

# CASE REPORT

## 1<sup>ST</sup> METATARSOPHALANGEAL JOINT ARTHRODESIS

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### ARSENAL FOOT PLATING SYSTEM



#### Patient History

A middle-aged female presented to our clinic with first metatarsophalangeal joint osteoarthritis of her left foot. She related to pain with motion of the affected joint, aggravated by activity. Findings consistent with degenerative joint disease were appreciated on radiographs including symmetrical joint space narrowing with flattening of the first metatarsal head and eburation to both joint surfaces. Initial non-operative treatment of intra-articular corticosteroid injections, oral anti-inflammatory medications, and immobilization with a walking boot were unsuccessful. The patient ultimately went on to surgical intervention for treatment of her condition.



#### Treatment

Surgical intervention for this patient included first metatarsophalangeal joint arthrodesis without adjunctive procedures. After layered dissection, complete exposure of the first metatarsophalangeal joint was obtained. Cup and cone reamers were then used to completely denude the articular surfaces of their cartilage while also providing adequate coapted surfaces to facilitate successful arthrodesis. Next, each side of the joint was fenestrated with a 2.0mm drill bit to promote chemotaxis and osseous bridging of the fusion mass. The joint was then placed in correct anatomic alignment. Intra-operatively the patient exhibited poor bone quality, therefore initial fixation was achieved with two Trilliant Surgical 4.0mm Tiger Cannulated Screws. For additional stability, the fusion mass was bridged with a Trilliant Surgical Arsenal 1st MPJ Plate and a combination of 2.7 and 3.5mm Arsenal Locking Screws. A combination of crossing screws and a dorsal locking plate provide both compression and stability of the arthrodesis site, an ideal construct for first metatarsal joint arthrodesis.



#### Postoperative Care

The patient was kept non-weightbearing for the first week of the post-operative period. Her activity level was subsequently increased to protective weightbearing in a walking boot for the following seven weeks, after which she was advanced to full weightbearing. At the post-operative week 13 follow up, the patient related no pain or limitations with her daily activities and achieved complete osseous union confirmed with radiographic imaging.



#### Discussion

Arthrodesis of the first metatarsophalangeal joint has shown to be a workhorse procedure for treatment of end-stage arthritis of the joint. Modern advancements in hardware technology allow for early weightbearing, particularly when using crossing screws combined with locking plate constructs. The Arsenal Foot Plating System carries the ability to insert locking screws at varying angles within a 60 degree cone, thus allowing the surgeon to use the most biomechanically advantageous locking holes in the plate while still avoiding compression screws that cross the fusion mass. The new technology and adaptability of the plate-screw interface provided a key advantage in performing the procedure and ultimately created a high grade of additional stability, allowing this patient to return to work and activity within a shorter time period.