Complications and Revisions After Proximal Osteotomies with Plate Fixation For Severe Hallux Valgus Deformities

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Author(s):
Emilio Wagner, MD
Cristian A. Ortiz, MD
Andres Keller, MD
Pablo Moccain
Ignacio Villalon, MD
Francisco Garcia
Tomas Echeverria

Introduction
Proximal metatarsal osteotomies are generally recommended for severe hallux valgus deformities. Their main disadvantages are the instability with consequent risk of Malunion and the increase in the distal metatarsal articular angle (DMAA). A modified proximal metatarsal osteotomy with a lateral closing wedge and lateral translation (POSCOW) with plate fixation was designed to address these issues. The objective of this study is to report our complications and revisions on the long term results of the POSCOW osteotomy for severe hallux valgus deformities.

Methods
Ninety-six patients, 140 feet, average age 58.6 years, were operated between March 2006 and December 2009, aver. The average preoperative AOFAS score was 50 points, intermetatarsal angle (IMTT) 16.3 degrees, metatarsophalangeal angle (MTP) 34.8 degrees. A POSCOW osteotomy was performed and fixed with an angular stable 2.7 mm plate. Postoperative weight bearing as tolerated was allowed. The radiological measurements, AOFAS score, subjective satisfaction scale, time to bone healing, need of Akin osteotomy are reported, as well as any complication such as postoperative shortening, loss of correction, hallux varus, revisions, fusions, and removal of hardware

Results
There was 88% satisfaction, with 13 patients reporting minor reservations due to postoperative edema, and 4 patients with major reservations. The AOFAS score improved to 94 points. The postoperative IMTT angle was 4.7 degrees, and the MTP angle was 8.7 degrees. The time to bone healing was on average 9 weeks. An Akin osteotomy was performed in 50 feet. The average shortening of the first metatarsal bone was 1.4 mm, the DMAA increased in 6.6 degrees. There was a mild loss of correction in 9 feet (6.4%), and a loss needing revision in 15 feet (10%). Hallux varus was observed in 3 cases (2%). Revisions for recurrence were treated with a chevron osteotomy in 5 cases, biplanar chevron in 5 cases, and an akin osteotomy in 5 cases. Two feet were fused at the metatarsophalangeal joint due to persistent pain. Hardware removal was performed in 19 cases (13%)
Conclusion
The POSCOW technique is reliable in correcting severe hallux valgus deformities. The advantage of adding translation over an oblique plane to a proximal metatarsal osteotomy is that it avoids in some degree the metatarsal shortening seen in every closing wedge osteotomy, and the increase in the DMAA is less compared to classic proximal crescentic osteotomies. An additional advantage of this osteotomy is its possibility of preoperative planning which makes it more predictable. Is a very powerful osteotomy, achieving a high degree of satisfaction. Complications do occur, mainly in the first 30 patients of this series, due to its learning curve. Achieving a good compression at the osteotomy site, and using a medially placed plate are two factors of paramount importance in order to avoid complications.