

Minimum Five-Year Outcomes of Simultaneous Bilateral Hip Arthroscopy for Femoroacetabular Impingement

Eric W. Marty, MD
Matthew J. Kraeutler, MD
Jessica H. Lee, MD
Omer Mei-Dan, MD



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE

HOUSTON
Methodist[®]
LEADING MEDICINE

Introduction

- Bilateral hip arthroscopy for the treatment of bilateral, symptomatic femoroacetabular impingement (FAI) can be performed in either a staged or simultaneous fashion
- Both Degen¹ and Mei-Dan² demonstrated that simultaneous, bilateral procedures produced similar improvements in patient-reported outcomes when compared to cohorts of staged bilateral procedures at 1-year follow-up.

Arthroscopy

The Journal of Arthroscopic
and Related Surgery

Bilateral Hip Arthroscopy Under the Same Anesthetic for Patients With Symptomatic Bilateral Femoroacetabular Impingement: 1-Year Outcomes

Omer Mei-Dan, M.D., Mark O. McConkey, M.D., F.R.C.S.C., Joshua S. Knudsen, and Matthew J. Brick, M.D., F.R.A.C.S.(Orth)



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE

HOUSTON
Methodist[®]
LEADING MEDICINE

Introduction

- Benefits of simultaneous bilateral hip arthroscopy for FAI:
 - Patients undergoing a staged approach may not be able to fully participate in their first postoperative rehabilitation due to the presence of contralateral symptoms.
 - Patients undergoing two full rehabilitation protocols have been shown to be less satisfied and experience more pain compared to those undergoing one.³



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE

HOUSTON
Methodist[®]
LEADING MEDICINE

Purpose

- To investigate whether, in patients with bilateral symptomatic FAI, simultaneous bilateral hip arthroscopy produces safe and efficacious mid-term outcomes.



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE

HOUSTON
Methodist[®]
LEADING MEDICINE

Methods

- Retrospective Cohort Study
- Patients having undergone primary hip arthroscopy with the senior author (OMD) between 08/31/2012 and 09/28/2017
- Study Inclusion Criteria
 - Patient with symptomatic bilateral FAI who underwent simultaneous bilateral hip arthroscopy
 - Mechanical symptoms refractory to non-operative management lasting at least 3 months
- Study Exclusion Criteria
 - Patients who underwent staged bilateral hip arthroscopy
 - Arthroscopic surgery for treatment of borderline dysplastic patients
 - Previous surgical procedure on either hip
 - Significant joint degeneration



Methods

- Patients stratified into two groups
 - Group 1: patients who underwent simultaneous bilateral hip arthroscopy for the treatment of FAI
 - Group 2: matched-pair control group based on gender, age, and BMI with signs and symptoms of unilateral FAI in whom a single side was evaluated and treated surgically
- All patients underwent postless hip arthroscopy
- Outcomes compared between the two groups included the International Hip Outcome Tool (iHOT-12) and Non-Arthritic Hip Score (NAHS) at a minimum of 5-years postoperatively



Preliminary Results

- N = 47 patients (94 hips) with minimum 5-year follow-up
- Average age = 37.2 years
- 16/47 male (34%)
- 31/47 female (66%)
- Average follow-up: 7.8 years



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE

HOUSTON
Methodist[®]
LEADING MEDICINE

Preliminary Results

- Average pre-op NAHS (N = 43 hips): 66.4
- Average NAHS at 5 years (N = 18 hips): 92.9
- Average Pre-Op iHOT-12 (N = 82 hips): 45.6
- Average iHOT-12 at 5 years (N = 24): 88.8



Sports Medicine and Performance Center

UNIVERSITY OF COLORADO | SCHOOL OF MEDICINE



Preliminary Results

Paired t test comparing pre-op and 5-year NAHS

- N = 9
- Pre-Op NAHS Average = 62.4
- Pre-Op NAHS SD = 22.6
- 5-year NAHS Average = 91.8
- 5-year NAHS SD = 7.0
- Average difference = 29.4 (p = 0.0013)

