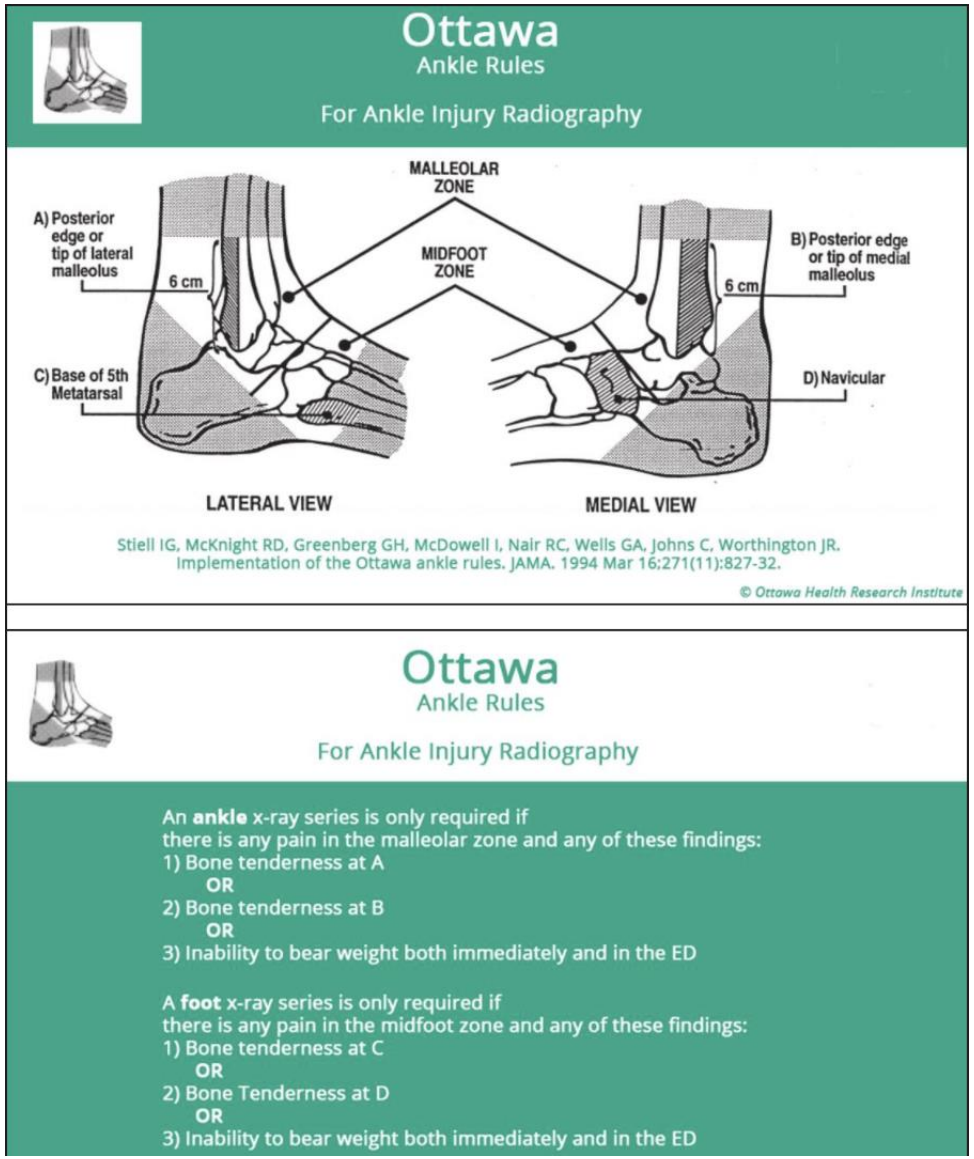
# Imaging

- Anterior-Posterior View (AP View)
  - What radiograph can you obtain in the ED?
    - ED rotation stress view
      - Used to determine if syndesmosis is disrupted
  - Classify the injury?

| Classification of Low Ankle Sprains | | | |
|---|---|---|---|
| | *Ligament disruption* | *Ecchymosis and swelling* | *Pain with weight bearing* |
| Grade I | none | minimal | normal |
| Grade II | stretch without tear | moderate | mild |
| Grade III | complete tear | severe | severe |

# Imaging

- Anterior-Posterior View and Medial-Oblique View
  - What are the Ottawa Radiology Rules?



# Conservative Plan

- What are your initial treatments prior to surgical interventions?
  - Rest, Ice, Elevation, Compression, Physical Therapy, Immobilization (in walking boot for 1 week initially with passive early ROM)
    - Physical therapy should focus on motion exercises and progress to strength and proprioception
    - Later physical therapy goals should focus on neuromuscular training emphasizing in the peroneal tendons and proprioception

- What justifies surgical intervention?
  - Failure of conservative treatment

# Surgical Plan

- Options:
  - Anatomical reconstruction (Brostrom-Gould)
  - Tendon transfer with tenodesis (Watson-Jones, Chrisman-Snook, Colville, Evans)
    - Non-anatomic reconstruction
  - Arthroscopy (for impingement lesions)

# Surgical Post-Operative Plan

- Pain Meds?
  - Tylenol if possible, Oxycodone 5mg if needed for severe pain
- Post-Op protocol?
  - CAM boot NWB for approximately 2 weeks, PT, passive ROM
- Return to clinic in how many days?
  - 3 to assess for infection
- When to take sutures out?
  - 10-14 days
- When to take X-rays?
  - If no bony work, none.
- When do you start weightbearing? Why?
  - Grade 1 and 2= 1-2 weeks, Grade 3= 3-4 weeks
- When to return to regular shoe?
  - 3-4 weeks

# Rapid Fire Questions

- What 3 ligaments are most involved in the lateral ankle sprain?
  - ATFL, CFL, posterior talofibular ligament
- What is the most common ligament injured?
  - ATFL
- What is the strongest lateral ankle ligament?
  - posterior talofibular ligament
- What are the attachments of the ATFL?
  - Anterior fibula to near the lateral articular facet of the talus
- What are the attachments of the CFL?
  - Lateral malleolus to the trochlear eminence of the calcaneus

# Rapid Fire Questions

- The CFL prevents what joint movement?
  - Hyper inversion of the STJ
- Which tendons cover the CFL?
  - Peroneus longus and brevis
- What is the angle between the ATFL and the CFL?
  - 105 degrees
- What is a mechanical ankle sprain the result of?
  - Ligamentous laxity leading to elongation/rupture of the ligaments
- What is the most common clinical complaint of a functional ankle sprain?
  - Constant instability

# Rapid Fire Questions

- Which type of ankle sprain (mechanical or functional) has positive radiographic evidence?
  - Mechanical
- Which type of ankle sprain (mechanical or functional) results in neuromuscular damage?
  - Functional
- How can a mechanical sprain lead to a functional sprain?
  - The ligamentous laxity and trauma from sprains lead to an injury of the mechanoreceptors of the ligaments and musculature
- Surgical techniques are designs or address which etiology of chronic ankle sprains?
  - Mechanical
- What imaging is best to examine lateral ankle instability or sprains (aka imaging of choice)?
  - MRI
- What radiographic images are utilized in lateral ankle instability?
  - Stress radiographs

# PrePodiatryStudy
# Thank You