

Surgical Approach and BMI Impact Risk of Wound Complications following Primary Total Hip Arthroplasty

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INTRODUCTION: Previous studies have suggested that wound complications may differ by surgical approach after total hip arthroplasty (THA), with particular attention to direct anterior approach (DAA) compared to laterally-based incisions. There is a paucity of data documenting wound complication rates by surgical approach and the impact of concomitant patient factors, namely body mass index (BMI). The purpose of this study was to determine rates of wound complications by surgical approach and identify BMI thresholds that portend differential risk.

METHODS: This multicenter study used an institutional total joint registry to evaluate all primary THA patients from 2010 – 2022. Patients were classified by skin incision as laterally-based approach (posterior or lateral approach) or DAA (longitudinal incision). We identified 17,111 patients with 11,585 laterally-based (68%) and 5,526 (32%) DAA THA. Mean age was 65 years, 52% were female, and mean BMI was 30. Kaplan-Meier, Cox regression, and cut point analyses were performed to identify an optimal BMI cutoff, overall and by approach, with respect to wound complications at 90-days.

RESULTS: The 90-day risk of wound complications was higher in the DAA group versus the laterally-based group with an absolute risk of 4.2% vs. 2.8% and a multivariable adjusted hazard ratio of 1.5 ($p < 0.001$). Cut point analysis demonstrated the most marked difference in risk for laterally-based patients above a BMI of 39, whereas the most marked difference in risk for DAA patients occurred above a BMI of 33.

DISCUSSION AND CONCLUSION: Wound complications are higher after primary THA with longitudinal incision DAA compared to laterally-based approaches with a 1.4% higher absolute risk and adjusted hazard ratio of 1.5. Furthermore, DAA wound complication rates increase at a lower BMI threshold of 33 versus 39 compared to laterally-based approaches. These data can be used by surgeons to help consider risks and benefits of approach selection.