

Acetabular Fractures With and Without Associated Pelvic Ring Injury: A Comparative Evaluation of a Unique Cohort

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Purpose: Many acetabular fractures occur after high-energy trauma and are associated with injuries to other systems. When disruption of the pelvic ring occurs in conjunction, the energy imparted would expectantly be greater. As such, rates of additional injuries and complications would presumably be elevated. Our purpose was to characterize injuries and complications after acetabular fractures with and without pelvic ring injuries.

Methods: A review of all fractures of the acetabulum over 17 years at a Level-I trauma center was performed. Demographic, injury, and treatment data, hip survivorship, and complications were evaluated. Fractures were classified as described by Letournel et al. and the AO/OTA classification.

Results: A total of 975 acetabular fractures (group A) were identified in skeletally mature patients, of which 275 (28.2%) sustained associated pelvic ring injury (group A+P). Mean follow-up was 18 months for A and 27 months for A+P. Mean ISS was 19.1 and 26.1, respectively. Combined injuries were more likely to include head (16% group A vs 25% group A+P), chest (23% group A vs 40% group A+P), and abdominal (10% group A vs 24% group A+P) injuries, all $P < 0.001$. Upper extremity skeletal injuries were more common in A+P (21% group A vs 30% group A+P, $P = 0.004$), whereas frequency of lower extremity injuries did not differ. Patients with acetabular fractures alone were more likely to sustain a hip dislocation (50% group A vs 24% group A+P) and more likely to have an elementary fracture pattern (51% group A vs 31% group A+P), both $P < 0.00001$. However, transverse acetabular fracture patterns were more likely to occur in the A+P group (6% group A vs 12% group A+P, $P = 0.0006$). An anterior surgical approach for the acetabular fracture was chosen more often in A+P (16% group A vs 58% group A+P, $P < 0.00001$). No differences were seen in deep infection, deep venous thrombosis, pulmonary embolism, and nerve injury between groups. Despite more posttraumatic arthritis after A+P (12% group A vs 19% group A+P, $P = 0.013$), conversion to hip arthroplasty was no different.

Conclusion: Acetabular fractures combined with pelvic ring injury are more often associated with injury to the upper extremity and other systems. Despite this, early complications and hip survivorship appear no different between groups. Anterior-based approaches are more commonly utilized in combined patterns that may be dictated by not only pattern, but also associated injuries.