Functional Results of Open Reduction and Internal Fixation with Primary Arthrodesis for Injuries to the Tarsometatarsal Joint Complex

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Introduction/Purpose: Controversy remains as to the optimal treatment of injuries to the tarsometatarsal (Lisfranc) joint complex. Recent studies have described open reduction internal fixation (ORIF) with primary arthrodesis as a viable treatment option but there is limited orthopaedic literature as to the functional results of primary arthrodesis for these injuries. The senior author began treating these injuries with primary arthrodesis in 2005. We present the functional results of a consecutive series of patients with injuries to the TMT joint complex treated by ORIF with primary arthrodesis.

Methods: Sixty-eight consecutive patients underwent ORIF with primary arthrodesis from 2006 to 2015. Seventeen patients were unable to be evaluated or contacted and were therefore lost to follow up, leaving 51 patients available for follow-up evaluation. Clinical follow up and/or telephone interviews was conducted. AOFAS Midfoot scores and Foot and Ankle Ability Measure (FAAM) were collected as a measure of functional outcome at final follow up.

Results: Sixty-seven of 68 patients (98.5%) went on to radiographic union following the index procedure. Among patients with a low energy mechanism (32 patients), AOFAS and FAAM were 88.7 and 94.0; among those with a high-energy mechanism (19 patients), AOFAS and FAAM were 86.9 and 89. Outcome scores were higher in the low energy group: AOFAS by 2.1 (p=0.667); and FAAM by 5.0 (p=0.021). Injury to the lateral midfoot necessitating fixation was less likely in the low energy group compared to the high-energy group (7.5% versus 37.0%; p=0.0032). Eighteen of the 51 patients participated in professional, collegiate or recreational sports preoperatively. All 18 were able to return to their previous sport, with a mean FAAM sports sub scale score of 93.

Conclusion: ORIF with primary arthrodesis remains a viable treatment for injuries to the tarsometatarsal (Lisfranc) joint complex, with functional results in the good to excellent range at midterm follow up. Patients with low energy mechanisms demonstrated higher functional scores compared to patients with high energy mechanisms, but outcomes remained good to excellent in both groups. Of those who participated in athletics prior to injury, all were able to return to their previous sport.