Common Foot Injuries
Diagnosis and Treatment

Susan M. Ott DO FACSM
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Common Foot Injuries

- Skin/Nails
  - Lacerations
  - Blisters
  - Contusions
  - Nail loss
  - Infection
Common Foot Injuries: Skin

- Lacerations
  - Not too common
  - Could have a penetrating injury from projectile like a javelin
  - Penetrating injury stepping on something in a shoeless sport
  - Treat like any other laceration
  - Protect from becoming infected
Common Foot Injuries: Skin

- Blisters
  - Very common in almost all shoed sports
  - Soccer
  - Endurance sports
  - Shoe fit
  - Can be quite debilitating during the race
Common foot injuries: Skin
Common Foot Injuries: Skin

- Blisters: Treatment
  - Pop but do not unroof
  - Cover with something that will stick
  - J&J blister pads
  - Athletic tape and antibiotic ointment
  - Second skin
  - Duct tape
Common Foot injuries

Skin
Common Foot Injuries: Skin

- Blisters: Prevention
  - Proper shoe fit
  - Proper socks
  - Duct tape
  - Body glide
  - Vaseline
  - Moleskin
  - Second skin
Common Foot Injuries: Skin

- Infection
  - Skin: Secondary to blisters or laceration
  - Nails (paronychia): Secondary to subungual hematoma or trauma
  - Athlete’s foot
- Cellulitis
- Other
Common Foot Injuries: Skin

- Infections should be treated with appropriate antibiotics
- Sometimes need I&D but rarely in the athlete
- Prevent reoccurrence
Common Foot Injuries: Nail injuries
Common Foot Injuries: Nail injuries

- Acute or repetitive trauma
  - An occur in any shoed sport
  - Common in endurance athletics
  - Common in dancers
  - Stop and go sports
  - Shoe fit
- Injury to the underlying nail bed
- Crush injury on or off the playing field
- Can become infected
Common Foot Injuries: Nail injuries

- Underlying nail matrix is damaged
- Good new nail will push the bad old nail off the top
- Maintain the old nail as long as possible
- Subungual hematomas should be sterilely drained
Common Foot Injuries: Skin

- Contusions
- Can happen in almost any sport
- Off the field injury
- Hematoma could become infected
- Treat as you would any other contusion
Common Foot Injuries

- **Turf Toe**
  - Injury to the first Metatarsophalangeal (MTP) joint
  - Common MOI is hyperextension injury with a force on the heel
  - Results in a tear of the capsule on the metatarsal neck and a compression injury to the dorsal articular surface of the metatarsal
Common Foot Injuries

- **Turf Toe**
  - Common football injury
  - Increased incidence on artificial turf especially if the turf is old
  - History of a single or multiple injuries to the MTP joint
Common Foot Injuries

- Turf Toe: Grading System Clanton and Ford
  - Grade 1 capsular stretch
  - Grade 2 partial tear of the capsule
  - Grade 3 Complete tear of the capsuloligamentous complex
Common Foot Injuries

- Turf Toe Treatment
  - RICE
  - Grade 1 taping and stiff insole
  - Grade 2 can require up to 2 weeks of rest
  - Grade 3 may need protected weight bearing and prolonged rest
  - Surgery for instability, large capsular avulsions, traumatic bunion, diastasis of bipartite sesamoid or sesamoid fracture, loose body, retraction of sesamoid
Common Foot Injuries: Ligamentous Injuries

- Other toe ligamentous injuries
  - Rarer
  - Injury to the collateral ligaments of a toe
    - Chronic or acute
  - Non shoed sport
  - Injuries occurring outside of sport
  - Forced adduction or abduction of a toe
  - Recurrent dislocations
Common Foot Injuries: Ligamentous Injuries

- Mid foot injuries
  - LisFrancs fracture dislocation
  - Mid foot injury of the tarsal-metatarsal joints
  - Often a stepped in a hole injury
  - Axial load on a plantar flexed foot
  - Severe swelling and pain
  - Almost always a more severe injury than you think
Common Foot Injuries: Ligamentous injuries

