

Does Hip Arthroscopy Prevent Progression of Osteoarthritis at Long-Term Follow Up? Patients Treated for Symptomatic Femoroacetabular Impingement with Hip Arthroscopy Compared to Nonsurgically Treated Patients

Martin Husen¹, Devin P Leland, Heath Melugin, Keshav Poudel², Mario Hevesi, Bruce A Levy¹, Aaron John Krych¹
¹Mayo Clinic, ²Orthopedic Surgery, The Mayo Clinic

INTRODUCTION:

Femoroacetabular impingement (FAI) is a common cause of hip pain, especially in young patients. When left untreated, it is demonstrated to be a risk factor for the onset or progression of osteoarthritis and has been identified as one of the main contributors leading to the need for total hip arthroplasty (THA) at a young age. While the short-term therapeutic potential of hip arthroscopy is widely recognized, little is known regarding its potential mid- to long term preventive effect on the progression of hip osteoarthritis.

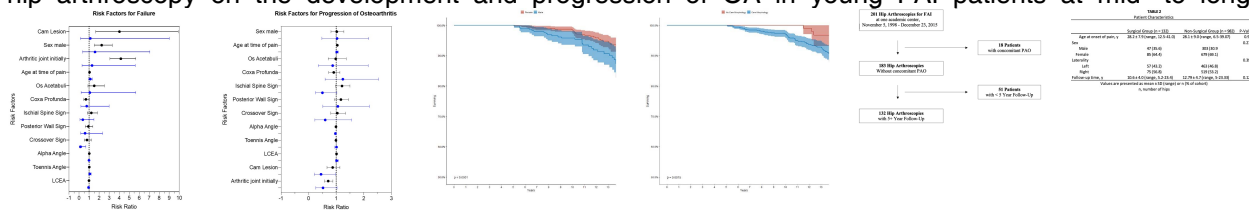
The purpose of the current study is to 1) report clinical outcomes of arthroscopically treated FAI syndrome with a minimum 5-year follow up and compare the results to a cohort with FAI treated nonsurgically, and 2) to determine the influence of hip arthroscopy on the onset and progression of hip osteoarthritis in patients diagnosed with FAI.

METHODS: Patients who presented with hip pain and were diagnosed with femoroacetabular impingement were included. Exclusion criteria were 1) previous or concomitant hip surgery, 2) <5 years of follow up, and 3) insufficient radiographs. Patients treated with hip arthroscopy were compared to a cohort of FAI patients who were treated nonsurgically. Kaplan Meier estimates of failure (defined as conversion to THA) were performed. Bivariate analysis and Cox regression were utilized to identify factors associated with inferior clinical and radiographic outcome.

RESULTS:

A total of 957 patients (650 female; 307 male; 1,114 hips) (28.03 ± 8.9 (range, 6.5 – 41.0)) with FAI were included. One-hundred-thirty-two hips underwent hip arthroscopy and 982 hips were conservatively treated. Both groups were comparable in terms of age (p=.9), sex (p=.27), and initial Tonnis grade at time of diagnosis (p=.99). Mean follow up was 12.5 ± 4.7 (range, 5.0 – 23.4) years. At final follow up, the rate of OA progression was 26.5% in the surgical group and 35% in the nonsurgical cohort (p<.01). Conversion to THA was performed in 6.8% of surgical patients and 10.5% of initially nonsurgical patients (p=.19). Additionally, there was no significant difference in the risk of failure between the surgically and conservatively treated patients. Male sex, increased age at initial diagnosis, presence of cam morphology, and increased initial Tonnis grade were risk factors for failure (male sex: hazard ratio [HR], 2.3; p<.01; per year of increased age: HR, 1.1; p<.01; presence of cam: HR 3.5; p<.01; per Tonnis grade: HR 4.0; p<.01).

DISCUSSION AND CONCLUSION: At a mean follow up of nearly 13 years, 7% of patients of the surgical group progressed to THA, compared to 11% of the nonsurgical control group. While most of the surgical group showed little to no OA at final follow up, moderate OA (Tonnis 2) was present in 9% of the cohort compared to 17% of nonsurgical patients. Increased age at diagnosis, male sex, presence of a CAM morphology, and presence of initial arthritic joint changes were found to be risk factors for failure. The results of this study demonstrated evidence for a preventive effect of hip arthroscopy on the development and progression of OA in young FAI patients at mid- to long-term follow up.



Characteristic	Hip Arthroscopy (n=132)	Nonsurgical (n=825)	p-value
Sex	61 (46%)	364 (44%)	0.7
Age at time of pain (years)	28.1 (range, 6.5-41.0)	28.1 (range, 6.5-41.0)	0.9
Initial Tonnis grade	1.9 (range, 1-3)	1.9 (range, 1-3)	0.9
Cam	91 (69%)	482 (58%)	0.001
Cam	41 (31%)	343 (42%)	0.001
Cam	0 (0%)	42 (5%)	0.001
Cam	0 (0%)	10 (1%)	0.001