Differential Diagnosis and Management of Lateral Ankle Pain

Dr. Joseph N. Daniel
Associate Professor of Orthopaedic Surgery
Jefferson Medical College
Foot and Ankle Service, The Rothman Institute
Philadelphia, PA
Residency Program Director
Rowan University SOM
Stratford, NJ
Disclosure

Stryker
Wright Medical
Objectives

• Basic Ankle Anatomy + Biomechanics
• History + Physical Examination
• Imaging; Modalities of Work Up
• Initial Management; Recommendations for Referral
Anatomy and Biomechanics

• Ankle Joint
  – hinge design
  – complex of bony anatomy + soft tissue structures
    • tibia, talus, fibula
    • ligaments, tendons, capsule + retinaculum
Incidence

• Most common orthopaedic injury
• 30,000 acute ankle sprains daily in USA
• 20 - 40% of ankle sprains result in chronic instability
Not all laterally based ankle pain is an ankle sprain.
History

• Accurate Description of MOI
  – important to determine if additional pathology exists
  – twisting injury
• PF + I
  – daily activity
  – sporting events
    » basketball
    » soccer
    » football
    » volleyball
History

• VAS
• Recurrent injury / treatment
Differential Diagnosis

• Keep it Simple
  – fracture
  – ligament
  – tendon
  – osteochondral pathology
  – nerve
  – combination

If you can’t explain it *simply*, you don’t understand it well enough.

– Albert Einstein
Radiographs

• Ottowa Rules for Imaging
  – TTP bone
  – deformity / ecchymosis
  – unable to ambulate > 5 steps

• WB (assumed WB) AP, lateral, Mortise views ankle
• WB (assumed WB) AP, lateral, oblique views foot
Physical Examination

• Soft Tissue Envelope
  – swelling
  – ecchymosis
  – skin tenting
  – fracture blisters
  – compartments
  – deformity
Physical Examination

- Vascular Status
- Neurologic Status
  - sensation
  - motor function
Physical Examination

- Palpation
  - bone landmarks
    - both malleoli
    - lateral process talus
    - anterior process calcaneus
    - cuboid
    - 5th MT base
Physical Examination

- Palpation
  - soft tissue
  - lateral ligament complex
  - deltoid ligaments
  - AITFL
  - peroneal tendons
Physical Examination

- ROM Ankle + Subtalar Joints
- Ankle Anterior Drawer Test
  - internal + external rotation
- Subtalar anterior Drawer Test
  - neutral rotation
- External Rotation Test / Hopkinson Squeeze Test
- Plantar Flexion + Inversion Test

* clinical Dx
# MRI assisted Dx
Differential Diagnosis

- Fracture
- Ligament
- Tendon
- Osteochondral Pathology
- Nerve
- Combination
Differential Diagnosis

- Fractures
  - avulsion fracture distal fibula
  - lateral process talus fracture
  - anterior process calcaneus fracture
  - cuboid fracture
  - 5th MT base fracture

* plain films; rarely MRI
Differential Diagnosis

- Ligament Injury
  - ATFL *
    - TTP
    - anterior drawer N + 20 degrees PF
  - calcaneofibular ligament (CFL) *
    - TTP
    - anterior drawer N + 20 degrees DF
  - posterior talofibular ligament (PTFL) #
    - TTP
    - anterior drawer in all positions

* clinical Dx
# MRI-assisted Dx
Differential Diagnosis

- Ligament Injury
  - cervical ligament (CL) #
  - TTP sinus tarsi
  - Anterior drawer N

* clinical Dx
# MRI-assisted Dx
Differential Diagnosis

- **Ligament Injury**
  - distal tibiofibular syndesmotic complex
    - anterior inferior tibiofibular ligament (AITFL) *
      - TTP
      - external rotation test / Hopkinson squeeze test
    - posterior tibiofibular ligament #
    - transverse tibiofibular ligament #
    - interosseous ligament #

* clinical Dx
# MRI-assisted Dx
Differential Diagnosis

- Tendon Injuries
  - Peroneus Brevis / Peroneus Longus
    - inflammation *
    - degeneration #
    - intra-substance tears # $
    - complete ruptures *
    - subluxation / dislocation * $
      - plantar flexion + inversion test

- * clinical Dx
- # MRI assisted Dx
- $ dynamic US
Differential Diagnosis

- Osteochondral Pathology
  - ankle joint
  - subtalar joint
    - TTP
    - catching; clicking
  * not evident on plain film → CT
  * evident on plain film → MRI
Differential Diagnosis

• Neural Injuries
  – superficial peroneal nn * ^
  – sural nn * ^
  • Tinel’s sign

• * clinical Dx
• ^ EMG assisted Dx
<table>
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<th>DIAGNOSIS</th>
<th>INITIAL TREATMENT</th>
<th>WORK-UP</th>
<th>P.T.</th>
<th>REFER</th>
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“BE ASHAMED TO DIE UNTIL YOU HAVE DONE SOMETHING GOOD FOR MANKIND”

Dr. Vernon Johnson, American Pastor during the Revolutionary War