Tibiotalocalcaneal Arthrodesis with a Posterior Anatomic Locking Plate

Christopher F. Hyer, DPM, MS
Gregory C. Berlet, MD
Kyle S. Peterson, DPM

Advanced Foot and Ankle Surgical Fellowship
Orthopedic Foot and Ankle Center, Westerville, Ohio
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Our disclosures are in the Final AOFAS Mobile App. There is a potential conflict with this presentation due to: WMT (CFH, GCB)
Indications: Posterior TTC Fusion

• Compromised anterior or lateral skin envelope¹
• AVN of talus
• Severe hindfoot and ankle arthritis/deformity
• Sensate patients
Advantages of Posterior TTC

- Large vascular soft tissue envelope\textsuperscript{1-3}
- Good exposure to both Ankle and STJ\textsuperscript{2}
- Preservation of the fibula\textsuperscript{2}
- Avoid plantar incision (IM nail) on sensate patients
- Conducive environment for onlay bone grafting
Hypothesis

- We expect to find a high rate of radiographic union in patients undergoing tibiotalocalcaneal arthrodesis with a posterior specific anatomic locking plate.
Retrospective Study

• IRB approved clinical and radiographic study
• June 2012- January 2014
• Inclusion
  – End-stage DJD
  – Post-trauma
  – AVN
  – Mal/non-union
  – Posterior locking plate (OrthoLoc 3Di, WMT, Memphis, TN)
• Exclusion
  – Charcot neuroarthropathy
  – IM Nail fixation
Study Variables

- **Clinical**
  - Pre op Diagnosis
  - Time to WB with brace (weeks)
  - Total Follow-up time (months)
  - Complications

- **Radiographic**
  - Serial post-op radiographs (3, 6, 10, 14-16, and 20+ weeks)
    - union across both ankle and subtalar joints
    - bone trabeculation across 3 cortices
Clinical Results

- 9 Patients
- Average follow-up: 11.11 months
- 6 M, 3 F
- Mean age=57.89 years
- Pre op Diagnosis
  - 4 primary DJD
  - 2 talar AVN
  - 2 Non/Mal union
  - 1 post-trauma DJD
- 3 DM
  - 2 neuropathy (no charcot)

- Mean time to weight-bearing in a shoe with a brace: 16.68 weeks
- 1 superficial wound infection
Radiographic Results

- Ankle and STJ healed at same rate
  - Mean time = 13.61 weeks
- 2 (22.2%) Non-unions
  - 1 both ankle and STJ
  - 1 ankle only
- Overall fusion rate: 77.8 %
  - 7 of 9 patients
- No surgical revisions
Discussion: Take Home Points

• 1st study evaluating fusion rate with posterior specific anatomic plate
• Ankle and STJ heal at same rate
• Posterior approach avoids plantar incision on sensate patients
• Larger studies needed
References:
2. Fetter NL, DeOrio JK. Foot Ankle Int. 2012; 33: 746-49.