

Longer Time Duration from Diagnosis of Femoroacetabular Impingement Syndrome to Hip Arthroscopy Increases Risk of Revision Hip Arthroscopy and Postoperative Narcotic Prescriptions

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INTRODUCTION:

Hip arthroscopy is a well-established surgical procedure that is commonly used to treat femoroacetabular impingement syndrome (FAIS), with increasing utilization and improved postoperative patient-reported outcomes (PROs). In an analysis of a large patient database, 2-year subsequent surgery rates of revision hip arthroscopy and conversion to total hip arthroplasty (THA) are cited as 15.1% and 3.9%, respectively. Multiple factors, including patient age, pre-existing arthritic changes, and higher preoperative pain levels have been shown to affect outcomes after hip arthroscopy.

One factor that may have an effect on postoperative patient outcomes is timing of hip arthroscopy relative to initial diagnosis of FAIS. Prior studies have demonstrated that hip arthroscopy outcomes may be time-dependent, as patients who underwent hip arthroscopy more than six months after diagnosis of FAIS had worse PROs following surgery. However, prior publications have been limited to patients from a single institution and have not examined the effect that timing of surgery has on postoperative narcotic prescriptions or medical complications.

The purpose of this study is to use a large national patient database to examine the effect that time to hip arthroscopy following diagnosis of FAIS has on rates of revision surgery, postoperative narcotic prescriptions, and medical complications. We hypothesize that patients who have a longer time from diagnosis to surgery will have higher rates of revision hip arthroscopy, postoperative narcotic prescriptions, and acute postoperative medical complications.

METHODS:

A retrospective cohort study of patients undergoing hip arthroscopy from 2015 to 2019 was performed using a large national insurance database. Current Procedural Terminology (CPT) and International Classification of Diseases (ICD) codes were used to identify patients undergoing hip arthroscopy for FAIS who had minimum of 2 years of postoperative records available. Patients were stratified into groups based on time from diagnosis of FAIS to hip arthroscopy (<3 months, 3 to 6 months, 6 to 9 months, 9 to 12 months, >12 months). Rates of revision hip arthroscopy were analyzed, including sub-analysis for type of revision (labral surgery, femoroplasty, or acetabuloplasty), as were 90-day medical complication rates, 90-day postoperative narcotic prescription rates, and rates of conversion to total hip arthroplasty. Categorical data were compared using Chi-square and Fisher Exact tests. Multivariate logistic regression was performed to determine factors independently associated with revision hip arthroscopy; odds ratios (OR) and 95% confidence intervals (95% CI) were calculated for all variables. Statistical significance was set at $P < 0.05$ for all tests.

RESULTS: A total of 6,707 patients were included in the study. The overall 2-year rate of revision hip arthroscopy was 9.7%. As time from diagnosis of FAIS to surgery increased, there was an increasing prevalence of 2-year revision hip arthroscopy ($P < 0.001$), including revision labral repair ($P < 0.001$), revision femoroplasty ($P < 0.001$) and revision acetabuloplasty ($P < 0.001$) [Figure 1]. There was also a higher risk of filling a narcotic script within 90 days following surgery ($P < 0.001$) with increasing time from diagnosis to surgery. There were no differences seen in rates of 90-day medical complications between groups ($P > 0.05$) or conversion to THA ($P > 0.05$). Multivariate regression analysis demonstrated that undergoing primary hip arthroscopy >3 months following diagnosis of hip pain was an independent risk factor for revision labral repair ($P < 0.01$) and revision femoroplasty ($P < 0.01$), while undergoing primary hip arthroscopy >6 months following diagnosis of hip pain was an independent risk factor for revision acetabuloplasty ($P < 0.01$).

DISCUSSION AND CONCLUSION:

Increasing time duration from diagnosis of FAIS to hip arthroscopy was associated with higher rates of revision arthroscopic hip surgery and greater likelihood of filling an opioid prescription within 90 days after initial hip arthroscopy. These findings may be related to continued labrum and cartilage wear in patients who have a longer duration between diagnosis and surgery, which could lead to decreased preoperative pain tolerance, development of chronic pain, and irreparable intra-articular hip pathology. In light of these results, is important to counsel patients that timing of hip arthroscopy for FAIS may affect their post-surgical outcomes, and that delaying surgery may increase the risk of revision surgery and postoperative use of opioid medications.

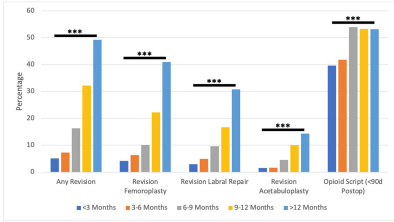


Figure 1. Percentage of Patients Undergoing Revision Hip Arthroscopy and Filling Narcotic Prescriptions Within 90 Days Post-Op Relative to Time Duration Between FAIS Diagnosis and Surgery. *** = P<0.001

	<3 Months	3-6 Months	6-9 Months	9-12 Months	>12 Months	P-Value
Total No. of Patients (%)	5290 (78.9)	574 (8.6)	178 (2.7)	90 (1.3)	575 (8.6)	-
Age, Mean (SD)	37.1 (13.7)	37.2 (12.9)	36.2 (12.5)	36.6 (13.2)	33.9 (12.4)	<0.001
Male Gender, %	31.3	32.9	33.7	33.3	28.7	0.53
Obesity, %	27.3	26.8	32.6	34.4	28.9	0.28
Tobacco Use, %	27.3	26.3	27.0	33.3	27.1	0.74
CCI, Mean (SD)	0.96 (1.28)	0.98 (1.40)	1.22 (1.25)	1.12 (1.35)	1.14 (1.30)	<0.01

Table 1. Baseline Patient Demographics

	Odds Ratio (OR)	95% Confidence Interval (95% CI)	P-Value
Age	0.97	0.96 – 0.98	<0.001
Male Gender	0.71	0.58 – 0.86	0.001
Obesity	0.91	0.75 – 1.12	0.39
Tobacco Use	0.77	0.64 – 0.95	0.01
CCI	1.07	0.99 – 1.14	0.06
Time From Diagnosis to Surgery			
<3 Months	N/A (Reference)	N/A (Reference)	N/A (Reference)
3-6 Months	1.45	0.99 – 2.06	0.04
6-9 Months	4.07	2.60 – 6.17	<0.001
9-12 Months	11.22	6.79 – 18.24	<0.001
>12 Months	19.19	13.74 – 26.86	<0.001

Table 2. Multivariate Logistic Regression for Patients Undergoing Any Arthroscopic Revision Procedure