

Reduced Survival for Uncemented Compared to Cemented Total Hip Arthroplasty after Failed Open Reduction and Internal Fixation for Acetabular Fractures

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Purpose: Posttraumatic arthritis and osteonecrosis of the femoral head are common complications after operatively treated acetabular fractures. This may cause severe disabilities for the patient, necessitating a total hip arthroplasty. Even though an arthroplasty may provide good symptomatic relief, the long-term results are more uncertain and no consensus exists according to preferred prosthetic designs. With this cohort study, we aimed to investigate the medium to long-term arthroplasty survival and clinical results of total hip arthroplasty after operatively treated acetabular fractures.

Methods: We included 52 patients treated with a secondary total hip arthroplasty (THA) at a median of 2.4 (range, 0.1-14.1) years after an operatively treated acetabular fracture. The median age was 54 years (range, 11-82). Cemented arthroplasty was used for 33 patients, 10 patients had an uncemented arthroplasty, and 9 patients received a hybrid arthroplasty. Average follow-up was 8.0 (SD 5.0) years. A standard Kaplan-Meier survival analysis with censoring was done. Differences in survivorship between groups were analyzed with the log-rank test. Cox-regression was applied to identify negative predictors for survival and estimate hazard ratios. For the clinical follow-up, all patients with complete data on Harris hip score (HHS), EQ-5D, and hip disability and osteoarthritis outcome score (HOOS score), at a minimum of 2 years after THA, were included. These 45 patients with complete data were followed for a median of 7.7 (range, 2-21) years.

Results: The overall 10-year revision free survival for any cause was 79% (95% confidence interval [CI] 62%-89%). We found that uncemented THAs had a statistically significant worse survival of 57% (95% CI 21%-81%) estimated at 10 years ($P = 0.005$). Cemented THA had an estimated 10-year survival of 80% (95% CI 56%-91%), and hybrid prosthesis had 100% 10-year survival. Arthroplasties performed at a center without a pelvic fracture service also had a significantly worse 10-year survival of 51%. Cox regression showed similar results. Of the 45 patients with clinical data, 39 patients had a complete set of HHS pre- and post-THA, with a mean follow-up of 8.1 (SD 5.5) years. The average HHS increased from 53 (SD 10) prior to THA to 82 (SD 16) at the latest follow-up.

Conclusion: Total hip arthroplasty secondary to an operatively treated acetabular fracture provides good symptomatic relief. These patients are, however, complex cases and are probably best treated at specialist centers with both pelvic trauma surgeons and arthroplasty surgeons proficient in complex revisions present.