- **LisFrances injury**
  - Get CT to better define the injury if it appears nondisplaced
  - Displaced injuries require surgery
  - Before surgery get the swelling down
    - Respect the soft tissues
  - Can be a sprain without fracture
Common Foot injuries: LisFrances

- Case 1: 34 year old male sustained an injury to his foot while playing with some children in a park. He jumped up and landed in a hole sustaining the injury. He complains of severe midfoot pain and swelling. Was seen in the ER and told he had a sprain.
Common Foot Injuries: Ligamentous injuries

- LisFranks joint
  - Normal radiograph shows the medial border of the 2nd metatarsal lines up with the medial border of the second cuneiform on the AP view
  - Normal radiograph shows the medial border of the forth metatarsal lines up with the medial border of the cuboid
Common Foot injuries: LisFrancs
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Common Foot Injuries

- Radiographs essentially normal but his physical exam and history are highly suspicious for a LisFrancs injury
- Placed in a well padded posterior splint
- Kept non weight bearing
- Sent for CT scan
Common Foot injuries:
Lisfrancs
Common Foot injuries: Lisfrancs
Common Foot Injuries: LisFrancs

- CT showed non-displaced fractures of the 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} metatarsal bases with a non-displaced calcaneous fracture
Common Foot Injuries: LisFrances

- If there is any displacement this is a surgical problem.
- Non displaced can be treated in a non weightbearing cast.
Common Foot Injuries: Ligamentous injuries

- Subtalar joint injury
- Less common
- Can have a sprain or dislocation
- MOI is usually dorsiflexion and supination
- That position places the calcaneofibular ligament under stress, and further supination will lead to its rupture
Common Foot Injuries: Ligamentous Injuries

- **Subtalar joint sprains**
  - Could also occur as a progression of the typical inversion ankle sprain
  - Sometimes difficult to distinguish from lateral ankle instability
  - 10% of chronic lateral ankle instability will have subtalar instability
  - Essentially treated as an ankle sprain is treated
Common Foot Injuries: Tendinous injuries

- Peroneal tendon injuries
- Subluxing/dislocating peroneal tendons
  - Slip over the distal fibula
  - Pronation external rotation
- Peroneal tendon rupture
- Partial tears
Common Foot Injuries: Tendinous

Case 2

- 43 year old special forces officer with complaints of lateral ankle pain and popping
- Has had multiple injuries over the years in combat
- Relates sliding down a hill in Afghanistan and describes a pronation external rotation injury
- Plain radiographs and MRIs read “normal”
Common Foot Injuries: Tendinous

- Case 2 PE:
  - No swelling or gross deformity
  - No instability
  - Strength is intact
  - Subluxe peroneal tendons with resisted eversion
Common Foot Injuries: Tendinous
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Common Foot Injuries: Tendinous Injuries

- **Flexor Hallucis Longus**
  - Common dance injury
  - Passes thru a fibrosseous tunnel between the medial and lateral tubercles of the talus
  - Tendon can become frayed and torn
  - A nodule can develop which prevents smooth passage thru the tunnel
  - Usually treated conservatively
Common Foot Injuries: Tendinous Injuries

- **Achilles**
  - **Tendinitis**
    - Typically overuse injury
    - Most common in running sports and soccer
    - 60% of athletes with achilles tendinitis have foot alignment issues
  - **Rupture**
    - Requires repair
Common Foot Injuries: Tendinous Injuries

- Posterior tibialis
  - More common in older adults
  - Acquired flatfoot
  - Too many toes sign
  - Profound weakness to plantar flexion if torn
  - Don’t really have a great surgery for this
  - Want to catch it as a tendinopathy
  - An athlete could have a tendinopathy
Foot injuries

- Can get compartment syndrome in the foot as well
- Acute or exertional
- Much less common than in the knee or leg
- Surgical emergency in acute cases
Compartment syndrome

