

Modern Hip Arthroscopy for Femoroacetabular Impingement Syndrome Delays the Natural History of Osteoarthritis in a Fourth of Patients: A 12-Year Follow-Up Analysis

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INTRODUCTION:

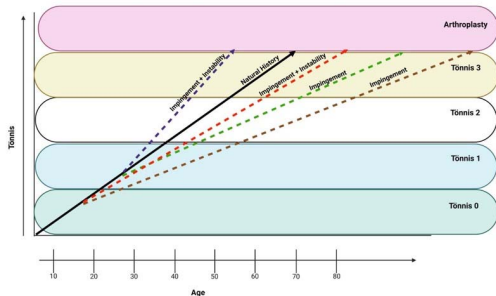
Little is known about the impact of modern hip arthroscopy on the natural history of femoroacetabular impingement syndrome (FAIS) with respect to joint preservation. The purpose was to 1) characterize the natural history of FAIS and 2) understand the impact of modern hip arthroscopy by radiographically comparing the hips of patients who underwent only unilateral primary hip arthroscopy with a minimum follow up of ten years.

METHODS: Between 2010-2012, 619 consecutive patients were reviewed from the practice of a single fellowship-trained hip arthroscopist. Inclusion criteria were FAIS, primary unilateral hip arthroscopy (labral repair, femoroplasty, capsular closure), and minimum ten-year follow up. The preoperative and minimum ten-year postoperative radiographs of patients were evaluated at each timepoint. Both surgical and nonsurgical hips were graded using the Tönnis classification or the presence of hip arthroplasty by two independent reviewers. Subgroup analyses were performed.

RESULTS:

A total of 200 hips from 100 patients were available with 74% follow up at a mean of 12.0 years were evaluated. The nonsurgical hip advanced to a worse Tönnis grade in 48% (48/100) of cases compared to 28% (28/100) among surgical hips. At follow up,, Tönnis grades between hips were equal in 70% (70/100) of the cases; the surgical hip had a better grade 25% (25/100) of the time, and the non-operative hip had a better grade 5% (5/100) of the time. Modern hip arthroscopy conferred a relative risk reduction of 42% in osteoarthritis progression. Borderline dysplasia, age, preoperative Tönnis grade, and alpha angle > 65° were key risk factors in the radiographic progression of osteoarthritis.

DISCUSSION AND CONCLUSION: While the majority of patients (70%) undergoing hip arthroscopy for FAIS did not experience differences between surgical and nonsurgical hips in terms of the radiographic progression of osteoarthritis, the natural history was favorably altered in a fourth of patients after arthroscopic correction. Modern hip arthroscopy indications and techniques represent a valid joint preservation procedure conferring a relative risk reduction of 42% in the progression of osteoarthritis. Mixed patterns of impingement and instability that underwent arthroscopy were the fastest to degenerate.



Comparing Tönnis grades	Operative Hip 10+ Years Later	Non-Operative Hip 10+ Years Later	Operative Hip Versus Non-Operative Hip 10+ Years Later
Worse Grade – higher Tönnis	28	48	5
No Difference – same Tönnis	72	52	70
Better Grade – lower Tönnis	0	0	25

Table 2. Overview summarizing the progression of osteoarthritis in the setting of FAIS of the operative hip alone over a decade, the non-operative hip alone over a decade, and a head-to-head comparison of the operative and non-operative hips a decade later.

Figure 1. Conceptual pictorial characterizing how modern hip arthroscopy alters the natural history of the hip, from accelerating to delaying radiographic progression of osteoarthritis.