

Duration between Staged Bilateral Hip Arthroscopy Does Not Affect Outcomes in Patients with Femoroacetabular Impingement Syndrome

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INTRODUCTION:

Bilateral femoroacetabular impingement syndrome (FAIS) is prevalent among patients undergoing single-sided hip arthroscopy. Previous studies have suggested that conducting the second hip arthroscopy sooner may lead to better outcomes. This study aims to evaluate whether the duration between staged bilateral hip arthroscopy affects patient-reported outcomes, the rate of arthroscopic revision, or conversion to total hip arthroplasty (THA).

METHODS:

A retrospective review was conducted of a single-surgeon prospective database of patients who underwent hip arthroscopy for FAIS with minimum 2-year follow up. Patient-reported outcomes, including the Modified Harris Hip Score (mHHS) and Nonarthritic Hip Score (NAHS), were recorded preoperatively and 2-years postoperatively for each hip. For analysis, patients were allocated into two groups: staged procedures <1-year apart and >1-year apart. Multivariable logistic regression, controlling for age, sex, BMI, preoperative alpha angle, and lateral center edge angle (LCEA), was performed to evaluate the effect of duration between bilateral procedures on arthroscopic failure with time as a continuous variable.

RESULTS:

Seventy-six patients (152 hips) underwent staged bilateral primary hip arthroscopies. Overall, the mean age at the first surgery was 36.1±13.1 years and the cohort was 59.2% female. Of these, 43 patients (56.6%) underwent staged procedures <1 year apart, while 33 patients (43.4%) were staged >1 year apart. Age (p=0.092), sex (p=0.828), and BMI (p=0.867) did not significantly differ between groups. At 2-year follow up, the mHHS (first hip: 85.2±17.9 vs. 82.5±13.3, p=0.588; second hip: 84.7±19.3 vs. 79.3±16.0, p=0.514) and NAHS (first hip: 85.3±19.1 vs. 83.2±12.4, p=0.660; second hip: 86.5±22.8 vs. 84.9±12.2, p=0.823) were similar when comparing groups staged <1-year and >1-year. There were no significant differences in rates of revision arthroscopy (7.0% vs. 12.1%, p=0.460) or conversion to THA (4.7% vs. 3.0%, p>0.999) between groups staged <1-year and >1-year. Based on logistic regression, the duration between hip arthroscopy stages does not have an effect on the risk of arthroscopic failure (OR: 1.29, p=0.227) when controlling for age, sex, BMI, alpha angle, and LCEA.

DISCUSSION AND CONCLUSION:

There were no significant differences in patient-reported outcomes, rates of revision arthroscopy, conversion to THA between patients who underwent staged bilateral hip arthroscopy less than or greater than one year apart. Duration of time between staged procedures was not found to affect rates of arthroscopic failure. Staged hip arthroscopy, even greater than 1-year apart, remains safe and effective for treatment of bilateral FAIS.

Characteristic	Duration between stages			
	Overall, N = 76	< 1 year, N = 43 ¹	> 1 year, N = 33 ¹	p-value ²
Age at first stage (years)	36.1 +/- 13.1	33.8 +/- 12.8	38.0 +/- 13.0	0.092
Age at second stage (years)	37.7 +/- 13.3	34.3 +/- 12.9	42.1 +/- 12.7	0.011
Sex				0.828
Male	31 (60.8%)	18 (41.9%)	13 (39.4%)	
Female	45 (59.2%)	25 (58.1%)	20 (60.6%)	
BMI ³	25.5 +/- 4.0	25.6 +/- 4.0	25.4 +/- 4.5	0.867
Duration between stages (years)	1.8 +/- 1.8	0.8 +/- 0.3	3.1 +/- 1.9	<0.001

¹Match Test Sample t-test; Pearson's Chi-squared test

²Table 2: Demographics for patients who underwent staged bilateral hip arthroscopies.

Characteristic	N = 152 ¹
Alpha angle (AP view)	65.2 +/- 15.6
Alpha angle (frog lateral view)	56.6 +/- 10.2
Alpha angle (Dunn view)	47.8 +/- 12.8
Lateral center edge angle	34.7 +/- 6.3
Posterior wall sign	24 (20.5%)
Crossover sign	49 (42.2%)
Ischial spine sign	56 (48.3%)

¹ Mean +/- SD; n (%)

Table 2: Radiographic parameters

Characteristic	Duration between stages			
	Overall, N = 76	< 1 year, N = 43 ¹	> 1 year, N = 33 ¹	p-value ²
Failure of primary arthroscopy				
Revision arthroscopy	7 (9.2%)	3 (7.0%)	4 (12.1%)	0.460
Conversion to THA	3 (3.9%)	2 (4.7%)	1 (3.0%)	>0.999
Failure (any reoperation)	10 (13.2%)	5 (11.6%)	5 (15.2%)	0.739
First hip				
mHHS - Baseline	53.6 +/- 16.0	56.5 +/- 14.7	50.1 +/- 17.1	0.107
mHHS - 2 years	83.8 +/- 15.6	85.2 +/- 17.9	82.5 +/- 13.3	0.588
NAHS - Baseline	52.3 +/- 15.7	55.8 +/- 14.3	48.2 +/- 16.4	0.048
NAHS - 2 years	84.3 +/- 16.0	85.3 +/- 19.1	83.2 +/- 12.4	0.660
Second hip				
mHHS - Baseline	53.7 +/- 14.8	57.7 +/- 13.5	48.5 +/- 15.1	0.010
mHHS - 2 years	82.9 +/- 18.1	84.7 +/- 19.3	79.3 +/- 16.0	0.514
NAHS - Baseline	52.8 +/- 16.7	56.1 +/- 15.9	48.7 +/- 17.1	0.064
NAHS - 2 years	85.9 +/- 19.0	86.5 +/- 22.8	84.9 +/- 12.2	0.823

¹ Fisher's exact test; Match Test Sample t-test

Table 3: Outcomes

Characteristic	OR ¹	95% CI ¹	p-value
Time between stages (years)	1.29	0.83, 1.94	0.227
Age	1.10	1.03, 1.20	0.010
Sex			
Female	—	—	
Male	1.04	0.17, 5.72	0.964
BMI	1.02	0.82, 1.26	0.838
Alpha angle (Dunn view)	1.06	0.99, 1.14	0.072
LCEA	1.06	0.91, 1.22	0.458

¹ OR = Odds Ratio, CI = Confidence Interval

Table 4: Logistic regression model evaluating the odds of failure of primary hip arthroscopy based on the duration between staged bilateral surgeries.