Infection Rates and Early Complications of Isolated Open Talus Fractures

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Purpose: Our objective was to compare the incidence of deep infections between isolated open and closed talar body and neck fractures. Secondary objective was to compare the number of surgeries, incidence of posttraumatic arthrosis (PTA), and osteonecrosis (ON). Hypothesis: Isolated open talus fractures will have a significantly higher incidence of infection, PTA, and ON compared to isolated closed talus fractures.

Methods: This was an IRB-approved, retrospective case control series of 32 consecutive isolated open, and 34 closed talar neck and body fractures, followed for a minimum of 3 months. The setting was 2 academic trauma centers.

Results: There were 32 open and 34 closed fractures. The mean age was 39 years in the open group and 36 in the closed group. Injuries were high energy in 93.8% and 97.1% of open and closed injuries, respectively. All subjects were treated initially with debridement when applicable and open reduction and internal fixation (ORIF) with or without primary arthrodesis. In the open group, there was a mean 0.6 days to debridement with a mean time to definitive fixation of 1.3 days in the open group and 3.1 days in the closed group. Mean follow-up for open fractures was 27.5 months and 12.2 months for closed fractures. There were 5 deep infections among 66 fractures (7.6%). There were no deep infections in the closed fractures, while 5/5 (100%) deep infections occurred in open fractures (P = 0.023). 50% of those open fractures involving the talar body developed a deep infection compared to 0% of those with an isolated talar neck (P = 0.006). 16 of 32 open fractures (50%) developed ON compared to 6 of 34 (17.6%) closed fractures (P = 0.009).100% of fractures with deep infection demonstrated ON, compared to 11 of 27 (40.7%) open fractures without infection (P = 0.043). PTA was present in 58.1% of open fractures, and 26.5% of closed fractures (P = 0.0123), 100% of fractures with deep infection, and 33.3% without (P = 0.009). Closed fractures required an average of 1.4 (range, 1-6) surgeries compared to 1.7 (1-3) for open without infection (P>0.05), and 5.2 (3-7) for infected fractures (P<0.00001, P<0.00001).

Conclusion: The incidence of deep infection and early ON following isolated talar body fractures is extremely high. Open infected fractures required nearly 4 times as many procedures as those with closed injuries. Patients should be counseled accordingly.