



INTERNATIONAL SOCIETY
FOR HIP ARTHROSCOPY

Hip Dislocation or Subluxation Following Hip Arthroscopy: A Systematic Review

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ORTHOPEDICS &
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DISCLOSURES

- **JDH:** Editorial board: *Arthroscopy: The Journal of Arthroscopic and Related Surgery; Frontiers In Surgery*; Publication royalties: *SLACK, Inc.*; Committees: *AAOS OAFP Workgroup; AOSSM SAE Committee*; Research Support: *Smith & Nephew*.
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- **BDL:** Paid Consultant: *Iroko Pharmaceuticals*

- Background
 - Iatrogenic hip instability following hip arthroscopy is poorly understood
 - Combined osseous, soft tissue contributions
 - Limited case reports of the complication available in the literature
 - Likely under-reported, publication bias

Patient with left hip dislocation 3 months after hip arthroscopy with labral debridement and acetabuloplasty performed



Hip Instability Following Arthroscopy

- Background
 - Iatrogenic hip instability after arthroscopy is an infrequent but catastrophic complication

Patient with anterosuperior subluxation 3 months after hip arthroscopy involving labral repair and partial ligamentum teres debridement



One year later: The patient required hip arthroplasty



- Purpose

- To determine the patient- and surgery-specific characteristics of patients who have sustained a post-arthroscopic hip dislocation or subluxation.

26 y/o male 3 months after CAM resection, and iliopsoas tenotomy.



26 y/o female 10 weeks after CAM resection and iliopsoas tenotomy



- Methods
 - Systematic review registered with (PROSPERO)
 - International Prospective Register of Systematic reviews
 - Performed using PRISMA guidelines
 - Preferred Reporting Items for Systematic review and Meta-Analysis
 - Literature search
 - PubMed, CINAHL, SportDiscus databases
 - Key terms
 - “hip arthroscopy” and “instability” and “subluxation” and “dislocation”

- **Methods**
 - **Inclusion Criteria**
 - Peer-reviewed publications written in English (Level I-IV evidence) that reported hip dislocation or subluxation after hip arthroscopy
 - **Exclusion Criteria**
 - Reports lacking sufficient patient- or surgery-specific characteristics
 - Open hip preservation surgery and hip arthroplasty surgery

- Methods

- Standard data entry form used to record information from each study:

- Direction of instability
 - Osseous morphology
 - Presence of ligamentous laxity
 - Bone work performed
 - iliopsoas management
 - Capsulotomy type
 - Presence of capsular closure
 - Mechanism resulting in instability event
 - Management of instability
 - Labral management
 - Outcome of instability

- Results

- Ten articles (11 patients) included in the final analysis
- Mean age 36.6+/-12.3 years

	Number of Subjects
Femoroacetabular impingement, labral pathology	
Cam	6
Pincer	2
Cam and pincer, combined	2
Dysplasia	5
Labral tear	9
Instability direction	
Anterior	8
Superolateral	2
Posterior	1
Instability mechanism	
Extension, external rotation	5
Flexion, internal rotation	1
High energy, not otherwise specified	4
Not reported	1

Hip Instability Following Arthroscopy

Table 1. Demographics, Morphology, and Surgical Details of Postoperative Hip Instability

