A Retrospective of First Metatarsophalangeal Joint Arthrodesis Using Dome-Shaped Reamers and a MTP Plate with PocketLock

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Introduction

- 1st MTP Arthrodesis - gold standard for
  - Hallux rigidus
  - Severe hallux valgus
  - Rheumatoid arthritis

- Technique for fusion
  - Screws
  - Pins
  - Plates
  - Combo
New Technology & Purpose

• Pocket plate
  • Allow for interfragmentary screw to be placed through plate and across fusion site

• PURPOSE
  • Retrospectively review the results of fixation using a novel MTP Fusion Plate with PocketLock technology
Method

• Query patient database for 1st MTP fusions 2012-2013

• Physical examinations reviewed for
  • Pain
  • Motion
  • Time to union
  • Complications

• Radiographs examined for
  • Union (3 bridging cortices)
  • Time to union
  • Hardware failure
Surgery

- Conical reamers to prepare joint
- Reduction
- Application of distal screws
- Placement of interfragmentary screws
- Application distal screws
Successful Case
Nonunion Case
Results

- 16 patients, n=16 feet
- 13 female & 3 male
- Mean age 61.1±11.1 yrs
- Average f/u 7.1±4.2 months
Results

- Nonunion in 7 of 16 feet (43.75%)
  - 1 asymptomatic
  - 6 required revision surgery.
  - No malunions
  - 1 hardware failure

- Mean time to osseous union 81.7±15.9 days

- American Orthopaedic Foot and Ankle Society (AOFAS) score was 89.2±6.3
Discussion

• Locking plates can have slightly higher nonunion rates when locking both sides of joint.

• Plantar gapping can occur with this pocket plate as degrees of freedom are limited, and often times the interfragmentary screw is dorsal to the mid axis of the 1st MTP.
Conclusion

- PocketLock technology $\rightarrow$ NOT an effective means of creating a first MTP joint arthrodesis
- High rate of nonunion
- Plantar gapping