Paired t test comparing pre-op and 5-year iHOT-12

- N = 17
- Pre-Op iHOT-12 Average = 46.2
- Pre-Op iHOT-12 SD = 21.1
- 5-year iHOT-12 Average = 85.2
- 5-year iHOT-12 SD = 15.0
- Average difference = 38.9 (p < 0.0001)



Discussion

- Bilateral, symptomatic FAI has been found to be common in the literature.
 - Allen et al⁴ found that 77.8% of patients presenting for symptomatic FAI had bilateral radiographic signs of FAI, with 26% demonstrating bilateral symptoms.
- Bilateral intervention has been required in a reported 15.7-20.4% of FAI patients.^{5,6}
- Both simultaneous, bilateral and unilateral, staged techniques have demonstrated an ability to yield a significant improvement in postoperative functional outcome measures.⁷



Discussion

- Mei-Dan et al²
 - Bilateral procedures (simultaneous or staged) did not result in more pain, analgesic use, or longer hospital stay when compared to unilateral procedures
 - No significant differences in WOMAC or NAHS scores at 6 and 12 months postoperatively in patients undergoing simultaneous bilateral, staged bilateral, or unilateral procedures
- McConkey et al⁸
 - No significant differences found at 24 months in mean iHOT-12 scores or time to return to preinjury level of activity between patients undergoing bilateral simultaneous procedures versus a case-matched control undergoing unilateral hip arthroscopy
- Degen et al¹
 - No differences in 1-year outcome scores or complications in patients with bilateral symptoms undergoing either bilateral simultaneous or staged procedures



Conclusions

- This study demonstrates that simultaneous bilateral hip arthroscopy for the treatment of FAI produces effective mid-term outcomes in appropriately selected patients.
- Simultaneous nature of the procedure allows patients to begin rehabilitation without significant pain from an untreated hip, which is hypothesized to improve treatment outcomes and overall patient satisfaction.
- A matched-pair control group will be utilized to further compare the safety and efficacy of simultaneous bilateral hip arthroscopy versus unilateral procedures.



Select References

- 1) Degen RM, Nawabi DH, Fields KG, et al. Simultaneous Versus Staged Bilateral Hip Arthroscopy in the Treatment of Femoroacetabular Impingement. *Arthroscopy*. 2016;32(7):1300-1307. PMID: 27129376
- 2) Mei-Dan O, McConkey MO, Knudsen JS, Brick MJ. Bilateral hip arthroscopy under the same anesthetic for patients with symptomatic bilateral femoroacetabular impingement: 1-year outcomes. *Arthroscopy*. 2014;30(1):47-54. PMID: 24239246
- 3) Kuhns BD, Hannon CP, Makhni EC, et al. A Comparison of Clinical Outcomes After Unilateral or Bilateral Hip Arthroscopic Surgery: Age- and Sex-Matched Cohort Study. *Am J Sports Med*. 2017;45(13):3044-3051. PMID: 28820272
- 4) Allen D, Beaulé PE, Ramadan O, Doucette S. Prevalence of associated deformities and hip pain in patients with cam-type femoroacetabular impingement. *J Bone Joint Surg Br*. 2009;91(5):589-594. PMID: 19407290
- 5) Klingenstein GG, Zbeda RM, Bedi A, Magennis E, Kelly BT. Prevalence and preoperative demographic and radiographic predictors of bilateral femoroacetabular impingement. *Am J Sports Med*. 2013;41(4):762-768. PMID: 23423313
- 6) Leong NL, Neal W, Alter T, Beck E, Nho SJ. Risk Factors for Bilateral Femoroacetabular Impingement Syndrome Requiring Surgery. *J Am Acad Orthop Surg Glob Res Rev*. 2018;2(11):e070. PMID: 30656260
- 7) Kumar MV, Shanmugaraj A, Kay J, et al. Bilateral hip arthroscopy for treating femoroacetabular impingement: a systematic review. *Knee Surg Sports Traumatol Arthrosc*. 2022;30(3):1095-1108. PMID: 34165631
- 8) McConkey MO, Chadayammuri V, Garabekyan T, et al. Simultaneous Bilateral Hip Arthroscopy in Adolescent Athletes With Symptomatic Femoroacetabular Impingement. *J Pediatr Orthop*. 2019;39(4):193-197. PMID: 30839478

