



Arthroscopic Bone Grafting of Deep Acetabular Cysts: A Retrospective Cohort Study

E.W. MARTY¹, J. LEE¹, M.J. KRAUTLER², M.K. JESSE³, T. GARABEKYAN⁴, O. MEI-DAN¹

¹University of Colorado School of Medicine, Department of Orthopedics, Aurora CO ²Houston Methodist Hospital, Department of Orthopedics, Houston TX

³University of Colorado School of Medicine, Department of Radiology, Aurora CO

⁴Southern California Hip Institute, Los Angeles CA



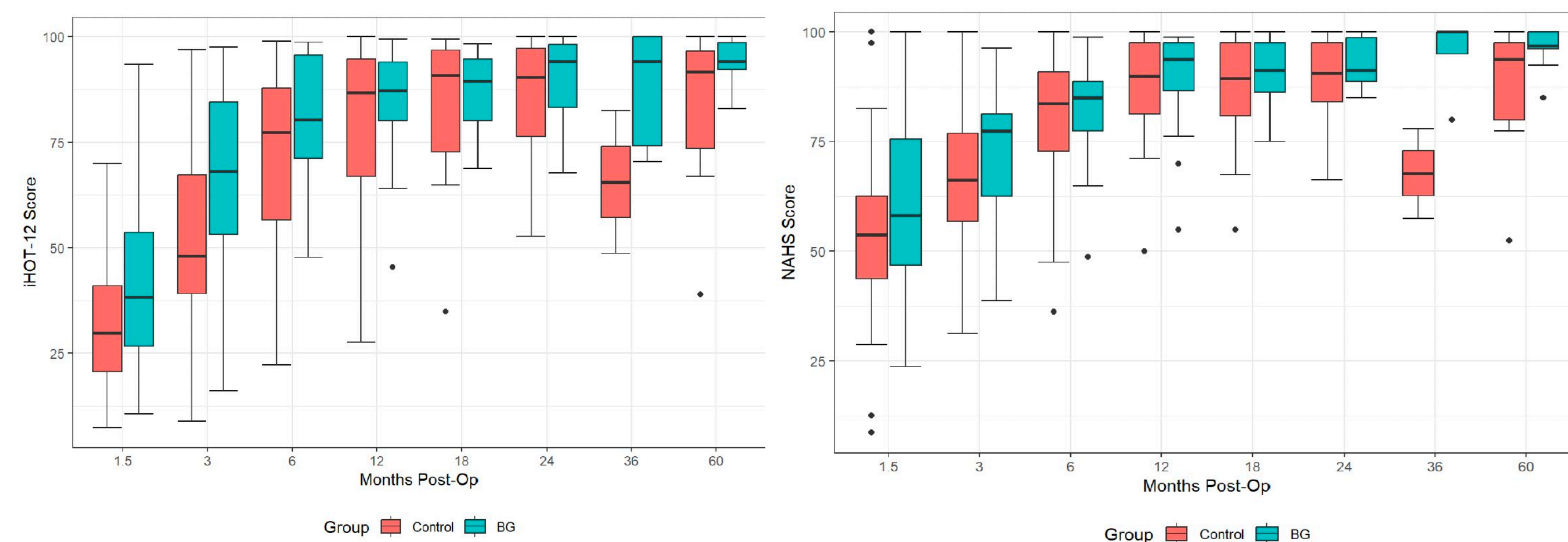
PURPOSE / OBJECTIVES

Acetabular intraosseous cysts are frequently encountered in young adults with femoroacetabular impingement (FAI) or dysplasia and are commonly associated with the development of early and advanced arthritis.^{1, 2, 3} Patients with acetabular cysts demonstrate increased pain, disability, and worse surgical outcomes during arthroscopic procedures.^{4, 5} The purpose of this study was to investigate whether arthroscopic bone grafting of acetabular subchondral cysts during hip preservation surgery is a safe and efficacious treatment option.

