Comparison of Risk Factors and Post-operative Complications in Conversion vs. Primary Total Hip Arthroplasty

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INTRODUCTION: Patients with proximal femur fractures are typically treated with cephalomedullary nails (CMN), dynamic hip screws (DHS), or closed reduction with percutaneous pinning (CRPP). Complications from these procedures often require conversion total hip arthroplasty (cTHA). This study compares outcomes and complications between cTHA and primary total hip arthroplasty (pTHA).

METHODS: This retrospective study included 140 patients (cTHA: n=70, pTHA n=70) at a single institution from 2017 to 2024. The cTHA group consisted of three failed fixation methods: DHS (9%), CMN (56%), and CRPP (36%). The pTHA patients were the control group. Associations between demographics and postoperative complications were examined.

RESULTS: The cTHA cohort was significantly older (71 vs 66 years), had a higher percentage of females (75% vs 55%), higher ASA scores (2.4 vs 2.3), and lower BMI (27 vs 29). The cTHA group also had significantly longer OR time (140 vs 79), higher EBL (378 vs 224), and longer LOS (3.5 vs 1.7). Postoperatively, cTHA patients experienced significantly more transfusions (14% vs 3%), more SNF discharges (44% vs 17%), and more overall complications (40% vs 15%). However, there were no differences in 90-day ED visit, 90-day readmission, reoperation, or dislocation. Odds ratios provided by regression analysis revealed that ASA was significantly associated with LOS (0.2), 90-day readmission (4.0), and 90-day ED visit (3.2). LOS was significantly associated with 90-day ED visit (1.2), transfusion (1.4), SNF discharge (1.5), and overall complications (1.6). Age (1.1) and EBL (1.0) were found to be significantly associated with SNF discharge.

DISCUSSION AND CONCLUSION: Patients undergoing cTHA have higher immediate postoperative complications than pTHA but achieve similar final outcomes.These findings underscore the greater complexity and resource use of cTHA, highlighting the need for careful perioperative management and patient optimization to reduce risks.

Figure 1: Anteroposterior (AP) and Lateral (LAT) hip radiographs demonstrating minimal bone remodeling at 7 months post-cephalomedullary nail (CMN) consistent with nonunion.