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## **Percutaneous metatarsophalangeal arthrodesis for the treatment of hallux rigidus**

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### **ABSTRACT**

**Introduction:** Arthrodesis is considered the gold standard treatment for the final stages of hallux rigidus, promoting long-term symptom improvement. Arthrodesis is traditionally performed as open surgery. However, in recent years, the prevalence of minimally invasive surgery has increased due to its decreased aggression to soft tissue, shorter surgical time and association with a more comfortable postoperative period with reduced pain intensity. The objective of the study is to describe the percutaneous metatarsophalangeal arthrodesis technique with a single medial portal and to evaluate postoperative outcomes regarding union time, the presence of residual pain and the degree of satisfaction in a series of 22 patients.

**Methods:** This is a series of 22 patients (23 feet) who underwent surgery between January 2017 and July 2018. The union time was assessed, and the patients reported their pre- and postoperative pain levels using the pain visual analog scale (VAS) and their degree of satisfaction. Surgical wound dehiscence, superficial and deep infection and need for orthopedic hardware removal were considered complications.

**Results:** All patients underwent clinical evaluation. In 3 patients, union could not be assessed due to the lack of postoperative radiographs. Twenty patients were women, and 2 were men. Their mean age was 67.8 years. The mean time between the date of surgery and the evaluation was 51 weeks. The follow-up time ranged from 6 to 24 months, with a mean union time of 9 weeks. The union rate was 80%. Five cases showed no radiographic union, although the patients had stable and asymptomatic arthrodesis that required no revision. There were no cases of postoperative infection. In 3 patients, orthopedic hardware was removed. The mean preoperative pain intensity was 8.73, and the mean postoperative pain intensity was 1.26 ( $p < 0.001$ ). All patients were satisfied with the surgery.

**Conclusion:** Percutaneous arthrodesis of the metatarsophalangeal joint of the hallux potentially provides outcomes similar to those of the conventional method reported in the literature and tends to produce a more comfortable postoperative period and better cosmetic results because it uses smaller incisions.

**Keywords:** Hallux rigidus; Percutaneous surgery; Metatarsophalangeal arthrodesis.

