

Should We Perform Acute Total Hip Arthroplasty for all Patients Over 45 Years Old with an Acetabular Fracture Dislocation?

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Purpose: Femoral head osteonecrosis (ON) after acetabular surgery is associated with poor outcomes and often requires conversion to total hip arthroplasty (THA). Hip dislocation is often cited as the primary risk factor for femoral head ON. However, there is a large subset of patients who suffer a dislocation but do not go on to develop ON. The aim of this study was to focus on the subset of patients that present with an acetabular fracture dislocation and determine what the primary risk factors are for femoral head ON.

Methods: We report on 103 consecutive patients who presented to a single Level I trauma center over a 5-year period who underwent surgical fixation of acetabular fracture dislocation via a Kocher-Langenbeck surgical approach. All patients sustained a hip dislocation in association with the index acetabular fracture. The primary outcome was femoral head ON and conversion to THA. Fractures were classified according to the Judet and Letournel classification system. χ^2 and logistic regression analyses were performed and odds ratios (ORs) reported with 95% confidence intervals (CIs).

Results: Of the 103 patients included, 15 patients (15%) went on to develop femoral head ON with conversion to THA. The mean age of the patients who developed ON was 47 years compared to 38 years for those who did not ($P = 0.019$). Patients over the age of 45 years were over 3 times more likely to develop ON and require THA (OR 3.2 [95% CI 1.1-9.9]; $P = 0.040$). Among the entire cohort, 17 patients (17%) were treated with a greater trochanteric osteotomy at time of index surgical fixation; this is typically used at our center for wall fractures that extend more superiorly and anteriorly. The ON rate for patients who underwent trochanteric osteotomy was 30% compared to 12% for those who did not receive an osteotomy ($P = 0.058$). Patients who were over 45 years old and also required a trochanteric osteotomy were over 5 times more likely to develop postoperative ON and require THA (OR 5.3 [95% CI 1.0-26.4]; $P = 0.044$). There was no association between acetabular fracture subtype and development of ON. Associated fracture patterns as a group were also no more likely to develop ON than elementary patterns ($P = 0.380$). Finally, the presence or absence of an associated posterior wall fracture was not associated with the development of ON ($P = 0.983$).

Conclusion: For patients who present with an acetabular fracture dislocation, age over 45 years is associated with an increased risk for subsequent femoral head ON and THA conversion. Additionally, if such patients require a trochanteric osteotomy, the risk is synergistic and the likelihood of THA conversion is increased over 5-fold. These data support consideration of an acute THA in patients over the age of 45 years who present with an acetabular fracture dislocation, and particularly in the smaller subset of patients who present with a cranial and/or anterior wall that would require a trochanteric osteotomy.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.