- Compartment pressure measuring device
device
- VERY easy to use
- Instructions online with videos
- If you can give an injection you can use this
- Get one at your hospital and know where it is kept
Common Foot Injuries: Bony injuries

- Acute fractures
- Phalanges
- Metatarsals
- Cuboid, navicular, cuneiforms
- Calcaneous, talus
Common Foot Injuries: Bony injuries

- Acute fractures: phalanges
  - Usually can be treated conservatively
  - Sometimes require closed reduction
  - Can usually be immobilized with buddy tape
  - Can use a post operative shoe for comfort
Common Foot Injuries: Bony Injuries

- Acute fractures: Metatarsals
- 5th Metatarsal fractures are quite common
- Usually due to a twisting injury to the foot
- Jones fracture
- Pseudo Jones fracture
Metatarsal fracture
Common Foot Injuries: Bony injuries

- Acute fractures: Jones fracture
- Fracture of the metaphyseal-dyaphyseal junction of the base of the 5th metatarsal
- Fussy healer (can use bone stimulator)
- Treated conservatively with a non-weightbearing cast
- Intramedullary screw is the surgical treatment
Common Foot Injuries: Bony injuries

- Acute fractures: Pseudo-Jones fracture
- Fracture of the base of the 5\textsuperscript{th} metatarsal
- Avulsion at the insertion of the peroneal brevis tendon
- Good healer
- Can be treated in a weightbearing appliance of choice
Common Foot Injuries: Bony Injuries

- Acute fractures: other metatarsal fractures
  - Direct trauma
  - Shaft fracture: oblique, spiral, transverse
  - Typically can be treated conservatively
- Multiple metatarsal fractures may need surgical intervention
Common Foot Injuries: Bony Injuries

- Acute fractures: Midfoot
  - Less commonly injured
  - Most commonly avulsion injuries
  - Usually treated conservatively
  - Immobilization as needed for comfort
Common Foot Injuries: Bony injuries

- Acute fractures: Calcaneous
- Aside from avulsion injuries rarely injured in sport
- Typical MOI is a fall from a height
  - Be sure to evaluate lumbar spine as well
- Sometimes a crush injury
Common Foot Injuries: Bony Injuries

- Acute fractures: Talus
- In athletics typically an osteochondral injury of the talar dome
- Often discovered late: The ankle sprain that does not heal
- Talar neck injuries can be devastating if displaced
Common Foot Injuries:

- Acute fractures: Talus
- Lateral talar process fracture
- Common in snowboarders
- High index of suspicion
- Ankle sprain MOI
- Dorsiflexion with eversion MOI
- Best diagnosed on CT or MRI
Common Foot Injuries: Bony injuries

- Stress fractures
  - Can happen in any bone in any sport
  - Metatarsal and cuboid stress fractures are most common
  - Navicular
  - Sesamoid especially in dancers
- Diagnosis via plain radiographs, bone scans, and MRI
- Almost always treated conservatively
Common Foot Injuries: Bony injuries

- Freibergs
  - Trabecular stress injury of the metatarsal head
  - Osteochondrosis
  - More common in females
  - Second metatarsal most frequently affected
  - Complain of pain at the affected metatarsal head
Common Foot Injuries

- Freibergs
  - Can have soft tissue swelling
  - Sometimes have a history of trauma
  - Several staging systems based on the level of metatarsal head collapse on radiographs
  - Conservative care of immobilization and protection
Common Foot INjuries

- Freibergs
  - Surgical treatments: Removal of loose bodies/osteophytes, restoration of the contour of the metatarsal head, dorsiflexion osteotomy
Common Foot Injuries

- Other stuff
  - Plantar fasciitis: More common in older non-athletes
  - Severs: Apophysitis of the calcaneous
  - Kohlers: Irregular ossification of the navicular
  - Tarsal tunnel
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- Susan M. Ott DO FACSM
- flsportsdr@yahoo.com