Turf Toe: Return to Sport with Conservative Care

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Introduction

• “Turf toe”
  – First used in 1976, Bowers and Martin
  – Hyperextension injury of hallux MP joint
    • May also involve a varus or valgus moment
    • Injuries can be highly variable
Anatomy

Collateral ligaments:

a. metatarsophalangeal ligament
b. metatarsosesamoid suspensory ligaments
Anatomy

- Capsular ligamentous complex
  - Plantar plate
  - Hallucis brevis tendons
  - Collateral ligaments
  - Abductor hallucis tendon
  - Adductor hallucis tendon
Pathology of Turf Toe Injuries

- **Plantar Soft-Tissue Tear**
- **Plantar Sesamoid Fracture**
- **Medial Soft-Tissue Tear**
- **Medial Sesamoid Fracture**
Incidence and Risk Factors

- 5 years of data from NCAA’s Injury Surveillance System
- 0.062 per 1000 athletic exposure
  - 14x more likely to sustain in game vs practice
- Mean days lost from injury 10.1
- Fewer than 2% required surgery
- Significantly higher incidence on artificial turf vs natural grass
- Running backs and QBs most common position injured

Mechanism of Injury

- Typical scenario
  - Foot fixed in equinus
  - Axial load
  - Forefoot progresses into dorsiflexion
Mechanism of Injury

- Not all turf toe injuries are purely hyperextension
- Valgus component
  - Leads to traumatic bunion
- Varus component
  - Injury to conjoined tendon, lateral collateral and capsule
# Classification

<table>
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<tr>
<th>Grade</th>
<th>Objective Findings</th>
<th>Activity Level</th>
<th>Treatment</th>
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| 1     | Localized plantar or medial tenderness  
Minimal swelling  
No ecchymosis               | Continued athletic participation                | Symptomatic                                    |
| 2     | More diffuse and intense tenderness  
Mild to moderate swelling  
Mild to moderate ecchymosis | Loss of playing time for 3-14 days             | Walking boot and crutches as needed            |
| 3     | Severe and diffuse tenderness  
Marked swelling  
Moderate to severe ecchymosis  
Range of motion painful and limited | Loss of playing time for at least 4-6 weeks    | Long-term immobilization in boot or cast vs. surgical repair |
Clinical Examination

- Observation
- Palpation: where is most severe pain?
- Range of motion
- Varus, valgus stress testing
- Lachman exam
- Check integrity of active dorsi/plantarflexion
Radiographic Evaluation

- Mandatory in the evaluation of turf toe
- Recommended radiographs
  - Standing AP and lateral
  - Sesamoid axial view
  - Comparison AP of opposite side may be helpful
  - Dorsiflexion lateral or fluoroscopy
Radiographic Evaluation

• MRI
  – very helpful
  – Identifies osseous and articular damage
  – Grading
  – Subtle injuries
  – Helps with decision making
  – Test of choice in athletes
Radiographic Evaluation

- Special views and studies
  - Forced dorsiflexion lateral view
Evaluating for a Complete Tear
Conservative Treatment

• All grades can initially be treated conservatively
• R.I.C.E.
• Walker boot or short leg cast with toe spica
• Early joint motion
Conservative Treatment

- Short leg cast with toe spica
Conservative Treatment

- Return to sports
  - Dictated by symptoms
  - 50 to 60 degrees of painless, passive dorsiflexion
  - Must individualize for the athlete
Conservative Treatment

- Protective measures
  - Commercially available orthosis with flex steel plate
  - Turf toe taping
Grade I Injuries

- Attenuation of plantar structures
- Most without loss of playing time
- Taping in slight plantarflexion
  - Shoe modification
    - Stiff sole or carbon fiber plate, Morton’s ext
- Toe separator for medial based injury
Grade I Physical Therapy

• Begin after a few days if tolerated
• Therapist protects against DF
  – Works mainly on passive PF of MTP
• Athlete may be allowed non-imact aerobic activity
  – Spin, swim, elliptical
• Weekly f/u to progress activity
Grade II

- Partial plantar plate tear
- Loss of playing time 2-6 weeks
- Protect foot with CAM boot and PF taping
- Follow Grade I PT
- Avoid running and push off until athlete has minimal pain with DF
Grade III

- Complete plantar plate tear
- Requires longer period of immobilization
  - 6-8 weeks
  - Athletes may require 6-10 weeks to RTP
    - Position, sport plays a role
    - Likely will require taping on return to play
  - Surgical reconstruction should be considered
Surgical Indications

- Large capsular avulsion with unstable joint
- Diastasis of bipartite sesamoid
- Diastasis of sesamoid fracture
- Retraction of sesamoids
- Traumatic hallux valgus deformity
- Vertical instability (Lachman’s test)
- Loose body
- Chondral Injury
- Failure of conservative treatment
Summary

• Importance of injury recognition
• Conservative treatment usually adequate
• Study of choice: Fluoro lat, MRI
• Surgical intervention for indications stated
• These injuries should be referred to foot and ankle specialist