

## **Fracture-Dislocations of the Knee Have a Lower Incidence of Neurovascular Injury and Better Long-Term Functional Outcomes Than Previously Thought**

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**Purpose:** Fracture-dislocations of the tibial plateau are a relatively uncommon injury that require careful planning for surgical management. These injuries are often challenging, as the treating surgeon must consider the potential for neurovascular injury during the initial stabilization and the need for ligamentous stability along with fracture fixation. This particular pattern of injury has the potential for morbidity, particularly of pain and instability, years after the operation. The aim of this study was to compare outcomes of operatively treated tibial plateau fractures with and without concomitant dislocation of the knee.

**Methods:** This study was an analysis of a consecutive series of tibial plateau fracture patients treated by 1 of 3 orthopaedic traumatologists at a major academic medical center over a 13-year period. Fracture dislocation was defined as a fracture of the tibial plateau with an associated loss of congruent joint reduction of the knee and classified by the Moore system. Patient data were collected prospectively and included demographics, injury information, and functional outcomes as measured by the Short Musculoskeletal Function Assessment (SMFA) score. Clinical outcomes were recorded including knee range of motion, knee stability, and development of complications. One-way analysis of covariance (ANCOVA) and binary logistic regression were completed using IBM SPSS.

**Results:** There were a total of 272 patients with a tibial plateau fracture treated operatively, of which 23.5% were identified as fracture-dislocations (N = 64). At initial injury presentation there was no difference with regard to arterial injury, nerve injury, or compartment syndrome. Patients with fracture-dislocations had higher incidence of acute and subsequent ligament reconstruction (P <0.005 and P <0.005). At a mean follow up of 16.6 months, patients with a fracture-dislocation were similar with regard to pain (measured by the visual analog scale [VAS]) and standardized total, SMFA scores than their non-fracture-dislocation counterparts, after controlling for sex, age at injury, body mass index (BMI), and Charlson Comorbidity Index (CCI) (P = 0.783 and P = 0.304). Fracture-dislocation patients were found to have decreased flexion than non-fracture-dislocation patients by 6° (mean 120° and 126°) (P <0.05). Fracture-dislocations had a higher incidence of late knee instability and fracture nonunion that required secondary interventions (P <0.05 and P <0.005).

**Conclusion:** Despite the complex nature of the injury and surgical management of fracture-dislocations of the tibial plateau, patients with these injuries appear to have similar clinical and functional long-term outcomes. However, bone healing in patients with fracture-dislocations is impaired. While patients may self-report similar functional outcomes, patients with fracture-dislocations should be appropriately counseled on completing adequate physical therapy for range of motion exercises and returning for follow-up to ensure appropriate bony healing.