

## **CASE REPORT: TWO IS BETTER THAN ONE; DOUBLE-PLATING OF COMPLEX C3-TYPE DISTAL FEMUR FRACTURES**

Esther Lee Hui Li<sup>1</sup>, Tie Teck Liang<sup>1</sup>

<sup>1</sup>Hospital Sibul

**Introduction:** C3-type distal femur fractures are characterized by extensive articular damage and marked comminution<sup>1</sup>. This report is our experience using the double-plating fixation method.

**Discussion:** A 51 years old gentleman was hit by a car while changing tires by the roadside. Post trauma, he sustained pain and swelling over distal right thigh. There were no clinical signs indicating an open fracture and neurovascular status was intact. Radiographs showed an OTA C3-type fracture of right distal femur. Computed tomography (CT) showed an intercondylar split fracture, Hoffa fragment of the medial condyle and metaphyseal fracture line close to the articular surface. An extensile lateral parapatellar approach was used for adequate exposure of the articular surface. A lateral distal femur locking compression plate (LDFLCP) and a LDFLCP was placed anteromedially to form an orthogonal construct. Patient was followed up for 4 months, with serial radiographs showing signs of union. Patient is able to perform partial weight bearing and right knee active range of motion is 0-105°. **DISCUSSION:** The principles of management of distal femur fractures are anatomical reduction and a stable fixation for early functional mobilization. ORIF of C3-type fractures are technically challenging and requires a good visualization of the articular surface via extensive lateral parapatellar approach. The concept of double-plating utilizes the column theory analogous to the management of distal humerus fractures. A 90-90° construct offers a higher structural stability of the fixation as it resists deformation in both coronal and sagittal planes. The stability also encourages higher rates of union and lowers risk of non union. Comparatively, anatomic reduction can't be achieved with intramedullary nailing. Single plate fixation is inadequate to provide structural stability in highly complex C3-type fractures. Illizarov fixation are associated with higher morbidity and longer recovery time.

**Conclusion:** An extensile approach with double-plating is an effective method for anatomic reduction, stable fixation, higher union rates and early mobilization in C3-type distal femur fractures