Does Lumbar Spinal Fusion Affect THA Stability – An Evaluation of Surgical Approach for THA?

Joseph Bechay  
*Thomas Jefferson University, joseph.bechay@jefferson.edu*

Dhruv K.C. Goyal  
*Thomas Jefferson University, dhruv.goyal@jefferson.edu*

Srikanth N. Divi, MD  
*Thomas Jefferson University, srikanth.divi@jefferson.edu*

Matthew S. Galetta  
*Thomas Jefferson University, matt.galetta@jefferson.edu*

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Authors
Joseph Bechay; Dhruv K.C. Goyal; Srikanth N. Divi, MD; Matthew S. Galetta; I. David Kaye, MD; Mark F. Kurd, MD; Barrett I. Woods, MD; Kris E. Radcliff, MD; Jeffrey A. Rihn, MD; D. Greg Anderson, MD; Alan S. Hilibrand, MD; Christopher K. Kepler, MD, MBA; Alex R. Vaccaro, MD, PhD, MBA; and Gregory D. Schroeder, MD
Introduction: Lumbar spine fusion (LSF) has been demonstrated to increase the risk of dislocation in patients who have undergone Total Hip Arthroplasty (THA), especially when the LSF was performed prior to the THA. Rates of dislocation have been published as high as 7.4%. The intrinsic stability of THA is higher after anterior surgical approaches as compared to a posterior approach for THA – possibly related to retention of the posterior capsule with anterior approaches to the hip. There are no data on whether surgical approach for THA – anterior vs posterior – affects this increased risk of dislocation in patients with LSF. The purpose of this project is to determine whether anterior or posterior THA approach type influences the rate of dislocation in patients who have a concomitant lumbar spinal fusion.

Methods: Patients who had received both an LSF and a THA were identified and placed into one of two groups: anterior or posterior THA approach. Pearson Chi-square analysis or Fisher’s Exact Test was conducted to compare the differences in dislocation rates between groups. A subsequent analysis was conducted, stratifying patients based on the order in which they received the LSF or THA—with a focus on the LSF prior to THA subgroup.

Results: A total of 690 (92.1%) patients were in the anterior group, while the remaining 59 (7.9%) were in the posterior THA approach group. There was a total of 3 dislocations (0.4%) and 2 dislocations (3.4%) after a posterior hip arthroplasty. This represents a 9-fold higher frequency of dislocation using a posterior approach (p=0.052). When stratifying groups based on the order of LSF or THA received, a total of 412 patients (55.0%) received an LSF prior to THA, with 376 (91.3%) patients in the anterior approach group and the remaining 36 (8.7%) in the posterior THA group. There was 1 dislocation (0.3%) in the anterior THA group and 2 dislocations (5.6%) in the posterior THA group. The 19-fold difference in dislocation rates between approach types in this subgroup was found to be significant (0.021).
Discussion: The anterior approach appears to provide substantial stability to the THA construct when compared to the posterior approach—this is maintained even in the presence of a prior lumbar spinal fusion. This is a particularly important finding that suggests surgeons may want to consider opting to perform an anterior THA in patients who have also had a previous LSF.