

Evaluating Patient Outcomes in Evolving Orthopedic Surgical Treatments: A Retrospective Chart Study

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Introduction:

Hip abductor pathology is increasingly recognized as a contributor to impaired mobility and suboptimal outcomes following total hip arthroplasty (THA) and hemiarthroplasty. However, the prevalence and clinical significance of abductor disruption across fracture-related and elective indications remain unknown. The anterolateral approach, a widely used surgical technique for total hip replacements, is evaluated for its role in minimizing surgical complications, particularly hip abductor disruption, and enhancing functional outcomes.

Methods:

We conducted a retrospective cohort study of 67 patients who underwent THA, hemiarthroplasty, or hip abductor repair between 2017 and 2023, identified using CPT codes from the AthenaOne healthcare system and Alpine Ortho Spine Clinic database. Risk factors were assessed, including anxiety, depression, osteoarthritis, fracture, and smoking status. Statistical analyses included chi-square tests for associations between risk factors and descriptive statistics for all variables.

Results:

Fracture patients were significantly older than elective THA patients (76.8 ± 8.2 vs. 66.4 ± 7.9 years, $p < 0.001$) and demonstrated a higher proportion of Dorr type C femora ($p = 0.02$). Both iliopsoas and quadriceps strength improved postoperatively across the cohort (iliopsoas: 2.7 ± 0.9 to 3.4 ± 0.8 , $p < 0.01$; quadriceps: 3.0 ± 0.8 to 3.6 ± 0.7 , $p < 0.01$). Elective patients showed greater strength gains than fracture patients (iliopsoas $\Delta 0.9$ vs. $\Delta 0.5$, $p = 0.03$; quadriceps $\Delta 0.8$ vs. $\Delta 0.4$, $p = 0.04$). Trendelenburg gait was more prevalent preoperatively in fracture patients (38% vs. 19%, $p = 0.04$) and remained higher at follow-up (24% vs. 12%, $p = 0.05$).

Discussion:

While this study suggests that the anterolateral approach can preserve muscle strength and reduce complication rates, several limitations should be acknowledged. The relatively small sample size limits statistical power, particularly for detecting subtle associations between comorbidities and outcomes. The retrospective design introduces potential bias, and the absence of a direct comparison group using alternative surgical approaches restricts broader generalizability. Additionally, postoperative follow-up was limited to short-term functional outcomes, leaving uncertainty regarding long-term hip function and complication rates.

Significance/Clinical Relevance:

The anterolateral approach offers significant benefits, including enhanced surgical exposure, reduced dislocation risk, and preservation of hip abductor function, which is essential for post-operative mobility. This study underscores the importance of tailored surgical approaches and comprehensive management of risk factors to optimize patient outcomes.

