Does Prior Hip Arthroscopy Lead to Inferior Outcomes after Total Hip Arthroplasty? A Propensity-Matched Study

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INTRODUCTION:

Understanding factors that impact outcomes of total hip arthroplasty (THA) can aid clinical decision-making and patient counselling. The purpose of this study was to investigate functional outcomes, complications, and reoperation rates among patients undergoing primary THA after hip arthroscopy (HA-THA) compared to a matched cohort of primary THA patients without prior arthroscopy (THA-only).

METHODS: A retrospective review was performed to identify all patients who underwent primary THA after prior hip arthroscopy from 2009-2022 at a single institution. Patients with a history of revision arthroscopy were excluded. Cases were propensity-matched with primary THA controls in a 1:4 ratio by age at time of THA, sex, body mass index, surgical approach, and year of surgery. All patients underwent primary total hip arthroplasty, performed via either the posterior (Moore/Southern) approach, anterolateral (Watson-Jones) approach, or direct anterior approach via the Smith-Petersen interval. At minimum 2-year follow-up, patient-reported outcomes (PROs) including Forgotten Joint Score (FJS), Modified Harris Hip Score (mHHS), Hip Disability and Osteoarthritis Outcome Score Pain (HOOS-Pain), and Visual Analog Pain Scale (VAS) were analyzed.

RESULTS:

Sixty-two hips in 59 patients (age: 47.5±9.3 years, BMI: 29.7±6.2 kg/m^2) were matched to 248 THA-only hips, with conversion to THA at mean 3.1 years following hip arthroscopy. Forty-two hips (68%) were female. Thirty-three hips (54%) underwent a posterior approach, 22 hips (36%) underwent a direct anterior approach, and 6 (10%) an anterolateral approach. Among HA-THA cases, preoperative Tonnis grading revealed Tonnis grade 1 in 30 cases (48%), Tonnis grade 2 in 20 cases (32%), and Tonnis grade 3 in 12 cases (20%). For THA-only controls, 42 hips (17%) were Tonnis grade 1, 116 hips (47%) were Tonnis grade 2, and 90 hips (36%) were Tonnis grade 3, differing significantly from HA-THA cases (p<0.001). Indications for THA were not significantly different between cohorts and included: osteoarthritis (HA-THA: 60%, THA-only: 57%), dysplasia (HA-THA: 35%, THA-only: 29%), avascular necrosis (HA-THA: 3%, THA-only: 10%), and arthropathies (HA-THA: 2%, THA-only: 4%; p=0.224).

Preoperatively, there were no differences in the average mHHS between cases and controls (56 vs. 57; p=0.710). At an average of 6.6±3.3 years follow-up, all hips demonstrated significant improvements in mHHS compared to preoperative levels (87 vs. 57; p<0.001). While both groups surpassed the Patient Acceptable Symptom State (PASS) threshold for mHHS, the THA-only group achieved significantly higher scores than the HA-THA cohort (90 vs. 78; p<0.001, **Figure 1**). HA-THA patients with Tonnis grades 2-3 reported significantly increased postoperative FJS, mHHS, and HOOS-Pain scores compared to those with preoperative Tonnis grade 1 (p≤0.05, **Table 1**). HA-THA patients with Tonnis grade 1 exhibited worse PROs (p<0.001) as compared to their matched THA-only control (**Table 2**).

While there were no differences in overall complication rates between HA-THA and THA-only patients (8% vs. 5%; p=0.493), all-cause reoperation was greater amongst HA-THA patients compared to THA-only (10% vs. 2%; p=0.011, **Table 3**).

DISCUSSION AND CONCLUSION:

Patients undergoing THA after prior hip arthroscopy demonstrated inferior outcomes at mid-term follow up compared to an age-matched cohort without prior arthroscopy. When considering conversion to THA following arthroscopy, clinicians should counsel patients regarding the potential for increased all-cause reoperation and improved outcomes among those with advanced radiographic osteoarthritis.
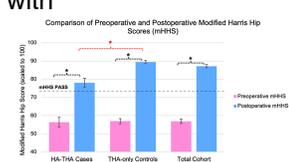

Figure 1. Comparison of preoperative and minimum 2-year postoperative Modified Harris Hip Scores (mHHS) in HA-THA cases, THA-only controls, and the overall cohort. Both HA-THA cases and THA-only controls demonstrated achievement of the Patient Acceptable Symptom State (PASS) threshold. *Indicates p < 0.001.

Table 1. Postoperative patient-reported outcomes in HA-THA cases by preoperative Tonnis grade

Table 2. Patient reported outcomes in HA-THA cases with Tonnis grade 1 compared to matched THA-only controls

Table 3. Complications, Reoperations, and Revisions: HA-THA cases compared to matched THA-only controls

	Cases (n=63)	Controls (n=252)	p-value
Complications	5 (8%)	12 (5%)	0.493
Dislocation	2	6	
Liner Dissociation	1	0	
Deep Infection	2	0	
Superficial Wound Infection/Dehiscence	0	4	
Periprosthetic Fracture	0	2	
Reoperations	6 (10%)	5 (2%)	0.011
Psoas Release	4	1	
Superficial Irrigation & Debridement (I&D)	0	1	
Debridement, Antibiotics, and Implant Retention (DAIR)	1	0	
Revision, two-stage	1	0	
Revision, femoral component*	0	2	
Revision, both components**	0	1	

*For periprosthetic fracture
**For instability