

Time to Dislocation Analysis of Lumbar Spine Fusion Following Total Hip Arthroplasty: Breaking Up a Happy Home

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Introduction: Prior studies reported an increased risk of dislocation in patients undergoing THA after LSF. Less understood is hip stability in patients with a previously stable THA undergoing LSF. This scenario is complicated not only by the need to understand when any resultant instability manifests but also by selecting appropriate controls. The aim of this study was to describe the dislocation free survival experience of patients with a previously stable THA undergoing LSF and to compare it to that of similar patients not undergoing LSF.

Methods: A retrospective analysis of Center for Medicare Service billing data from 2005 and 2014 was conducted utilizing the PearlDiver platform. Stable THA was defined as having no dislocation event within six months of THA. A 10-year Kaplan Meier survival analysis was performed to evaluate dislocation free survival.

Results: There were 863,182 patients that met inclusion criteria for primary THA. Among these, 17,223 patients underwent subsequent LSF. The comparison of Kaplan Meier Survival Analysis plots demonstrates a substantially sustained increase in the rate of dislocation that persists to long-term follow-up. Ten-year dislocation free survival for patients undergoing LSF after primary THA was 92.9%. Among primary THA without LSF there was a significantly higher dislocation free survival at 10 years (95.8%, $P < 0.001$). Stratified by level of fusion the 10-year survival was 93.9% among those undergoing Fusion of 2-3 vertebra while it was 91.6% in those undergoing Fusion of 4-8 vertebrae ($P = 0.12$).

Conclusions: This study demonstrates that dislocations of primary THA are significantly more common in patients who undergo subsequent LSF and that this increased risk is experienced not just in the perioperative period but persists for at least 10 years. This underscores the importance of counseling all patients undergoing LSF following THA on what is likely an increased lifetime risk of dislocation.