Lower Complications in Acute THA for Intertrochanteric Femur Fractures than Delayed Conversion THA After Failed Operative Fixation

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Purpose: Although arthroplasty in the setting of a femoral neck fracture is well studied, the use of total hip arthroplasty (THA) for intertrochanteric (IT) femur fractures is relatively rare. The complication rates for both hip fracture-related arthroplasty as well as conversion THA are known to be significantly higher than elective arthroplasty for osteoarthritis. It is unknown if arthroplasty in the acute setting has higher complication rates than conversion following IT fracture fixation failure. The goal of this study is to compare complication rates between these cohorts in the setting of IT hip fractures.

Methods: A retrospective review of all patients with IT fracture and hip arthroplasty at a single tertiary referral academic institution were identified by ICD-9 and -10 codes over a 19-year period. Patients who had a THA as the index procedure for their IT fracture were included in the acute cohort. Those patients who had a conversion THA after a documented IT fracture for any reason were included in the conversion cohort. Patient records and radiographs were reviewed. Demographics data complications including reoperation, infection, and dislocation, fracture stability, and Tönnis grade were documented.

Results: There were 16 patients in the acute cohort and 34 patients in the conversion cohort with an average follow up of 18 months (standard deviation [SD] 22). There was no difference in age between the acute (mean 76, SD 9.7) and conversion (72,17) cohorts ($P = 0.34$) or in Charlson Comorbidity Index between the acute (3, 4.5) and conversion (2.1, 2.5) patients. The average time to conversion was 10 months (SD 12). Of the conversions, cut-out happened in 38% (13 of 34), of which 62% were in unstable fracture patterns. The overall reoperation rate was 12% for the acute and 29.4% conversion cohorts, respectively ($P = 0.29$). There were 2 infections (12.5%) and 1 dislocation (6.25%) in the acute cohort and 8 infections (24%) and 3 dislocations (8.8%) in the conversion cohort. Death rate was no different ($P = 0.17$) between the two groups (acute: 5 of 16 [31%]; conversion 5 of 34 [17%]). There was no correlation of Tönnis grade and dislocation ($P = 0.63$) or body mass index with infection ($P = 0.64$).

Conclusion: Patients who receive THA in the traumatic or posttraumatic setting of an intertrochanteric femur fracture face high complication rates. These treatments are rare, with small numbers even over a 19-year span at a high-volume academic center. Despite this, the conversion cohort demonstrated a two-fold increased incidence of reoperation and infection rate compared to the acute cohort. While these findings are limited by the small number of patients, acute THA is associated with less complications and this should be weighed when making the decision for patients that may require eventual THA due to preexisting arthritis or other factors.