Salvage of Hemiartthroplasty of the Hallux Metatarsophalangeal Joint with Conversion to Arthrodesis

Foot & Ankle Category: Midfoot / Forefoot

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Introduction
Arthrodesis is currently the most commonly performed surgical procedure for the treatment of severe arthritis of the first metatarsal joint. Hemi-artroplasty of the first metatarsal has been shown to result in inferior clinical results and higher revision rates. The objective of this study was to compare the long-term clinical outcome of the salvage of first metatarsal hemiarthroplasty with conversion to arthrodesis.

Methods
A series of patients who underwent salvage of the first metatarsal joint hemi-arthroplasty with conversion to arthrodesis between 2001 and 2011 were evaluated. Preoperative assessment was evaluated with the visual analog pain (VAP) scale and AOFAS Hallux-Metatarsophalangeal Interphalangeal scoring system (AOFAS-HMI). Postoperative satisfaction was graded via AOFAS-HMI, VAP, and Foot and Ankle Ability Measure (FAAM).

Results
Twenty-one hemiarthroplasties were converted to arthrodesis in 21 patients, 13 women and 8 men. Bone graft was obtained from the calcaneus (14) and distal tibia (1). Six patients required tricortical iliac crest bone graft for the treatment of extensive bone loss. At the time of final follow-up (at a mean of 36.6 months), the mean pain score was 0.75 down from 7.8 out of 10 preoperatively. The mean FAAM ADL/sports were 97.3/91.3, respectively. The mean AOFAS-HMI improved from 48.7 out of 100 preoperatively to 85.3 out of 90 (modified to exclude first MTP motion). All patients achieved fusion although at a longer interval than primary fusions. Sixteen patients subjectively rated their results as excellent, 4 as good, and 1 as fair.

Conclusion
Arthrodesis is more predictable and considered the gold standard for alleviating symptoms and restoring function in patients with first metatarsophalangeal joint degeneration. Conversion from a hemiarthroplasty to arthrodesis shows similar success to primary arthrodesis and can be achieved in the majority of cases with the use of regional bone graft for small defects. However, the time to fusion is longer than that of primary arthrodesis and it may require structural bone graft for augmentation.