Subtalar Fusion after Displaced Intra-Articular Calcaneal Fractures: Does Initial Operative Treatment Matter?

Reference:

Scientific Literature Reviews

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Podiatric Relevance:
This study provides useful data in the management of post-traumatic subtalar joint arthritis following displaced, intra-articular calcaneal fractures.

Methods:
In this study, a consecutive series of seventy-five displaced intra-articular calcaneal fractures (69 patients) underwent subtalar arthrodesis for the treatment of painful post-traumatic subtalar arthritis. Group A comprised thirty-six fractures (34 patients) that were initially managed with open reduction and internal fixation of the fracture, and subsequently underwent in situ subtalar fusion at an average of 22.6 months later. Group B comprised thirty-nine fractures (35 patients), which were initially managed non-operatively and developed symptomatic painful malunion following initial fracture healing. Patients in this group went on to require subsequent subtalar distraction arthrodesis. The patients in the two groups were standardized with respect to demographics (i.e. age, sex, injury mechanism, and smoking status), and all complications and functional outcomes were noted and assessed at a minimum of 48-months post subtalar arthrodesis.

Results:
The patients in both groups were assessed utilizing the American Orthopaedic Foot and Ankle Society (AOFAS) hindfoot scoring evaluation as well as the Maryland Foot score. The average duration of follow-up was 62.5 and 63.5 months for Groups A and B respectively. Each group demonstrated three nonunions of the subtalar joint requiring revision surgery, however Group A was noted to have fewer post operative complications, as well as demonstrating a Maryland Foot Score of 90.8. This was significantly higher (p<0.0001) than was observed in Group B, in which the average Maryland Foot Score was 79.1. Additionally, when comparing both groups’ AOFAS-hindfoot score, Group A demonstrated a score of 87.1 as compared with 73.8 in Group B; this represented a significant statistical difference with a p value of less than 0.0001.

Conclusions:
In the study presented, increased functional outcomes with decreased wound healing complications were observed in patients who were treated initially with subtalar joint arthrodesis following displaced, intra-articular calcaneal fractures as compared to those patients who underwent subtalar arthrodesis following development of post-traumatic arthritis following malunion from previously displaced, intra-articular calcaneal fractures. Statistically significant differences were observed between the study groups as demonstrated by AOFAS-hindfoot and Maryland Foot Scores. This data suggests that improved outcomes with lasting successful results can be obtained with open reduction and internal fixation for the treatment of displaced intra-articular calcaneal fractures, thus restoring more anatomic calcaneal shape, alignment, and height, which can facilitate subtalar arthrodesis should post-traumatic arthritis develop following injury.