

Coronal Plane Fractures in Intercondylar Distal Femur Fractures: An Analysis of Incidence and Major Fracture Fragments

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Purpose: Many surgeons now treat intercondylar distal femur fractures (AO/OTA type 33C) with retrograde femoral intramedullary nails (IMNs) and interfragmentary compression screws. Articular fracture fragments need to be recognized, as retrograde IMNs may not capture articular fragments with standard interlocking screws. No recent studies have visually mapped out the distal femur articular fracture fragments. The goal of the study was to identify and describe distal femur intra-articular fracture fragments in a manner analogous to the named fracture fragments of the tibial plafond.

Methods: A retrospective chart review was performed on patients treated for distal femur fractures at our institution in the past 4 years. Intercondylar distal femur fractures with CT scans were included. Fracture patterns were surveyed, drawn on a template (see Fig. 1), and categorized by 2 orthopaedic surgery residents and a board-certified orthopaedic traumatologist.

Results: 55 patients met inclusion criteria. 26 patients (47.3%) were found to have no intra-articular coronal fracture, 6 (10.9%) were found to have a medial coronal fracture, 15 (27.3%) were found to have a lateral coronal fracture, and 8 (14.5%) were found to have both medial and lateral coronal fractures. Collectively, intra-articular coronal plane fractures were identified in 29 patients (52.7%) with intercondylar distal femur fractures.

Conclusion: Distal femur intra-articular coronal plane fractures often yield large anterior and posterior condylar fracture fragments. Our study found a higher rate of coronal plane fracture (52.7%) as compared to prior commonly cited studies. Surgeons must be on the lookout for both anterior and posterior fracture fragments when treating intercondylar femur fractures with retrograde IMNs and interfragmentary compression screws.