Differential Diagnosis and Management of Lateral Ankle Pain

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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
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

The Superficial Peroneal Nerve

- * clinical Dx
- ^ EMG assisted Dx
<table>
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<tr>
<th>DIAGNOSIS</th>
<th>INITIAL TREATMENT</th>
<th>WORK-UP</th>
<th>P.T.</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