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Proximal metatarsal osteotomy with fixation for the treatment of metatarsalgia

Sérgio Rodrigues Tirico

1. Clínica Paulista de Ortopedia Traumatologia, São Paulo, SP, Brazil.

ABSTRACT

Objective: To evaluate the outcomes of proximal metatarsal osteotomies for metatarsal head shortening and/or lifting, assessing pain and function, using the American Orthopedic Foot and Ankle Society (AOFAS) scale.

Methods: From November 2002 to November 2014, 29 feet (13 right feet and 16 left feet) of 22 patients (25 women and 4 men) aged 21 to 85 years, with a mean age of 52.8 years, underwent surgery, with a mean follow-up time of 73 months (7 to 150 months). The patients were treated with proximal end metatarsal osteotomies fixed with metallic wires, staples or compression plates with and without grading. Treated comorbidities included hallux valgus deformity, splayfoot, hallux rigidus, pes cavus, hammertoe, crossover toe and plantar plate repair. The patients were evaluated using the AOFAS lesser toes.

Results: The AOFAS score improved from 34.5 points (± 12.5) preoperatively to 88.9 points (± 7.9) postoperatively ($p < 0.0001$). One patient developed a late infection in the foot that was controlled with antibiotics; although the correction of the second toe was partially lost, an acceptable transversal arch was maintained. In all cases except for the infection, no metatarsalgia recurrence or change in the deformity of the corresponding toes occurred.

Discussion: Surgical treatment aimed to improve the mechanical distribution of weight and to stabilize the transversal arch, thereby reducing metatarsalgia. The forefoot was stabilized by sufficient shortening and/or lifting to treat metatarsalgia, especially in the 2nd and 3rd rays. We also aimed to achieve complete flexibility of the metatarsophalangeal joints with good alignment. The favorable outcome of this method is comparable to that of the study by Aiello, who achieved good outcomes in 84.9% of 45 feet, whereas our study showed good outcomes in 96% of 29 feet.

Conclusion: Proximal metatarsal osteotomies with fixation with metal implants for metatarsalgia treatment showed satisfactory outcomes in 96% of operated cases. We believe that this procedure is effective and safe and has a high rate of patient satisfaction.

Keywords: Metatarsophalangeal joints; Metatarsal bones; Osteotomy.

