Combined Femoral Head and Neck Fractures

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Purpose: Combined ipsilateral femoral head and neck fractures are a rare and complex injury pattern with few existing reports in the orthopaedic literature. This study aimed to establish baseline patient demographics, injury characteristics, and treatment methods and to compare how they affect patient outcomes.

Methods: This was a multicenter retrospective cohort study of patients with combined ipsilateral femoral head and neck fractures from 2004 through 2022 treated at 17 Level I academic trauma centers. The data assessed included demographics, injury characteristics (mechanism, presence/direction of hip dislocation, iatrogenic femoral neck fracture, associated injuries), treatment (ORIF, arthroplasty, surgical approach), and patient outcomes (development of avascular necrosis [AVN], conversion to arthroplasty).

Results: A total of 63 patients (79% males) was identified with a mean age of 38.5 years. The most common injury mechanism was motor vehicle collision (n = 26, 41.3%), followed by gunshot injury (n = 23, 36.5%). A minority of patients' injuries were associated with a hip dislocation (n = 24, 38.1%), of which most were posterior dislocations (95.8%). Five patients' (7.9%) femoral neck fractures were iatrogenic, occurring during attempted closed reduction of a posterior hip dislocation. Associated injuries were seen in 43 patients (68.3%), the most common being an ipsilateral acetabular fracture (n = 18, 28.6%). Of the 63 patients, 38 patients underwent surgical fixation (60.3%), 18 underwent primary arthroplasty (28.6%), 5 were treated nonoperatively (7.9%), and 2 underwent only surgical excision of incarcerated bone fragments (3.2%). Patients with gunshot injuries more often underwent fixation (78.3% ORIF vs 13.0% arthroplasty), compared to those with blunt injuries (50.0% ORIF vs 37.5% arthroplasty). For fracture fixation, surgical approach was most commonly direct anterior (36.8%), with a minority of patients undergoing a surgical hip dislocation (18.4%). Among patients who underwent fixation and had more than 6 months of follow up (n = 22), AVN developed in 54.6% and 36.4% went on to conversion arthroplasty.

Conclusion: This study represents the largest reported cohort of patients with combined ipsilateral femoral head and neck fractures. This injury pattern occurs most often in young patients, and most patients underwent surgery for fracture fixation. Complications following surgical fixation were high with more than one-third of patients requiring conversion arthroplasty.