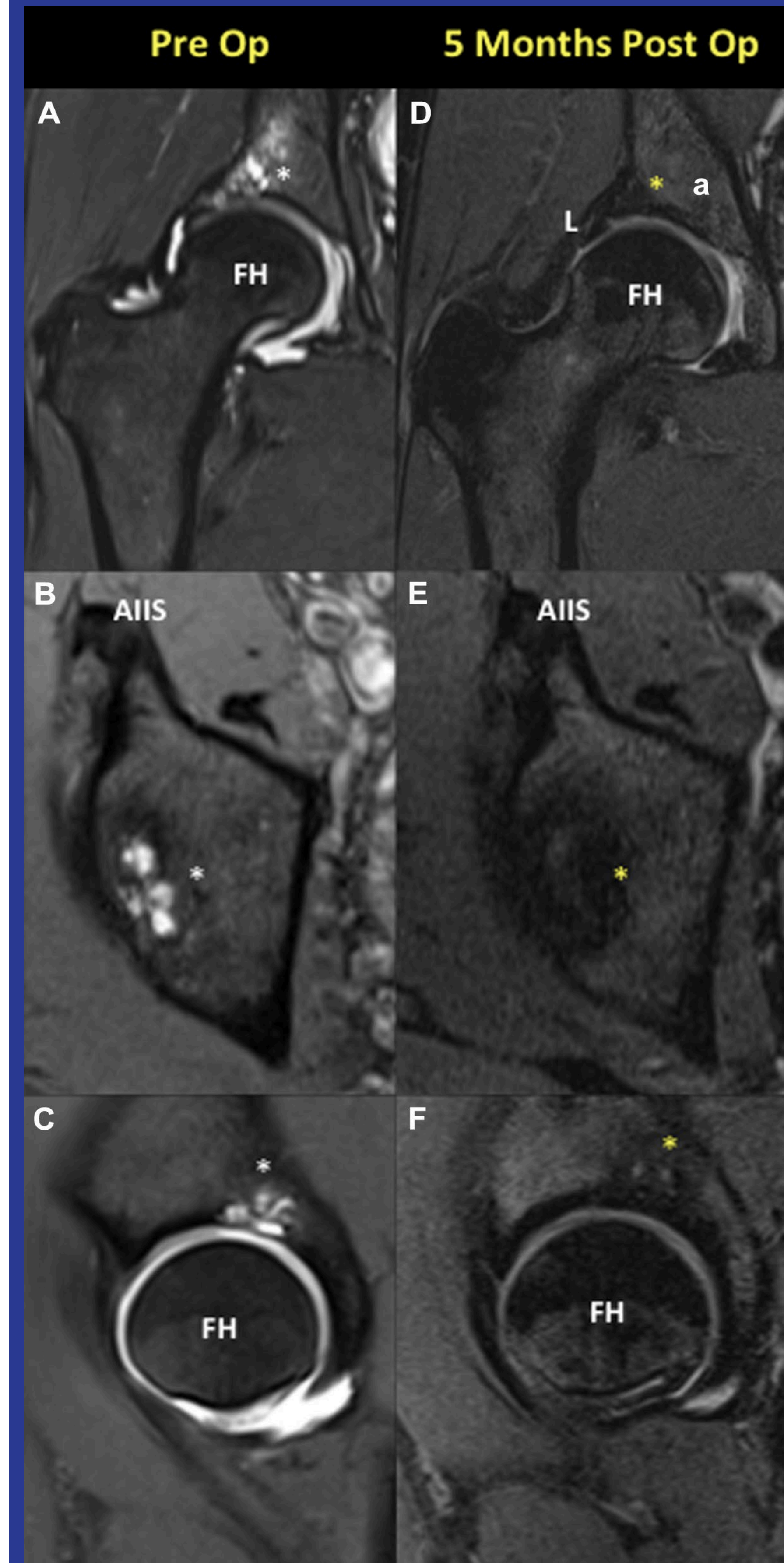
MATERIAL & METHODS

- Initial data collected included patients with FAI or hip dysplasia who underwent hip preservation surgery with senior author (OMD) between April 2013 and August 2021.
- Patients stratified into two groups: 1) those with radiographic evidence of acetabular cysts who underwent hip preservation surgery for the treatment of FAI or dysplasia with arthroscopic cyst grafting & 2) a matched-pair control group based on gender, age, and BMI with no radiographic evidence of acetabular cysts who underwent hip preservation surgery for the treatment of FAI or dysplasia without arthroscopic cyst grafting.
- Differences in International Hip Outcome Tool (iHOT)-12 and Non-Arthritic Hip Scores (NAHS) according to post-operative follow-up time were compared between groups.

