Operative Versus Nonoperative Treatment of Unstable Lateral Malleolar Fractures: A Randomized Multicenter Trial


In this randomized multicenter clinical trial, the authors sought to compare the clinical and functional outcomes after operative and nonoperative treatment of undisplaced, unstable, isolated lateral malleolar fractures. All fractures were classified as isolated Weber B fractures, and radiographs revealed no evidence of talar shift at time of injury.

At presentation, patients underwent an external rotation stress examination performed with the tibia stabilized in neutral rotation and the ankle in neutral dorsiflexion. An anteroposterior ankle radiograph was obtained while manual external rotation stress was applied to the foot. Positive stress examination was defined as an increase in the medial clear space of 1 mm or more and an absolute medial clear space value of 5 mm or more.

A total of 81 patients (average age, 41 years) were included in the study. Inclusion criteria were skeletal maturity and age younger than 65 years. Exclusion criterion was associated medial malleolar fracture. Patients were randomized into operative or nonoperative treatment. No differences were found between groups with regard to medical history or substance use. Patients were enrolled an average of 6 days after injury.

Forty-one patients underwent operative treatment with open reduction and internal fixation within 2 weeks of injury. Standard fixation techniques were used. Postoperatively, the ankle was splinted in neutral dorsiflexion for 2 weeks, followed by early mobilization and protected weight bearing in a removable cast brace until the 6-week examination. Forty patients underwent nonoperative treatment with the use of a short leg cast or brace and protective weight bearing for 6 weeks. In both groups, cast and brace treatment was stopped after 6 weeks and full weight bearing was encouraged.

Primary outcome was determined by comparing the physical component summary of the Short Form 36 and the joint-specific outcome measure between groups. Functional outcome scores were recorded initially and at 6, 12, 24, and 52 weeks after enrollment. Differences in total scores for the Short Form 36 were found between women and men (42.76 and 59.78, respectively; \( P = .01 \)). Other factors did not affect outcomes.

The greatest difference in functional outcomes scores between the 2 groups was noted at the 12-week follow-up. Total ankle outcome measure score was 61.4 ± 23.4 in the operative group and 58.6 ± 23.8 in the nonoperative group, and the Short Form 36 score was 66.6 ± 18.4 in the operative group and 60.0 ± 18.4 in the nonoperative group.

Eight patients in the nonoperative group and no patients in the operative group experienced delayed union (lack of cortical bridging at 12 weeks) or nonunion (lack of cortical bridging or a visible fracture line at 24 weeks). However, no patient in either group had a nonunion at 12 months. One year after injury, 20% of patients treated nonoperatively developed radiographic misalignment.

Both groups of patients had equivalent functional outcomes, but the risk of displacement and problems with union were lower in the operative group.
In this Bovill Award–winning article, the authors compared clinical and functional outcomes after operative and nonoperative management of undisplaced, unstable, isolated fibula fractures. Fibula fractures are one of the more common injuries seen by orthopedic surgeons. Although most surgeons agree that stable, nondisplaced fractures may be successfully managed nonoperatively and that displaced, unstable fractures may benefit from operative reduction and fixation, a lack of consensus exists on the management of nondisplaced fractures that exhibit signs of instability on stress views. In this well-done multicenter study, the authors were unable to demonstrate a significant clinical advantage at final follow-up. In the nonoperative group, a higher incidence of delayed union and nonunion existed as defined by the study criteria; however, at final follow-up, all nonoperative patients had gone on to union. Another concern is the radiographic finding of an increased incidence of misalignment in the nonoperative group manifested by an increase in the medial clear space. The authors correctly point out that the clinical significance of this radiographic finding is unclear.

The results of this study suggest that for nondisplaced, unstable, isolated fibula fractures, operative and nonoperative management may lead to equivalent clinical and functional short-term results. Further studies with longer follow-up are necessary to determine the clinical significance, if any, of the increased incidence of misalignment in patients treated nonoperatively.

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