

Clinical Outcomes of Operative Management of Acetabular Fractures in Pediatric and Adolescent Patients

Mir I. Sajid, MD; Daniel D. Wang, MD; Jessica McGraw-Heinrich, MD; Omar H. Atassi, MD; Hassan R. Mir, MD, MBA, FIOTA

Purpose: This study aims to report outcomes on a large multicenter cohort of pediatric and adolescent patients with surgically managed acetabular fractures.

Methods: All patients between the ages of 1 and 17 years who underwent surgical fixation of acetabular fractures at two Level I pediatric trauma centers from 2009 to 2024 were included in this study. Patient and injury demographics, surgical implants, and complications were recorded.

Results: In total, 44 patients with a mean age of 14.4 years (range: 1.1–17) and body mass index (BMI) of 23.9 ± 5.3 kg/m² were included and followed for an average of 7.8 months (range: 1–65). Most of the patients were male (n = 31), Risser Stage 4 (n = 21), and had closure of their triradiate cartilage (n = 30). A right acetabulum fracture occurred in 24 patients, 18 had a left-sided injury, and two had a bilateral acetabular fracture. The mean pediatric trauma score was 8.9 (range: 1–11). Fracture patterns included posterior wall (n = 28), T-type (n = 4), anterior column (n = 3), transverse (n = 3), transverse/posterior wall (n = 3), posterior column (n = 2), and posterior column/wall (n = 1). All fractures were fixed acutely. Mean surgical time was 2.6 ± 1.4 hours, and mean blood loss was 350 mL. A Kocher-Langenbeck approach was used in most patients (n = 36); an anterior intrapelvic approach was used in four patients and a lateral window approach was used in four. Plate fixation was used in 38 patients, cannulated column screws in 11, independent lag screws in four, and suture-anchors in 10. Of the patients who had radiographic follow up to union (n = 38, 86.4%), all patients had union at an average of 11.8 ± 4.4 weeks postoperatively and were fully weightbearing at 11 ± 6.8 weeks. At final follow up, pelvic pain, lower-back pain, and limp was present in three patients each. Acetabular dysplasia occurred in two patients, and leg-length discrepancy in one. One patient reported symptomatic implants that were removed surgically.

Conclusion: Surgical fixation of acetabular fractures in children and adolescents results in favorable outcomes with low rates of complication.