

Learning From the First THA: Improved baseline PROMs and Lower Healthcare Utilization After Contralateral THA, Predicted by Index Surgery Outcomes

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INTRODUCTION:

Up to 30% of patients who undergo total hip arthroplasty (THA) will proceed to contralateral surgery within 10 to 15 years. While healthcare utilization after unilateral THA is well studied, the evolving perioperative profile of patients undergoing contralateral THA—and how prior surgical experience may influence outcomes—remains unclear. In particular, whether patients present for their second surgery with different functional or mental health profiles has not been explored. This study aimed to (1) characterize changes in baseline PROM phenotypes between index and contralateral THA and (2) compare healthcare utilization metrics including length of stay (LOS), discharge disposition (DD), and 90-day readmission. We also assessed whether utilization patterns from the index procedure predicted those of the contralateral surgery.

METHODS:

This retrospective cohort study included 1,151 patients who underwent contralateral primary THA from 2016 to 2023 at a single academic center. PROM phenotypes were defined based on whether baseline HOOS Pain, Physical Function (PS), and Mental Component Score (MCS) were above or below the cohort median, forming eight phenotype categories. Utilization outcomes (LOS ≥ 3 days, non-home discharge, and 90-day readmission) were compared between index and contralateral THA using paired tests. Multivariable logistic regression identified predictors of utilization following the second surgery.

RESULTS:

Patients presented with improved PROM phenotypes prior to contralateral THA: the most favorable phenotype (P+PS+MCS+) increased from 21% to 32%, while the least favorable (P-PS-MCS-) declined from 28% to 19% ($p < 0.001$). Contralateral THA was associated with lower rates of non-home discharge (7.8% vs. 5.6%, $p < 0.001$) and prolonged LOS (12% vs. 8.7%, $p = 0.002$), with no difference in 90-day readmission (4.0% vs. 4.6%, $p = 0.58$). Patients with prolonged LOS after the index THA were over 12 times more likely to experience it again after the contralateral THA (OR 12.8, $p < 0.001$). More favorable baseline phenotypes were independently associated with reduced healthcare utilization.

DISCUSSION AND CONCLUSION:

Patients undergoing contralateral THA present with improved preoperative PROM phenotypes, reflecting higher baseline function and mental health prior to the second surgery. These phenotype shifts are associated with reduced healthcare utilization, including shorter hospital stays and more frequent discharge to home. Importantly, baseline PROM phenotype and prior surgical outcomes were strong predictors of utilization patterns after contralateral THA. These findings support the prognostic utility of PROM phenotypes in anticipating postoperative needs and tailoring perioperative care strategies in patients undergoing staged arthroplasty.

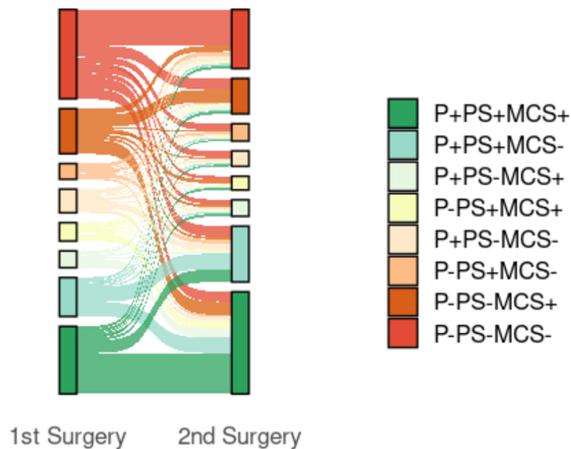


Table1 Summary table for Outcomes

Characteristic	Surgery Time		p-value ²	N
	1, N = 1,151 ¹	2, N = 1,151 ¹		
DD			<0.001	2,276
Non-home	89 (7.8%)	64 (5.6%)		
Home/home health care	1,049 (92%)	1,074 (94%)		
LOS			0.002	2,276
No	1,005 (88%)	1,039 (91%)		
Yes	133 (12%)	99 (8.7%)		
Readmission			0.58	2,276
No	1,092 (96%)	1,086 (95%)		
Yes	46 (4.0%)	52 (4.6%)		
Reoperation	12 (1.0%)	26 (2.3%)	0.030	2,302
ED			0.27	2,302
No	1,059 (92%)	1,044 (91%)		
Yes	92 (8.0%)	107 (9.3%)		

¹n (%)

²McNemar's Chi-squared test with continuity correction; random intercept logistic regression