

Risk of Dislocation by Surgical Approach Following Modern Primary Total Hip Arthroplasty

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Introduction: There is renewed interest in dislocation after surgical approach with popularization of the direct anterior approach. The purported advantage of both the lateral and direct anterior approaches is decreased risk of dislocation. The purpose of this study was to assess the risk of dislocation by approach following modern primary total hip arthroplasty (THA).

Methods: All primary THAs at a single academic institution from 2010 to 2017 were analyzed through our institutional total joint registry. There were 7,023 THAs including 3,754 posterior, 1,732 lateral, and 1,537 direct anterior. Risk of dislocation was assessed against the competing risks of revision surgery, death, patient factors and surgical approach. All-cause revision was assessed as a secondary outcome. Mean age was 63 years, 51% were female, and mean body mass index (BMI) was 30 kg/m². Median follow-up was 2 years.

Results: The cumulative incidence of dislocation at 1-year and 5-years by approach was as follows: posterior (2.1%; 3.0%), lateral (0.7%; 0.7%), direct anterior (0.4%; 0.4%) ($p < 0.001$). Compared to the posterior cohort, the adjusted risk of dislocation was decreased for the lateral (hazard ratio [HR]=0.28, $p < 0.001$) and direct anterior cohorts (HR=0.18, $p < 0.001$). The cumulative incidence of revision for instability at 1-year and 5-years by approach was as follows: posterior (0.8%; 1.0%), lateral (0.6%; 0.6%), direct anterior (0%; 0%) ($p = 0.09$). The adjusted risk of all-cause revision surgery was increased among the lateral cohort compared to posterior (HR=1.75, $p = 0.003$) and direct anterior (HR=2.44, $p = 0.002$) and among patients with diagnoses other than osteoarthritis (HR=2.89, $p < 0.001$). Among patients who dislocated, 69 (83%) had anteversion $> 25^\circ$.

Conclusions: This study documents the risk of dislocation by surgical approach among a large contemporary cohort undergoing primary THA. The risk of dislocation was higher following the posterior approach; whereas, all-cause revision surgery was found to be higher following the lateral approach.