

Lisfranc Injuries

OTA Orthopaedic Trauma Boot Camp 2018

Introduction

- Uncommon injuries (0.2% of all fractures)
- Frequently missed (15-20%)
- High energy mechanism

Anatomy and Column Characteristics

Medial Column

- Mobility primarily at the talonavicular joint
- Limited ROM at TMT joint

Middle Column

- Limited ROM at TMT and NC joints

Lateral Column

- Most mobile and critical for ambulation!

Lisfranc Ligament

- Medial cuneiform to 2nd MT base
- Critical for stability of midfoot arch

Mechanism of Injury

- Direct dorsal load
 - Crush injury
 - Beware compartment syndrome
- Indirect load
 - Hyper-plantar flexion
 - Dorsal to plantar ligament disruption

Initial Evaluation

- Plantar ecchymosis, diffuse foot swelling, midfoot tenderness

Radiographic Evaluation

- Know your radiographic relationships on AP, Oblique and lateral views!
- Stress exam – WB vs. Abduction Stress – look for dynamic instability
- Advanced imaging
 - CT – articular comminution, nondisplaced fractures, preop planning
 - MRI – confirm ligamentous injury, eval of plantar oblique ligament

Treatment Principles

- Restore length and alignment of columns; stable, plantigrade foot

Surgical Treatment Options

- ORIF – Joint preservation, challenging to address multiple fractures and fuse joint
- Arthrodesis – Restores rigidity of medial and middle columns reliably, challenging to convert failed ORIF to fusion, supported technique for pure ligamentous lisfranc injuries

Surgical Technique

- Transarticular screws – placed as position screws, 3.5 or 4.0 sized screws – solid or cannulated OK
- Spanning plates – 2.0, 2.4, 2.7 plates, helpful with comminution, maintaining length
- Wire fixation for flexible 4th and 5th TMT joints
- Arthrodesis – transarticular screws in lag mode, consider bone graft for fusion mass

Postoperative Management

- Restricted weightbearing 8-12 weeks
- K-wire removal at ~6 weeks

