

Outcomes Following Salvage of Extruded Talus Injuries

Clifford B. Jones, MD, FACS; David C. Teague, MD; Reza Firoozabadi, MD; Saam Morshed, MD; Laurence Kempton, MD; Jason Luly, MS METRC, Johns Hopkins, Baltimore, MD, United States

Purpose: The purpose of this study was to describe fracture characteristics, treatment, and clinical outcomes of extruded talus injuries.

Methods: The study included 46 patients with extruded talus injuries enrolled in a prospective multicenter study between 2011 and 2016. Patients were between 27 and 53 years of age and 56% were female. Injury classification and treatment characteristics were documented. Hospital readmissions and complications along with function using the Short Musculoskeletal Function Assessment (SMFA), and pain using the Brief Pain Inventory (BPI) were evaluated 18 months after injury. All results are descriptive. Readmissions were estimated using a Poisson model with offset for follow-up time. Complication rate was calculated using a Kaplan-Meier non-parametric estimator.

Results: Of the 46 patients, 5 underwent primary amputation, leaving 41 treated with limb salvage. None of the 41 salvage patients had a subsequent amputation. Injuries were primarily open (88%) and included type IIIA (n = 35) and type IIIB (n = 1) fractures. 11 were severely contaminated, 3 had bone loss >2 cm, 1 required split-thickness skin graft, 1 required free tissue transfer, and 1 patient had heel-pad degloving. Associated injuries included fractures of the talus (n = 28), calcaneus (n = 8), tibia shaft (n = 10), pilon, and ankle and multiple foot injuries (n = 2). Patients were treated with external fixation (n = 29) or screws/plates (n = 12). There were 14 complications in 8 salvage patients; 10 infections required debridements, 1 wound dehiscence, and 3 fixation failures required revision surgery. The probability of remaining complication free at 18 months was 0.80 (95% confidence interval [CI]: 0.67, 0.93). The estimated annual rate of injury-related hospitalization among salvage patients is 0.47 (95% CI: 0.31, 0.67). 87% of patients are estimated to be free of deep infection at 18 months (95% CI: 0.77, 0.99). SMFA scores were available on 37 patients. Scores were high across all domains (bother = 30, dysfunction = 31, mobility = 42, daily activities = 37, and emotional = 39) relative to published population norms. Pain severity and interference were 3.5 and 4.0, respectively, on a scale of 0 to 10 (higher scores are worse).

Conclusion: Extruded talus injuries are uncommon injuries, usually open, and present with associated extremity injuries. Complications consist of infection and fixation failure. Self-reported function, physical performance, and pain are poor more than 1 year out from injury.