

Risk Factors for Infection in Tibia Plateaus with Compartment Syndrome*Brian Etier, MD; Emily Keener, DO; Jason Lowe, MD;**University of Alabama at Birmingham, Birmingham, Alabama, USA*

Background/Purpose: Infection is a known complication following surgical fixation of tibia plateau fractures with compartment syndrome. Factors leading to subsequent infection are not well defined. This study evaluated injury, patient, and treatment factors that contribute to infection. The hypotheses are: patient factors (diabetes, tobacco use, body mass index [BMI]), increasing fracture severity (Schatzker IV, V, and VI), and operative fixation through fasciotomy incisions positively correlate with postoperative infection.

Methods: Review of 925 tibia plateau fractures over a 12-year period revealed 42 tibia plateau fractures with concomitant compartment syndrome (4.5%). Patient factors, fracture patterns, and surgical treatment were reviewed. Superficial infection was defined as the use of antibiotics and local wound care. Deep infection was defined as culture-positive infection requiring surgical irrigation and debridement. Discrete predictors for infection were examined using Fisher's exact test; continuous predictors (age and BMI) were examined using *t*-tests. All other continuous variables were analyzed with the Mann Whitney *U*. A *P* value <0.05 was statistically significant.

Results: Overall incidence of superficial and deep infections was 38% and 21%, respectively. When incorporating the fasciotomy and operative incision, 10/12 (83%) patients developed a superficial or deep infection. Infection developed in 6/21 (28.6%) patients with fixation through a separate incision (*P* = 0.003). Diabetes tended toward deep infection (57% with diabetes vs. 15% without diabetes; *P* = 0.080). Low Schatzker scores (I, II, or III) tended toward superficial infection when compared to high Schatzker scores (IV, V, or VI) (80% vs. 32%, *P* = 0.06). Low Schatzker scores also tended toward deep infections when compared to high Schatzker scores (60% vs. 16%, *P* = 0.057).

Conclusion: Fasciotomy incision into an exposure for operative fixation is the only treatment factor that statistically increases the risk of postoperative infection. Separate surgical incisions should be utilized. Diabetic patients and low Schatzker fracture severity patterns tended toward an increase in postoperative infections.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.