

Fasciotomies in Bicondylar Tibial Plateau Fractures Do Not Have Increased Rates of Infection or Nonunion*Kyla Huebner, MD; Derek S. Stenquist, MD; Michael J. Weaver, MD;**Arvind G. Von Keudell, MD**Harvard Affiliated Hospitals, Boston, MA, United States*

Purpose: Acute compartment syndrome can occur in upper and lower extremity fractures and most commonly occurs after tibial fractures. Acute compartment syndrome and fasciotomies have been associated with higher complication rates, including higher rates of nonunion and increased surgical site infections. These studies have been small series that do not consider time to closure or have prolonged time to closure. We aimed to look at the largest retrospective series of bicondylar tibial plateau fractures and compare infection rates, reoperation rates, nonunion rates, and PROMIS (Patient-Reported Outcomes Measurement Information System) scores between patients with and without fasciotomies.

Methods: This is a retrospective study examining patients with bicondylar tibial plateau fractures between 2003 to 2018 at two Level I trauma centers. Infection, nonunion, reoperation rates, and PROMIS scores were compared between patients who had fasciotomies for acute compartment syndrome or impending compartment syndromes and those who did not have fasciotomies.

Results: 498 patients were evaluated who had bicondylar tibial plateau fractures. 84 patients (16.9%) had fasciotomies for either impending compartment syndrome or acute compartment syndrome. On average patients required 2 return trips to the operating room prior to closure post fasciotomies. Rates of infection, nonunion, and reoperation were the same between patients who had fasciotomies and those who did not. There were no differences in PROMIS scores between groups at final follow-up.

Conclusion: Fasciotomies have been associated with nonunions and infections in tibial plateau fractures. Previous studies have either not assessed time to closure or have had a prolonged time to closure. Our study did not demonstrate increased complication rates post fasciotomies. The patients in this study had a lower average time to closure than previously reported in the literature, which may explain the lower rates than previously reported. This suggests that time to closure may be the most important factor in complications post-fasciotomy.