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
History / Clinical Examination

- **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