Survivorship of the Hip After Acetabulum Fracture

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**Purpose:** Acetabulum fractures comprise 3% of all fractures seen by orthopaedic traumatologists with treatment goals of preserving the native functional hip joint and optimizing mobility and function. The aim of this study was to determine the rate of failure of the hip joint after acetabulum fracture and to determine risk factors.

**Methods:** Review of 1105 skeletally-mature patients treated at 1 Level I trauma center for acetabulum fracture between 1998 and 2016 identified 962 patients with complete records. Patient, injury, and treatment factors were assessed regarding possible association with failure of the hip joint, defined as end-stage posttraumatic arthrosis (PTOA) or patient receiving total hip arthroplasty (THA) for pain relief.

**Results:** Mean age was 46 years (range, 17-94), with 695 males (72%), and 28% of all patients sustaining an isolated injury. Most common fracture patterns included posterior wall (289 [30%]), transverse posterior wall (162 [17%]), and associated both-column fractures (124 [13%]), accounting for 60%. All fractures united primarily: 676 (70%) operative (open reduction and internal fixation [ORIF]) and 286 nonoperative. 63 (6.5%) of 962 patients underwent THA after healing their acetabular fracture: 57 (90%) with initial operative treatment and 6 nonoperative. One other patient was treated with acute THA and was excluded from study. Mean follow-up was 20 months, and median time to THA was 12 months. Age, fracture type, ORIF, marginal impaction, and hip dislocations were significant predictors of hip joint failure. After multivariable analysis, mean injured age of THA patients was 53 versus 43 years (P <0.001). T-type fractures were most likely to fail (18%, P = 0.003), with odds ratio (OR) 4.52 (95% confidence interval [CI] 2.050-9.963). Marginal impaction was associated with failure in 16% (P <0.001) and OR 2.7 (1.447-5.164). Posterior hip dislocation was associated with failure in 9.7% (P <0.001) and OR 1.73 (0.922-3.229, P = 0.088).

**Conclusion:** The majority of patients retained their native hip at most recent follow-up. Median time to conversion to THA was 12 months. Most who had THA had initial surgical care of their fracture, likely reflecting increased fracture displacement and complexity. Older age, T-type fracture pattern, marginal impaction, and hip dislocations are all significant predictors of hip joint failure following acetabular fracture.

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