**Outcomes of Isolated Medial Tibial Plateau Fractures by Fracture Morphology**

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**Purpose:** We sought to identify a cohort of isolated medial tibial plateau fractures treated with surgical fixation and to categorize them by Moore and Wahlquist classifications in order to determine the rate of complications with each fracture morphology and the predictive value of each classification system. We hypothesized there would be high rates of neurovascular injury, compartment syndrome, and overall complications. We also hypothesized a higher incidence of neurovascular injury in Moore type III rim avulsion fractures and Wahlquist type C fractures that enter the plateau lateral to the tibial spines.

**Methods:** Patients who presented to 6 Level I trauma centers between 2010 and 2021 and underwent surgical fixation for isolated medial tibial plateau fractures were retrospectively reviewed. Data including demographics, radiographs, CT scans, complications, and functional outcomes were collected.

**Results:** 150 isolated medial tibial plateau fractures were included. All patients were classified by the Wahlquist classification of medial tibial plateau fractures, and 139 patients were classifiable by the Moore classification of tibial plateau fracture-dislocations. 9% of fractures presented with neurovascular injury: 5% with isolated vascular injury and 6% with isolated nerve injury. There were no significant differences in neurovascular injury by fracture type (Wahlquist P = 0.16, Moore P = 0.33). Compartment syndrome developed in 2 patients (1.3%). The average final range of motion was 0.8-122° with no difference by Wahlquist or Moore classifications (P = 0.11, P = 0.52). The overall complication rate was 32% without differences by fracture morphology. The overall rate of return to the operating room (OR) was 25%.

**Conclusion:** Isolated medial tibial plateau fractures carry a high risk of neurovascular injury and should receive a meticulous neurovascular exam on presentation. No specific fracture pattern was found to be predictive of neurovascular injuries, complications, or final knee range of motion. Patients should be counseled preoperatively regarding high rates of complications and return to the OR.