

Is the Anterior Approach for Total Hip Arthroplasty Associated with a Higher Incidence of 90-Day Complications in Patients with Body Mass Index ≥ 40 ?

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INTRODUCTION: There is a vast and growing body of literature comparing the outcomes of an anterior versus posterior approach for primary total hip arthroplasty (THA). However, the preferred approach in patients with class III obesity (BMI ≥ 40) is not known.

METHODS:

We identified 447 patients with a BMI ≥ 40 on the day of primary THA at a single, high-volume institution. Patients were stratified into cohorts based on whether an anterior or posterior approach was performed. The vast majority (431/447; 96%) underwent a posterior approach while 16 (4%) underwent an anterior approach. Baseline demographic and comorbidity data were summarized and compared between the cohorts. The primary outcome of interest was the rate of 90-day complications in each cohort. Complications were evaluated in a standardized fashion using Center for Medicare & Medicaid Services (CMS) and Hip Society guidelines. There were no significant differences between the cohorts with respect to age ($p=0.81$), sex ($p=0.44$), BMI ($p=0.51$), American Society of Anesthesiologists (ASA) score ($p=1.0$), Charlson Comorbidity Index (CCI) ($p=0.41$), incidence of diabetes ($p=0.52$), incidence of obstructive sleep apnea ($p=0.80$), smoking status ($p=0.49$), or the use of intraoperative technology ($p=0.52$).

RESULTS: The overall rate of complications was 14.6% (63/431) in the posterior cohort compared to 43.8% (7/16) in the anterior cohort ($p=0.002$). The most frequent complications were wound complications, abductor dysfunction, periprosthetic fracture, surgical site bleeding, and thromboembolic disease (Table I). Multivariable logistic regression revealed that approach was independently associated with complication risk (OR 4.5; $p=0.004$) after adjusting for confounding variables.

DISCUSSION AND CONCLUSION: There was a higher rate of 90-day complications in patients with a BMI ≥ 40 who underwent THA through an anterior approach. Given the rising rates of THA in patients with class III obesity, larger prospective studies be targeted toward understanding the optimal surgical techniques in this unique patient population.

Table I. Individual and total complications in patients who underwent posterior versus anterior THA.

Complication	Posterior (n=431)	Anterior (n=16)	P-Value
Sepsis	1 (0.2%)	0	1.000
Surgical Site Bleeding	10 (2.3%)	1 (6.3%)	0.333
Wound Complications	22 (5.1%)	2 (12.5%)	0.210
Thromboembolic Disease	3 (0.7%)	1 (6.3%)	0.136
Neural Deficit	4 (0.9%)	0	1.000
Periprosthetic Fracture	2 (0.5%)	1 (6.3%)	0.104
Abductor Dysfunction	19 (4.4%)	2 (12.5%)	0.170
Implant Loosening	2 (0.5%)	0	1.000
Reoperation	1 (0.2%)	0	1.000
Revision	1 (0.2%)	0	1.000
Readmission	13 (3%)	0	1.000
Total Complication Rate	63 (14.6%)	7 (43.8%)	0.002