The Utility of Hip Arthroscopy in the Setting of Acetabular Dysplasia: A Systematic Review

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Background

• Synovial, chondral, and labral pathology, as well as bony dysmorphism, is common in the setting of acetabular dysplasia.

• Isolated pelvic osteotomy may be limited its ability to effectively visualize and treat central compartment disorders and intra-articular joint pathologies.

• Iatrogenic instability, joint subluxation, and acceleration of degenerative disease have been reported with increasing frequency following isolated arthroscopic interventions in the presence of acetabular dysplasia.

• The role of hip arthroscopy in the comprehensive treatment of acetabular dysplasia remains poorly defined. To date, multimodal treatment strategies remain a source of debate and are being further defined.
**Purpose**

• The purpose of this systematic review was to examine the available literature concerning the use of hip arthroscopy in the setting of acetabular dysplasia as a tool for chondral mapping and surgical planning, as an isolated treatment, or as an adjunct to pelvic reorientation osteotomy.
Methods

• An exhaustive literature search of PubMed and CINAHL databases was performed, following PRISMA guidelines.
  • Bibliographies of existing review articles were cross-referenced to identify possibly relevant articles to be included.

• Studies published between January 1930- April 2016 were identified using defined search terms.

• Eligible studies concerned patients \( \geq 12 \) years old with acetabular dysplasia, whom underwent an arthroscopic hip procedure.

• Excluded studies included:
  Systematic reviews, non-human subjects, surgical technique papers, and articles that were not available in English
Methods

Identification

Articles identified through PubMed & CINAHL (N= 768)

Screening

Articles after duplicates removed N= 654

Eligibility

Abstracts screened utilizing exclusion criteria N= 654

Abstracts excluded N= 86

Abstracts did not meet inclusion criteria N= 457

Included

Full text articles assessed for eligibility N= 111

Articles included in analysis N= 32
Results

• 32 studies met our selection criteria and were classified within 5 different categories:

1. Hip arthroscopy for screening, chondral mapping, and planning (8 studies)
2. Isolated arthroscopic treatment (13 studies)
3. Outcomes of hip arthroscopy after previous reorientation pelvic osteotomy for acetabular dysplasia (5 studies)
4. Arthroscopy followed by un-planned hip preservation surgery (4 studies)
5. Combined arthroscopy and periacetabular osteotomy (PAO) (2 studies)
Results

1. Arthroscopic characterization of intra-articular pathology of hips with acetabular dysplasia (8 studies)
   - Significant heterogeneity in reporting and disease classification
   - High incidence of intra-articular pathology (Up to 100% in some studies)
   - Up to 83% with early OA
   - 84.6/81.0% Labral/Chondral pathology in all studies that included data
   - Synovitis up to 70%
   - Ligamentum teres injuries in average 59.1%
   - Lateral CEA < 15° predictive of moderate/severe chondral disease
Results

2. Isolated arthroscopic treatment (13 studies)

- Older studies document high failure rate, iatrogenic instability, and progressive OA
- Updated approach with careful patient selection, labral preservation, and judicious capsular management associated with improved outcomes and safety profile in more recent publications
- Variety of concomitant procedures performed
- High grade chondral defects predictive of poorer outcomes
- Inferior results when compared to matched FAI cohorts
Results

3. Outcomes of hip arthroscopy after previous reorientation pelvic osteotomy (5 studies)
   - Evidence of progressive chondral lesions medial to displacement site
   - Consistent improvements in all PROs reported
   - Evidence that initial therapeutic gains begin to deteriorate by ~3 years

4. Hip preservation surgery following failed arthroscopic hip surgery (4 studies)
   - Prior arthroscopic treatment does not seem to effect outcome after subsequent hip preservation surgery
   - Open treatment of residual structural disease achieves successful outcomes after prior arthroscopic hip preservation surgery
   - Combined arthroscopy/PAO may optimize treatment of structural insufficiency and residual intra-articular disease
Results

5. Combined arthroscopy and PAO (2 studies)

• Improvement in all PROs at final followup
• Variety of arthroscopic procedures reported at time of PAO
• High rate of concomitant intra-articular pathology in patients with DDH, amenable to arthroscopic treatment at time of PAO
• Favorable outcomes with durability past 2-year followup
Conclusions

• While isolated hip arthroscopy in the setting of acetabular dysplasia may provide early-mid term improvements in pain and function, it should be utilized with caution, due to risk for accelerated degenerative changes, progressive joint space narrowing, and femoral head subluxation or dislocation.

• Index arthroscopy for carefully selected patients, using modern labral preservation and capsular management techniques may improve PROs and minimize complications.

• Arthroscopic techniques, used as an adjunct to corrective pelvic procedures may improve long term outcomes and decrease progression of osteoarthritis.
References


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