Traumatic Injuries to the Foot and Ankle

Orthopaedics for the Primary Care Provider

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Disclosure

• I have no relevant financial relationships to disclose.
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Goal

• Understand the basics of foot and ankle trauma
• Identify problems with easy effective treatment options
• Basics to know when to refer and keep you out of trouble

Foot and Ankle Injuries

• Most common anatomic region for emergency room visits
• Greatest disability following multitrauma
• Most common site injured among professional football and basketball players
• Most common musculoskeletal cause for work related days off

Lisfranc Fractures and Joint Diastasis

Mechanism for Injury

• Indirect
• Occurs in sports
• Occurs in life
• Often purely ligamentous – predictable pattern
Diagnosis
- Radiographs
  - 20% of these injuries are “missed”
  - Look for subtle signs
  - Stress to identify ligamentous disruption

Radiographs
- Standing AP is good stress test!

Diagnosis
- MRI
  - Helpful if a vague presentation; “sprain”
  - Assists in treatment and prognosis

Treatment Goal
- Obtain/maintain precise anatomic reduction
- Preserve a painless, stable, plantigrade foot

Surgical Indications
- Unstable pattern confirmed by stress, regardless if anatomic aligned NWB

Other Case Scenarios
- Lisfranc sprain
  - Pain, tenderness but normal X-rays & stress views
  - MRI positive

Treatment
- Lisfranc sprain
  - SLWC x 2 weeks
  - Serial exam and WB X-rays
  - Return with protection and when symptoms allow

Conclusion
- High index of suspicion
- Standing stress X-rays/MRI
- All unstable injuries: open reduction/screw fixation
Ankle Sprains
- Vast majority are simple “inversion” twisting types

Ankle Sprains
- Classic ankle sprains can be rehabbed and then protected with a brace
- Try to wean out of brace ASAP
- Generally RTP within 2-3 weeks

Ankle Sprain
- Residual complaints
- Swelling
- Pain
- Instability
- Fear of giving way
- Stiffness

Ankle Pain
- ASSESSMENT
- What is causing the pain?
  - cartilage
  - tendon
- Ankle Injection
- MRI-Normal!?!?

Surgical Consideration
- Persistent pain and/or instability after four months of conservative care

High Ankle Sprains

Introduction – Ankle Sprains
- High ankle sprains are much different!
  - Anatomy
  - Mechanism
  - Treatment
  - Recovery
22 High Ankle Sprain
- Continuum of injury = minor stretch to a frank separation of the syndesmotic ligament
- Interval between the tibia and fibula widens (diastasis)

23 High Ankle Sprain
- Stress X-rays help to make the diagnosis
  - Look for separation between the tibia and fibula
  - Widening in medial clear space
  - May need full length tib-fib films to evaluate fibular shaft fracture

24 High Ankle Sprain
- Treatment
  - No separation/instability
    - Cast or boot
    - Weight bear immediately
    - Return to play 2-3x longer than classic ankle sprain
      - 6-8 weeks average

25 High Ankle Sprain
- Treatment
  - Separation/instability
    - Arthroscopic debridement
    - Screw fixation

26 High Ankle Sprain
- Rehab
  - Potential for recurrent injury
  - No “good” protective brace available

27 Achilles Rupture
- Largest tendon in the body
- Most common tendon rupture in the foot and ankle
  - Diagnosis
    - History
    - Physical exam
28 **Physical Exam**

29 **Metatarsal Fractures**
- Non-displaced – Immobilize, WBAT
- Displaced – Treatment depends on
  - Location – base, shaft, neck, head
  - Age, functional level
  - Open, closed, soft tissue injury

30 **Metatarsal Fracture**
- Generally stable fractures
- Anatomic Alignment not Necessary except sagittal plane
- Invariably Heal
- Early Weightbearing
- Potential Problems
- Multiple metatarsal fractures
- Lis franc injury
- Change in weight distribution

31 **Metatarsal Stress Fracture**
- Repetitive sub-maximal Stress Level
- Dancer, gymnast, marathon runner
- X-rays Initially Normal
  - Bone Scan
  - Immobilize
  - Activity modification
  - RE-XRAY for continued pain/nl X-rays

32 **Fifth Metatarsal Fractures**

33 **Fracture Types**
**Avulsion Fracture**

34 **Treatment**
- Almost always treated non-operatively
- Walker boot-WBAT
- Transition into a stiff soled shoe
- Can take a long time to heal (3-6 months)
- Consider a bone stimulator
- Rarely go onto non-union requiring surgery
- Indication for surgery => PAIN

Jones Fracture
- Definition
  - Best defined as a fracture of the metaphyseal-diaphyseal junction at or distal to the 4/5 intermetatarsal articulation

Jones Fracture
- Nonoperative Treatment
  - Historical
    - 4-6 weeks NWB cast
    - 4-6 weeks WB cast
  - Personal
    - WB cast 4-8 weeks

Jones Fracture
- Nonoperative Treatment
  - Stress fractures
    - 72-75% heal in 5 months
    - 50% fail to heal or refracture

Jones Fracture
- Treatment
  - Operative indications
    - Athlete
      - Acute/stress fx
    - Nonunion
    - Refracture
    - Cavovarus = lateral overload
Operative goals
• Expedite healing
• Quicker recovery; easier rehab
• Decrease refracture risk

40 Toe Fractures
• Barefoot
• Dark Bedroom
• Furniture Post
• “Buddy Tape”
• Pin it if Open or Displaced

41 Talus Fractures

42 Calcaneal Fractures

43 Thank You