Conservative versus surgical treatment for the displaced, distal diaphyseal-metaphyseal fifth metatarsal fractures: a prospective, randomized controlled study

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INTRODUCTION:
Fifth metatarsal distal diaphyseal-metaphyseal fractures, also called Dancer's fractures, are one of the most common forefoot injuries. Favorable outcomes of both conservative and surgical treatments have been reported; however, the most appropriate treatment remains controversial. Currently, there are no prospective studies comparing outcomes between these treatments. This study aimed to compare the union time, outcomes, and complications of conservative versus surgical treatment for displaced Dancer's fractures.
METHODS:
Thirty-two consecutive patients with acute Dancer's fracture with 2-5mm displacement who visited our institution between 2021-2022 were randomized into either conservative treatment group and surgical treatment group. The conservative group was treated with casting and non-weightbearing ambulation, while the surgical group was treated with open reduction and internal fixation (ORIF) with locking plate and screws followed by heel weightbearing in walking boot. Radiographic union was evaluated by computed tomography starting at 8 weeks after treatment followed by 3-week interval until union was achieved. The minimum follow-up time was 2 years. Primary outcome was union time. Secondary outcomes were pain, visual analog scale (VAS), Short Form Health Survey (SF-36) score, and Foot and Ankle Ability Measure (FAAM) score, and complications.
RESULTS:
One patient from each group was lost to follow-up, resulting in 30 patients in each group. There were no significant differences in demographic characteristics between the groups. The mean radiographic union time in the conservative group was 16.7 ± 4.5 weeks, while in the surgical group, it was 8.7 ± 1.9 weeks, with a P-value of <0.001. The surgical group demonstrated a significantly shorter time to return to daily activities, work, and sports. Both groups showed improvements in pain and functional outcomes after treatment, but there were no significant differences between them. Although the overall complication rate tended to be higher in the conservative group, no significant difference was observed.
DISCUSSION AND CONCLUSION:
While both conservative and surgical treatments can yield similar improvements in pain and functional outcomes for patients with displaced Dancer's fractures, surgical treatment demonstrated significantly shorter union and recovery times without increasing the overall complication rate. The authors advocate for surgical treatment, especially in active and high-demand patients.