

Direct Anterior Approach: Risk Factor for Early Femoral Failure of Cementless Total Hip Arthroplasty

A Multicenter Study

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Background: The direct anterior approach for total hip arthroplasty (THA) is marketed with claims of superiority over other approaches. Femoral exposure can be technically challenging and potentially lead to early failure. We examined whether surgical approach is associated with early THA failure.

Methods: A retrospective review of 478 consecutive early revision THAs performed within 5 years after the primary THAs at 3 academic centers from 2011 through 2014 was carried out. Exclusion criteria resulted in a final analysis sample of 342 early-failure THAs. The surgical approach of the primary operation that was revised, the time to the revision, and the etiology of the failure leading to the revision were documented.

Results: Analysis of the revisions due to early femoral failure showed them to be more common in patients who had undergone the direct anterior approach (57/112; 50.9%) than in those treated with the direct lateral (39/112; 34.8%) or the posterior (16/112; 14.3%) approach ($p = 0.001$). In multivariate regression analysis controlling for age, sex, laterality, Dorr bone type, body mass index (BMI) at revision, bilateral procedure (yes/no), and femoral stem type, the direct anterior approach remained a significant predictor of early femoral failure ($p = 0.007$). The majority of early revisions due to instability were associated with the posterior (19/40; 47.5%) or direct anterior (15/40; 37.5%) approach ($p = 0.001$ for the comparison with the direct lateral approach [6/40; 15.0%]).

Conclusions: Despite claims of earlier recovery and improved outcomes with the direct anterior approach for THA, our findings indicate that that approach may confer a greater risk of early femoral failure and, along with the posterior approach, confer a greater risk of early instability compared with the direct lateral approach.

Level of Evidence: Therapeutic Level III. See Instructions for Authors for a complete description of levels of evidence.

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Despite primary total hip arthroplasty (THA) being one of the most successful and reproducible surgical procedures in medicine¹⁻⁴, a disturbing trend of increasing early THA failure rates ranging from 24% to 50% within 5 years after the primary surgery has been documented in the last decade⁵⁻⁷. As we develop new techniques and introduce innovation into practice, the risk of failure and the potential for patient

harm must be considered and mitigated. The direct anterior approach for THA was developed as a true internervous and intermuscular surgical approach⁸ with proposed benefits of faster recovery, quicker return to function, and less pain. Despite superiority claims and widespread marketing⁹, conflicting or equivocal findings have been published regarding implant alignment and placement¹⁰⁻¹⁶; nerve damage¹⁷⁻²⁰; muscle

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