

Outcomes of Pediatric Acetabular Fractures Managed Operatively: Results of a Consecutive Series of Patients From a Large Academic Medical Center

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Purpose: The purpose of this study is to report the epidemiology and outcomes of the largest consecutive series to date of operatively treated pediatric acetabular fractures.

Methods: This was a retrospective review undertaken at a single academic medical center after receiving IRB approval. CPT codes 27226, 27227, and 27228 were used to identify patients younger than 18 years of age, who underwent acetabular fracture fixation from September 2002 to September 2018. 90 patients were identified and demographics, comorbidities, fracture characteristics, operative details, outcomes, and follow-up information were recorded. Patients were excluded if they lacked radiographic follow-up, if they were managed nonoperatively, or if there was less than 3-month follow-up. The final cohort consisted of 71 displaced acetabular fractures treated by 11 different orthopaedic trauma surgeons. The average follow-up was 29.2 months (range, 3-190).

Results: The average age was 15.4 years (range, 11-17) with 24 patients age 14 or less. 36 patients (51%) were female. The average ISS was 13.9 (4-48) and body mass index (BMI) was 25.6 kg/m² (15-44). The most common fracture types were transverse with posterior wall (30%) and posterior wall fractures (21%). 38 fractures (54%) involved associated hip dislocation, 2 (3%) with protrusio, 24 (34%) had retained intra-articular fragments, 8 (11%) had acetabular marginal impaction, 17 (24%) had wall comminution, and 6 (8%) had associated femoral head injury. The triradiate cartilage was open in 12 patients (17%) and 9 (13%) of the fractures occurred through the triradiate cartilage. Five patients (7%) underwent closed reduction and percutaneous fixation while the remaining 66 patients (93%) underwent open reduction and internal fixation (ORIF). The average length of stay (LOS) was 8.3 days (1-44). 13 patients required intraoperative blood transfusions with an average of 2.5 units. Two patients required revision within 1 year, both for fixation failure. There were 2 cases of avascular necrosis (AVN) of the femoral head. There were no other complications at 90 days or 1 year. Two patients developed posttraumatic arthritis (1 with AVN) and required conversion total hip arthroplasty (THA), 1 at 14 years and 1 at 15 years from original ORIF. Five patients developed asymptomatic heterotopic ossification, which did not require surgery.

Conclusion: This is the largest series to date of pediatric acetabular fractures managed operatively. Pediatric patients suffering displaced acetabular fractures can be successfully treated with operative fixation and, compared to historical data on adult patients, can expect good outcomes both short and long-term.