RESULTS



On average, the Bone Graft group produced iHOT-12 and NAHS scores of 9.01 and 4.54 points, respectively, higher than the control group at all time points



(A-C) Preoperative T2 MRI images demonstrating acetabular subchondral bone cysts (A) in the weightbearing portion, (B) with a loculated pattern, and (C) with articular cartilage breach

(D-F) Postoperative T2 MRI images demonstrating complete cyst healing. (D) demonstrates remodeling (yellow asterisk) with excellent fibrocartilage fill of articular cartilage defect, (E) demonstrates resolution of loculations, and (F) demonstrates a sagittal view of excellent articular cartilage defect filling

(a, acetabulum; AIIS, anterior inferior iliac spine; FH, femoral head; L, labrum.)

Our results demonstrate that an "inside-out" method of arthroscopic bone grafting for acetabular subchondral cysts produces effective mid-term outcomes when utilized during hip preservation surgery in appropriately selected patients.

RESULTS

iHOT-12 Scores

	BG (N=44)	Control (N=81)	P-value
Pre-op			
Mean (SD)	43.4 (±20.4)	44.3 (±24.4)	0.834
Missing	5 (11.4%)	5 (6.2%)	
Week 6			
Mean (SD)	43.1 (±23.2)	33.0 (±15.6)	0.0392
Missing	15 (34.1%)	16 (19.8%)	
Month 3			
Mean (SD)	65.5 (±21.9)	51.2 (±21.4)	0.00532
Missing	15 (34.1%)	19 (23.5%)	
Month 6			
Mean (SD)	79.9 (±16.2)	71.0 (±21.3)	0.0404
Missing	20 (45.5%)	18 (22.2%)	
Year 1			
Mean (SD)	85.8 (±11.9)	80.2 (±18.4)	0.0855
Missing	14 (31.8%)	22 (27.2%)	
Month 18			
Mean (SD)	87.1 (±10.1)	83.8 (±16.8)	0.522
Missing	34 (77.3%)	62 (76.5%)	
Year 2			
Mean (SD)	90.2 (±10.1)	85.8 (±13.5)	0.17
Missing	26 (59.1%)	39 (48.1%)	
Year 3			
Mean (SD)	87.7 (±14.4)	65.6 (±23.9)	0.398
Missing	39 (88.6%)	79 (97.5%)	
Year 5			
Mean (SD)	94.1 (±5.41)	84.9 (±15.5)	0.0244
Missing	33 (75.0%)	61 (75.3%)	

No significant difference was observed in iHOT-12 scores between bone graft and control groups pre-operatively and at 1, 1.5, 2, and 3 years post-operatively

NAHS Scores

	BG (N=44)	Control (N=81)	P-value
Pre-op			
Mean (SD)	65.7 (±20.6)	59.2 (±21.2)	0.148
Missing	10 (22.7%)	19 (23.5%)	
Week 6			
Mean (SD)	62.9 (±22.0)	53.6 (±17.5)	0.0704
Missing	20 (45.5%)	20 (24.7%)	
Month 3			
Mean (SD)	73.0 (±15.3)	67.3 (±14.9)	0.135
Missing	20 (45.5%)	26 (32.1%)	
Month 6			
Mean (SD)	83.1 (±11.8)	81.6 (±13.5)	0.634
Missing	23 (52.3%)	23 (28.4%)	
Year 1			
Mean (SD)	90.0 (±10.2)	88.5 (±9.95)	0.546
Missing	18 (40.9%)	30 (37.0%)	
Month 18			
Mean (SD)	90.4 (±8.08)	87.5 (±12.5)	0.472
Missing	35 (79.5%)	63 (77.8%)	
Year 2			
Mean (SD)	93.1 (±5.06)	90.0 (±9.11)	0.108
Missing	27 (61.4%)	43 (53.1%)	
Year 3			
Mean (SD)	95.0 (±10.0)	67.8 (±14.5)	0.179
Missing	40 (90.9%)	79 (97.5%)	
Year 5			
Mean (SD)	96.4 (±4.69)	88.1 (±11.9)	0.0114
Missing	34 (77.3%)	61 (75.3%)	

No significant difference was observed in NAHS scores between bone graft and control groups pre-operatively and at 6 weeks, 3 months, 6 months, 1, 1.5, 2, and 3 years post-operatively

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