Diagnosis and Treatment of Ankle Instability

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Disclosure

Wright Medical
Objectives

• Differential Diagnosis
• Incidence
• Anatomy
• Mechanisms of Injury
• Clinical Examination
• Imaging
• Treatment Options / Timing of Surgery
• Complications
Differential Diagnosis of Laterally Based Ankle Pain

• Fractures
  – avulsion fracture distal fibula
  – lateral process talus fracture
  – anterior process calcaneus fracture
  – cuboid fracture
  – 5th MT base fracture
Differential Diagnosis of Laterally Based Ankle Pain

• Ligament Injuries
  – ATFL
  – CFL
  – PTFL
  – syndesmosis injury
    • AITFL
  – lateral talocalcaneal ligament
Differential Diagnosis of Laterally Based Ankle Pain

• Tendon Injuries
  – Peroneus Brevis / Peroneus Longus
    • inflammation
    • intra-substance tears
    • complete ruptures
Differential Diagnosis of Laterally Based Ankle Pain

- Osteochondral Pathology
  - ankle
  - subtalar
Differential Diagnosis of Laterally Based Ankle Pain

• Neural Injuries
  – superficial peroneal nn
  – sural nn
Incidence

- Most common orthopaedic injury
- 30,000 acute ankle sprains daily in USA
- Chronic ankle instability much less common
- Multiple factors involved in evolution of lateral ankle instability
  - varus heel
  - generalized ligamentous laxity
  - peroneal muscle weakness
  - repetitive axial and inversion loads
Incidence

• M > F ?
• Avg age:
Anatomy and Biomechanics

**Ankle Joint**
- complex of bony anatomy + soft tissue structures
  - ligaments
  - capsule
  - retinaculum
Anatomy and Biomechanics

• Ligaments
  – anterior talofibular ligament (ATFL)
  – calcaneofibular ligament (CFL)
  – posterior talofibular ligament (PTFL)
  – cervical ligament (CL)
  – interosseous ligament (IL)
Anatomy and Biomechanics

• Ligaments
  – distal tibiofibular syndesmotic ligament complex
    • anterior tibiofibular ligament
    • posterior tibiofibular ligament
    • transverse tibiofibular ligament
    • interosseous ligament
Anatomy and Biomechanics

- Capsule
- Inferior Extensor Retinaculum
Mechanisms of Injury

- Twisting Injury
  - PF + I
    - daily activity
    - sporting events
      - basketball
      - soccer
      - football
      - volleyball
History / Clinical Examination

- **Accurate Description of MOI**
  - important to determine if additional pathology exists

- **Initial Examination**
  - best if performed immediately
  - usually seen 24-48 hrs later
History / Clinical Examination

• **Initial Examination**
  • swelling
  • pain (VAS)
  • ability to WB and push-off injured part
  • palpation all bony landmarks
    – both malleoli
    – lateral process talus
    – anterior process calcaneus
    – cuboid
    – 5th MT base
• Initial Examination
  • PROM / AROM ankle, subtalar joints
  • palpation of ATFL, CFL, peroneal tendons (? subluxation; dislocation), sinus tarsi, deltoid ligament, distal syndesmotic ligaments
  • anterior drawer (internal + external)
  • talar tilt (?)
Radiographs

- WB (assumed WB) AP, lateral, Morise views ankle
- WB (assumed WB) AP, lateral, oblique views foot
Types of Instability

• Mechanical
  – ROM beyond normal

• Functional
  – feeling of impending instability or frank episode
Classification

- **First Degree**
  - partial or complete rupture ATFL

- **Second Degree**
  - complete rupture ATFL + partial or complete rupture CFL

- **Third Degree**
  - complete rupture ATFL, CFL + partial or complete rupture PTFL
Treatment

• Based on degree of injury + presence of any associated injuries
Treatment

• Grade I / Grade II:
  – RICE
  – air cast or lace up ankle splint
  – with edema, cam boot
  – functional rehab P.T. protocol
  – RTA 2-3 wks
**Treatment**

- **Grade II / Grade III:**
  - same; controversial
  - functional rehab P.T. protocol
  - surgery:
    - ankle arthroscopy + synovectomy +/- excision loose bodies +/- abrasion chondroplasty + Brostrom-Gould lateral ankle ligament complex reconstruction
  - RTA up to 12 wks
Thank you

“BE ASHAMED TO DIE UNTIL YOU HAVE DONE SOMETHING GOOD FOR MANKIND”
Dr. Vernon Johnson, American Pastor during the Revolutionary War