Diagnosis and Treatment of Ankle Instability

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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