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Radiographic evaluation of the ankle joint after triple arthrodesis

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ABSTRACT

Introduction: Triple foot arthrodesis is a widespread procedure that was first described by Hoke in 1921 and has been perfected over the years. Postsurgical degenerative changes in adjacent joints are highly prevalent (44-58%) according to the literature, and the prevalence of severe cases is 9-27%. This study radiographically assesses the tibiotalar joint of patients who underwent ipsilateral triple arthrodesis and describes the time of progression of their condition.

Methods: In this study, 150 triple arthrodesis procedures were performed from 2010 to 2015. In total, 56 patients (62 operated feet) participated in the study. The ankles were radiographically assessed at the following timepoints: at baseline or during the preoperative period, at 1 year postoperation, and at 3 to 5 years of follow-up. Arthrodesis was detected using the Kellgren and Lawrence scale, and the time to secondary arthrodesis was measured.

Results: At baseline, 31 ankles (50%) showed no clear signs of arthrodesis. Tibiotalar arthrodesis worsened by 1 grade in the first postsurgical year in 13 ankles (28.3%). After 3 to 5 years of postoperative follow-up, 21 ankles (55.2%) worsened by 1 grade; arthrodesis worsened by 2 or more grades in 15.8% (n=6) of the ankles, and 11 ankles (29%) showed no worsening or onset of tibiotalar arthrodesis. No worsening or onset of tibiotalar arthrodesis was identified for an average of 22 months after the procedure. The mean time of postsurgical progression was 32.4 months among patients whose arthrodesis worsened by 1 grade and 43.7 months among those whose arthrodesis worsened by 2 or more grades.

Conclusion: Radiographic changes strengthened the concept of arthrodesis formation secondary to triple arthrodesis of the tibiotalar joint, even in the short and medium terms. The rates of osteoarthrosis worsened from 49.2% (30 feet) to 70% after 1 year and to 92.3% after 3 to 5 years postoperatively.

Keywords: Arthrodesis; Osteoarthrosis; Ankle joint.