Authors, Year of Publication	Level of Evidence	Subject Age, Gender	Instability Timing After Surgery	Instability Direction	Osseous Morphology	Rim Trim Performed?	Generalized Ligamentous Laxity?	Labral Treatment	Iliopsoas	Type of Capsulotomy Performed?	Capsular Repair Performed?
Wylie et al., 2015 ¹¹	IV	52 yr, male	3 wk	Anterior	Cam	Yes (minimal)	No	Suture anchor repair (×3)	No tenotomy	Interportal	Yes
Dierckman and Guanche, 2014 ¹²	IV	37 yr, female	4 mo	Anterior	Cam	No	n/r	Gently debrided	No tenotomy	Interportal	No
Austin et al., 2014 ¹³	IV	19 yr, female	5 mo	Anterior	Cam, 30° femoral version	No	n/r	Debrided	Tenotomy	“Modest T”	No
Rosenbaum et al., 2014 ¹⁴	IV	24 yr, male	19 d, 26 d	Posterior	Cam, pincer 163° NSA, unrecognized dysplasia	Yes (lateral CEA 27° postop)	n/r	Suture anchor repair (×2)	No tenotomy	Interportal	n/r
Sansone et al., 2013 ¹⁵ —Case 1	IV	26 yr, male	3 mo	Anterior	Cam	No	No	None	Tenotomy	“Large interportal”	n/r
Sansone et al., 2013 ¹⁵ —Case 2	IV	26 yr, female	2.5 mo	Anterior	Cam	No	No	None	Tenotomy	“Small interportal”	n/r
Mei-Dan et al., 2012 ¹⁶	IV	42 yr, female	14 mo	Superior, lateral	Lateral CEA 22°, Tonnis angle 11°, Extrusion index >25%	Yes (less than 1 mm bone)	No	Suture anchor repair (×2)	No tenotomy	2.5 cm interportal	No
Souza et al., 2010 ¹⁷	IV	n/r	1 d	Anterior	Pincer	Yes (excessive)	No	Debrided	No tenotomy	n/r	n/r
Ranawat et al., 2009 ¹⁸	IV	52 yr, female	2 mo	Anterior	Cam	No	Yes	Suture anchor repair (×1)	No tenotomy	3-4 cm interportal capsulotomy, capsulectomy	Yes
Benali and Katthagen, 2009 ¹⁹	IV	49 yr, female	3 mo	Superior, lateral	Lateral center edge angle 23°	Yes (with labral resection)	No	Resected	No tenotomy	n/r	n/r
Matsuda, 2009 ²⁰	IV	39 yr, male	Recovery room	Anterior	Cam, pincer	Yes (lateral CEA 18° postop, with labral resection)	No	Debrided	No tenotomy	Interportal	No

CEA, center edge angle; n/r, not reported; NSA, neck-shaft angle.

Hip Instability Following Arthroscopy

Authors, Year of Publication	Mechanism of Dislocation	Management	Outcome
Wylie et al., 2015 ¹¹	Ground level fall while sleep walking	Initial arthroscopic revision of capsular closure and removal of loose bodies, then THA 15 mo postarthroscopy	Continued pain, repeat fall without dislocation, femoral neck stress fracture after revision capsular closure. Arthritis progression requiring THA after initial arthroscopy
Dierckman and Guanche, 2014 ¹²	Extension and external rotation, "low energy"	Open, Smith-Petersen, iliotibial band autograft, iliofemoral ligament capsulorrhaphy	Failed 6 mo of nonsurgical treatment after dislocation, underwent open surgical repair; 16 months after surgery, had no residual instability
Austin et al., 2014 ¹³	During long jumping, the non-jumping leg dislocated	Closed reduction	4 mo after dislocation, "doing well without pain or limitations"
Rosenbaum et al., 2014 ¹⁴	Trying to remove shoes from standing position (1); repositioning body on couch (2)	Closed reduction, spica cast × 10 wk, hip abduction brace × 4 wk	6 mo after dislocation, "hip remained concentrically reduced with no evidence of osteonecrosis on radiographs"
Sansone et al., 2013 ¹⁷ —Case 1	Twisted torso to start to run, externally rotated hip	Closed reduction	5 mo after dislocation, "no further dislocation episodes"
Sansone et al., 2013 ¹⁷ —Case 2	Running during javelin, with hip abducted, externally rotated	Closed reduction	1 yr after dislocation, "no further dislocations"
Mei-Dan et al., 2012 ¹⁶	Gradual, insidious	THA	Good pain relief and return to activities of daily living
Souza et al., 2010 ¹⁷	n/r	THA	n/r
Ranawat et al., 2009 ¹⁸	Slipped, fell down stairs, extended hip	Revision arthroscopic plication	6 mo after revision, there was resolution of apprehension, but occasional pain, no osteonecrosis
Benali and Katthagen, 2009 ¹⁹	Gradual, insidious	THA	Pain free, Harris Hip Score went from 29 to 91
Matsuda, 2009 ²⁰	Recovery room repositioning	Mini-open capsulorrhaphy	15 mo after revision, groin pain and mechanical symptoms resolved

n/r, not reported by the authors; THA, total hip arthroplasty.

- Conclusion
 - Post-arthroscopic hip instability observed in patients with:
 - Acetabular under-coverage (including iatrogenic resection)
 - Labral debridement
 - Capsular insufficiency
 - Iliopsoas tenotomy
 - Most dislocation were anterior
 - Occurred with hip extension, external rotation

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