

Potential Benefits of Limited Clinical and Radiographic Follow-up After Surgical Treatment of Ankle Fractures

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Purpose: Ankle fractures are one of the most prevalent musculoskeletal injuries, with a significant number requiring surgical treatment. Postoperative complications requiring further interventions frequently occur during the early postoperative period. We hypothesize that there is a limited need for routine clinical and radiographic follow-up once the fracture is deemed healed.

Methods: IRB approval was obtained at 4 academic trauma centers. A retrospective chart review was performed to identify adults with uncomplicated healed unimalleolar and bimalleolar ankle fractures treated surgically with at least 12 months of follow-up. Based on postoperative radiographs, changes in fracture alignment and implant position from radiographic union to final follow-up were documented. The average reimbursement for a final follow-up clinic visit and a set of ankle radiographs were estimated.

Results: A total of 141 patients met inclusion criteria. The mean age at injury was 49.5 years and 67.4% of subjects were female. The mean time to healing was 82 (±33) days. After radiographic healing, 2 patients had radiographic changes; both were asymptomatic and were full weight-bearing at their final follow-up. On average, our institution was reimbursed \$46 to 49 for a follow-up clinic visit and \$364 to \$497 for a set of ankle radiographs.

Conclusion: Given the average time to healing, there is limited utility in routine radiographic and clinical follow-up beyond 16 weeks in asymptomatic patients. In our series, this would result in a savings of \$950 to \$1200 per patient. However, after ankle fractures were deemed healed, 1.4% of the patients had radiographic evidence of either changes in the fracture alignment or implant position. Documenting these changes did not modify the immediate course of fracture treatment. Surgeons will need to balance the need for routine follow-up with the potential economic benefits in reducing costs to the healthcare system.

Demographics	
Age, mean	49.5
Gender, N (%)	
Male	46 (32.6%)
Female	95 (67.4%)
Smoking, N (%)	37 (26.2%)
Diabetes, N (%)	21 (14.9%)
Fracture Characteristics	
Right, N (%)	80 (56.7%)
Left, N (%)	61 (43.3%)
Mechanism of Injury	
Fall, N (%)	71 (50.4%)
Twist, N(%)	35 (24.8%)
MVC, N (%)	20 (14.2%)
MCC, N (%)	4 (2.8%)
Sports, N (%)	2 (1.4%)
Other, N (%)	7 (5.0%)
Treatment	
Medial Malleolus	
Not Fractured, N (%)	33 (23.4%)
Not Fixed, N(%)	21 (14.9%)
Lag Screw, N (%)	60 (42.6%)
Buttress Plate, N (%)	5 (3.5%)
Tension Band, N (%)	2 (1.4%)
Other Fixation, N(%)	5 (3.5%)
Lateral Malleolus	
Not Fractured, N (%)	14 (9.9%)
Lateral Neutralization Plate, N (%)	40 (28.3%)
Lateral Compression Plate, N (%)	31 (22.0%)
Lateral Bridging Plate, N (%)	12 (8.5%)
Lateral Buttress plate, N (%)	18 (12.8%)
Posterolateral Buttress Plate, N (%)	20 (14.2%)
Other Fixation, N (%)	3 (2.1%)
Time to Surgery in Days, Mean	5.6
Time to Healing in Days, Mean	82
Time to Last Follow-up in Days, Mean	991.6

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.

POSTER ABSTRACTS