CT Scan After Acetabulum Fracture ORIF: Is There Value?

Michael T. Archdeacon, MD, MSE; ***Steven K. Dailey, MD;*** *Kaylan N. McClary, BS;*
Department of Orthopaedic Surgery, University of Cincinnati, Cincinnati, Ohio, USA

Purpose: In acetabular fracture surgery, failure to obtain an adequate reduction, residual incarcerated osteochondral joint fragments, and intra-articular hardware may result in rapid posttraumatic arthritis. Surgeons utilize intraoperative fluoroscopy and plain radiographs to mitigate these complications; however, these modalities may not provide the same diagnostic accuracy as CT.The purpose of this study was to evaluate the efficacy of routine postoperative CT scan following open reduction and internal fixation (ORIF) of acetabular fractures. We hypothesized that postoperative CT scan following acetabular fracture fixation would identify surgically correctible factors not identified with intraoperative fluoroscopy or plain radiographs.

Methods: A total of 606 consecutive patients who underwent surgical fixation of 612 acetabular fractures were identified from a prospectively collected acetabular fracture database. All patients were evaluated with intraoperative fluoroscopy in addition to three standard plain radiographs (AP pelvis and two 45° oblique Judet views). Reduction and fixation were felt to be adequate and definitive prior to exiting the operative suite based on these imaging modalities. Routine postoperative CT scan of the pelvis was obtained in 563 (93%) of the patients following 569 operative cases. Medical records were reviewed to determine whether postoperative CT scan results prompted revision surgery.

Results: There were no significant differences between index and revision surgery groups with regard to age, gender, body mass index (BMI), fracture pattern, mechanism of injury, or surgical approach ($P > 0.05$). Evaluation of 563 post-operative CT scans of the pelvis resulted in revision acetabular surgery for 2.5% of patients (n = 14). There were six (1.1%) cases of intra-articular hardware not recognized on the intraoperative fluoroscopy or pelvic radiographs. Four (0.7%) patients had residual intra-articular osteochondral fragments deemed too large to leave in the hip joint. There were three (0.5%) cases of unacceptable malreduction, and one (0.2%) case of both malreduction and an intra-articular osteochondral fragment.

Conclusion: A small percentage (2.5%) of patients will benefit from a routine CT scan following acetabular fracture fixation.

See pages 99 - 147 for financial disclosure information.