

Is Time From Surgery to Splint Removal Associated With the Development of Wound Complications Following Ankle Fracture Fixation?

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Purpose: Ankle fractures are among the most common fractures treated by orthopaedic surgeons. While there have been major advances in surgical protocols to reduce surgical site infections, there is a lack of consensus regarding the best practice for timing of post-operative dressing changes for ankle fracture fixation. The purpose of our study is to compare whether the removal of the post-operative splint prior to hospital discharge compared to maintenance of the post-operative splint until outpatient follow-up had an impact on wound complications of all surgically treated ankle fractures.

Method: A retrospective cohort study of 1,644 ankle fractures treated surgically at two Level 1 trauma centers between March 2002 and November 2014 was conducted. The primary outcome was the rate of wound complications including the presence of any eschar, need for wound care, antibiotics, or surgical debridement. Patient charts were reviewed to determine duration of the post-operative splint and whether it was removed in the hospital prior to discharge or in the clinic at the first post-operative visit.

Results: Of 1,644 ankle fractures which met the criteria for analysis, a total of 380 cases (23.1%) had a wound complication. 304 of these cases required local wound care (18.5%), and 257 of these cases required PO antibiotics (15.6%). 143 of these cases required IV antibiotics (8.7%). OR debridement was required in 130 cases (7.9%), with an average of 2.06 OR debridements required in these cases. 107 of 380 cases of wound complication eventually required removal of hardware due to infection (28.1%). We noted that cases in which the post-operative splint was changed prior to follow-up was associated with a 2.03-fold higher incidence of wound complication ($p < 0.0001$). We noted a 25.62% complication rate in cases where post-operative splint was changed before discharge, compared with 12.62% complication rate in cases where post-operative splint was left intact until follow-up appointment.

Conclusion: When compared to transitioning patients to removable casts during the initial hospitalization, maintenance of the splint applied in the operating room until the first follow-up appointment reduces the risk of wound complications and infection.