

Tibial Plateau Fracture With Ipsilateral Tibial Shaft Fracture, Single Implant Vs Dual Implant: A Case Report And Surgical Treatment Option

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INTRODUCTION:

Ipsilateral tibial plateau and tibial shaft fractures are complex injuries that typically result from high energy mechanisms. It representing 3.2% of all tibial shaft fractures and 8.4% of all tibial plateau fractures.¹ Determination of the appropriate fixation strategy for these complex injuries can be difficult due to fracture morphology, fracture location, and associated soft tissue injury. The goal in treatment of these injuries is to combine two different fixation constructs that address each fracture individually to provide the optimal environment for healing.

REPORT:

A 47 years old lady involved in a motorvehicle accident, where she sustained a high impact injury to the chest, left upper limb & left lower limb and pelvic region injury. She sustained a polytrauma injury, where by she sustained multiple ribs fracture with flail chest and right pneumohaemthorax and bilateral lung contusion, a dislocated left shoulder without fracture, a stable pelvic fracture (superior & inferior pubic rami fracture), a segmental open left femur fracture (distal 3rd femur with intertrochanteric fracture), left tibial plateau fracture (shatzker IV) with ipsilateral middle 1/3rd tibia shaft fracture.(figure 1)

Patient was initially managed through damage control orthopaedic(DCO) approach involving multidiscipline. Additional images were conducted for further evaluation of the injuries including PAN CT images. The open fracture left femur was thoroughly debrided within 48hours post trauma and the fracture was temporarily stabilized with skeletal traction.

The definitive fixation surgery was planned for long proximal femoral nail of the left femur and dual implant fixation of the left tibia, which was planned for medial plating of left tibia with interlocking nail of left tibia. Surgery started with patient in supine positioned on radiolucent table with a bolster underneath left knee in approximately 30° flexion. Medial tibial plateau was fixed first with medial approach to proximal tibia. The locking plate was placed slightly posteromedial to avoid from blocking the intramedullary nail. The medial plateau was reduced and fixed with medial locking plate. Entry point for interlocking nail was then located with Image intensifier. The length, alignment & rotational

deformity of the shaft corrected in closed method. Once the nail locked, additional locking screw was inserted over the medial proximal tibia locking plate to make the construct more stable.

Post op xrays (figure 2) showed articular surface of tibial well reduced and shaft alignment, length and rotation restored.



Figure 1: Preoperative xray



Figure 2: Post operative xray

CONCLUSION:

Ipsilateral fracture of tibial plateau & tibia shaft are rare incident usually result from high impact trauma which associated with other nonorthopaedic injuries. Preoperative planning are essential including type of implant, fixation construct and timing of surgery. When combining tibia plateau plate and intramedullary nail, reduction of articular surface is priority but placement of plate need to be planned accordingly to allow subsequent passage of intramedullary nail.

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