

Intertrochanteric Fractures: Patients With Conversion To Arthroplasty From Failed Intramedullary Nailing Have Higher Rates Of Periprosthetic

Introduction: Introduction: Intramedullary nailing is the mainstay of intertrochanteric fracture treatment but may fail in the setting of unstable osteoporotic fractures. Thus, some surgeons employ arthroplasty as a primary option to treat these fractures. Prior studies have investigated arthroplasty as a treatment for intertrochanteric hip fractures, but its use remains controversial against conventional cephalomedullary nailing. The purpose of this study was to compare the preoperative characteristics, outcomes, and complications of patients with intertrochanteric fractures treated with primary arthroplasty versus those who were converted to arthroplasty after a failed nail.

Methods: A single-institution retrospective review of 39 consecutive hips between 2017 and 2023 treated for intertrochanteric hip fractures with either primary arthroplasty or cephalomedullary nailing who later required arthroplasty conversion. Baseline demographic and patient characteristic data were collected. Intraoperative characteristics, hospital stay data, postoperative ambulation metrics, and complications were collected. Mean follow up was over 2 years. Fisher's exact tests and chi-square analyses were used for categorical outcomes and independent samples t-tests were used for continuous outcomes with significance set to $P \leq 0.05$.

Results: Demographics, fracture stability, preoperative osteoarthritis, ambulatory and weight bearing status, and collected intraoperative and hospital stay variables were similar between groups. However, higher rates of revision surgery and incidence of periprosthetic joint infections were observed in the conversion group. No significant differences in postoperative complications were observed otherwise.

Discussion: The present study demonstrated that for the treatment of intertrochanteric fractures, conversion to arthroplasty after failed CMN exhibited statistically significantly higher rates of revision surgery and PJI compared to primary arthroplasty. In the primary arthroplasty group, there were no complications observed, and the 11 different complications and 14 revision surgeries observed in the study were in patients that had previously failed CMN. A complication was observed in 28.6% (6 out of 21) of the patients that underwent conversion to arthroplasty from failed CMN with a revision surgery rate of 23.8% (5 out of 21). For intertrochanteric fractures treated with CMN, historically the most common and important risk factors for failure include increasingly unstable fracture patterns, suboptimal reduction and fixation, and older patients, most likely secondary to osteoporotic bone. In the current, unstable intertrochanteric fracture patterns were found in 66.7% (4 out of 6) of the patients experiencing a complication in the conversion to arthroplasty group.

Significance/Clinical Relevance: Patients with intertrochanteric femur fractures who failed CMN and required arthroplasty conversion, had higher rates of revision surgery and PJI compared to those undergoing primary arthroplasty for the same injury. In appropriate patients at risk of failing CMN for intertrochanteric femur fracture, surgeons may consider primary arthroplasty as a reliable alternative.