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Subtalar arthrodesis with bone graft. Is it needed for smokers?

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ABSTRACT

Introduction: The bone graft is an important component of foot and ankle arthrodesis and is used in conditions in which the biological system is known to be unfavorable and scraping the joint will cause a considerable structural defect. The objective was to evaluate the union rate of subtalar arthrodesis in smokers and nonsmokers and to determine the effect of the use of different types of bone autografts.

Methods: Retrospective study with radiological evaluation of patients diagnosed with subtalar arthrosis who underwent primary arthrodesis from January 2008 to December 2014. All patients with a minimum follow-up period of 12 months were included and were divided into smokers and nonsmokers treated with or without autologous bone grafting.

Results: In total, 235 patients with a mean age of 47 years were evaluated; whom 90 (40%) were smokers, and 141 (60%) were nonsmokers. In 221 (94%) cases, the indication for arthrodesis was sequelae of calcaneal fractures. A bone graft was used in 27.7% patients. The overall union rate was 85.4%, and 14.6% of the patients developed pseudarthrosis. A significant difference was found in the nonunion rate of smokers versus nonsmokers ($p=0.015$), especially in those who did not receive a bone graft ($p=0.014$). However, no significant difference was found between smokers who received a bone graft and those who did not ($p=0.072$). The union rate was related to the donor site, with pseudarthrosis observed in 33.3% of surgeries involving a calcaneal autograft ($p=0.011$).

Conclusion: Smoking increased the likelihood of pseudarthrosis in subtalar arthrodesis by 2.5 fold, and pseudarthrosis was related to the bone autograft donor site.

Keywords: Arthrodesis; Subtalar joint; Pseudarthrosis; Smokers; Bone graft.

