Effects of Previous Lumbar Spinal Surgery on Long-Term Outcomes Following Hip Arthroscopy for Femoroacetabular Impingement Syndrome: A 10-Year Propensity-Matched Analysis
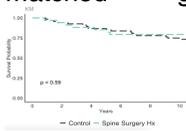
Eric Hu, Jesus Emanuel Cervantes, Andrew Bi, Shane Jay Nho

INTRODUCTION: Given the close relationship between the spine and hip, concomitant pathology within the two can delay the diagnosis and treatment of femoroacetabular impingement syndrome (FAIS). Previous literature has shown patients with coexisting lumbar spine pathology to have inferior outcomes at short-term follow-up. Given the lack of long-term data, especially with reoperation survivorship, the purpose of this study was to examine the effect of previous lumbar spine surgery on 10-year patient-reported outcomes (PROs), clinically significant outcomes (CSOs) and reoperation rates in patients undergoing primary hip arthroscopy for FAIS.

METHODS: Patients undergoing hip arthroscopy for FAIS between January 2012 and October 2014 with 10-year follow-up were included. Patients that reported prior lumbar spine surgery were propensity-matched 1:2 to patients reporting no spine surgery by age, sex, and body mass index (BMI). PROs collected included Hip Outcome Score-Activities of Daily Living and Sports Subscale (HOS-ADL/HOS-SS), modified Harris Hip Score (mHHS), and Visual Analog Scale (VAS) for Pain and Satisfaction. Achievement of minimal clinically important difference (MCID) and patient acceptable symptom state (PASS) were compared. Reoperation-free survivorship was compared with Kaplan-Meier analysis.

RESULTS: 31 patients in the prior spine surgery group (age: 43.4±10.0 years, 58.1% female, BMI: 27.5±4.7 kg/m2) were matched to 62 patients in the short preoperative pain group (age: 44.1±10.5 years, 61.3% female, BMI: 26.8±5.4 kg/m2). Lumbar spine surgery largely consisted of fusion and discectomy. Patients with prior spine surgery reported significantly higher preoperative back pain (p<0.001). Preoperative and 2-year PROs were similar between groups. At 5-years, prior spine surgery patients had worse mHHS (p = 0.007). No differences were seen at 10-year follow-up or the degree of improvement from pre-operation to 10-year follow-up. The spine surgery group also had significantly lower achievement of MCID for VAS Pain (p = 0.042) with similar PASS achievement for all PROs. Reoperation survivorship did not differ between groups (p = 0.890)

DISCUSSION AND CONCLUSION: Patients who underwent prior lumbar spine surgery prior to hip arthroscopy for FAIS show significantly improved PROs, high achievement of MCID/PASS, and reoperation free survivorship comparable to a matched group of patients who did not have previous spine surgery.

Kaplan-Meier survival curve (p = 0.89), Control vs. Spine Surgery Hx.

Table 4. Clinically Significant Outcomes

	Spine Surgery	No Spine Surgery	p-value
MCID			
HOS-ADL, %	85.3	56.8	0.049
HOS-SS, %	84.2	63.6	0.260
mHHS, %	69.6	66.7	1.000
VAS Pain, %	72.7	84.2	0.320
Any, %	95.8	91.5	1.000
PASS			
HOS-ADL, %	53.8	64.4	0.455
HOS-SS, %	68.8	67.3	1.000
mHHS, %	57.7	65.1	0.412
VAS Pain, %	70.4	68.1	1.000
Any, %	80.8	79.7	1.000

Table 3. Patient Reported Outcomes

	Spine Surgery	No Spine Surgery	p-value
Preoperative			
HOS-ADL	57.3 ± 15.9	65.7 ± 18.2	0.029
HOS-SS	37.3 ± 17.1	44.3 ± 27.8	0.139
mHHS	51.1 ± 10.5	59.2 ± 14.4	0.018
VAS Pain	70.7 ± 17.3	71.1 ± 18.8	0.924
2-Year			
HOS-ADL	76.9 ± 22.6	83.6 ± 15.7	0.139
HOS-SS	59.1 ± 28.9	60.4 ± 26.5	0.293
mHHS	72.8 ± 19.7	70.9 ± 16.2	0.164
HOS-12	59.4 ± 32.8	66.3 ± 28.1	0.488
VAS Pain	26.3 ± 27.7	23.8 ± 26.8	0.708
VAS Sat	75.3 ± 29.7	81.4 ± 26.5	0.199
5-Year			
HOS-ADL	82.3 ± 19.3	84.7 ± 18.3	0.604
HOS-SS	68.4 ± 31.4	72.0 ± 26.6	0.658
mHHS	73.5 ± 19.4	77.2 ± 14.8	0.411
HOS-12	75.9 ± 27.2	76.3 ± 23.5	0.957
VAS Pain	25.1 ± 30.4	24.4 ± 23.4	0.919
VAS Sat	88.8 ± 19.2	89.3 ± 18.9	0.919
Delta (Pre-10-Year)			
HOS-ADL	25.5 ± 19.6	19.6 ± 22.8	0.291
HOS-SS	40.5 ± 28.1	32.6 ± 32.9	0.562
mHHS	22.8 ± 21.8	17.9 ± 19.1	0.389
VAS Pain	-45.7 ± 31.1	-47.6 ± 32.3	0.837

Table 2. Intraoperative Findings and Procedure Performed

	Spine Surgery	No Spine Surgery	p-value
Intraoperative Findings			
Acetabular Cartilage (Beck)			0.478
0-2, %	79.4	72.1	
3-6, %	20.6	27.9	
Femoral Head Cartilage (ICRS)			0.027
0-2, %	100	86.8	
3-6, %	0	13.2	
Procedure Performed			
Femoroplasty, %	97.1	97.6	1.000
Labral Repair, %	97.1	93.0	1.000
Rim Trim, %	85.3	92.5	0.200
Capsular Plication, %	97.1	95.5	1.000

Table 1. Demographics and Radiographics

	Spine Surgery	No Spine Surgery	p-value
Demographics			
Sample Size, n	34	68	
Follow-up, years	10.4 ± 0.3	10.4 ± 0.3	0.964
Age, years	43.4 ± 9.0	44.2 ± 10.5	0.791
BMI, kg/m²	27.4 ± 4.6	27.5 ± 5.6	0.795
Female, %	52.9	61.8	0.405
Psych History, %	38.2	14.7	0.108
Back Pain, %	79.4	13.2	<0.001
Pre-Op Activity ≥ 1 Week, %	51.5	62.7	0.347
Post-Op Opioid Refill, %	17.6	26.9	0.336
Pre-Operative Injection, %	73.5	77.3	0.820
Radiographics			
Alpha Angle, degrees	63.8 ± 12.6	64.0 ± 13.6	0.728
LCEA, degrees	31.3 ± 6.9	31.5 ± 6.5	0.853
Tönnis Angle, degrees	6.9 ± 4.2	6.9 ± 4.7	0.938
Tönnis Grade			0.449
0, %	75.0	66.2	
1, %	25.0	33.8	
Postoperative			
Alpha Angle	38.9 ± 5.9	39.7 ± 5.1	0.404
LCEA	29.2 ± 6.0	29.6 ± 5.9	0.756
Tönnis Angle	7.9 ± 5.1	6.9 ± 5.2	0.432

Table 5. Secondary Surgery

	Spine Surgery	No Spine Surgery	p-value
Reoperation			
Any Reoperation, %	20.5	26.9	0.658
Revision, %	5.9	7.5	1.000
THA, %	14.7	19.4	0.784