Femoroacetabular Impingement Syndrome (for Louisiana Only)

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Instructions for Use

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Application

This Medical Policy only applies to the state of Louisiana.

Coverage Rationale

Surgical treatment for femoroacetabular impingement (FAI) syndrome is proven and medically necessary when the following criteria are met:

- Pain unresponsive to non-surgical management (e.g., restricted activity, nonsteroidal anti-inflammatory drugs)
- Moderate-to-severe symptoms typical of FAI (persistent hip or groin pain that limits activity and is worsened by bending of the joint such as squatting or prolonged sitting)
- Positive impingement sign (i.e., sudden pain on 90 degree hip flexion with adduction and internal rotation or extension and external rotation)
- Imaging studies (X-rays, MRI or CT scans) confirming FAI (e.g., pistol-grip deformity, alpha angle greater than 50 degrees, coxa profunda, and/or acetabular retroversion)
- Do not have advanced osteoarthritis (i.e., Tönnis Grade 2 or 3) and/or severe cartilage damage (i.e., Outerbridge Grade III or IV)

Definitions

Outerbridge Grades:

- Grade 0: Normal
- Grade I: Cartilage with softening and swelling
- Grade II: Partial-thickness defect with fissures on the surface that do not reach subchondral bone or exceed 1.5 cm in diameter
- Grade III: Fissuring to the level of subchondral bone in an area with a diameter more than 1.5 cm

- Grade IV: Exposed subchondral bone head

Tonnis Classification of Osteoarthritis by Radiographic Changes:
- Grade 0: No signs of osteoarthritis (OA)
- Grade 1: Increased sclerosis of femoral head or acetabulum, slight joint space narrowing or slight slipping of joint margin, no or slight loss of head sphericity
- Grade 2: Small cysts in femoral head or acetabulum, moderate joint space narrowing, moderate loss of head sphericity
- Grade 3: Large cysts, severe joint space narrowing or obliteration of joint space, severe deformity of the head, avascular necrosis

(Clohisy, 2010)

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by federal, state, or contractual requirements and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

Coding Clarification: The specific codes for femoroacetabular impingement syndrome surgery should be used instead of 27299 and/or 29999.

CPT Code	Description
27299	Unlisted procedure, pelvis or hip joint
29914	Arthroscopy, hip, surgical; with femoroplasty (i.e., treatment of cam lesion)
29915	Arthroscopy, hip, surgical; with acetabuloplasty (i.e., treatment of pincer lesion)
29916	Arthroscopy, hip, surgical; with labral repair
29999	Unlisted procedure, arthroscopy

Description of Services

Femoroacetabular impingement (FAI) is a condition in which extra bone grows along one or both of the bones that form the hip joint – giving the bones an irregular shape. Because they do not fit together perfectly, the bones rub against each other during movement. Over time this friction can damage the joint, causing pain and limiting activity.

There are three types of FAI: pincer, cam, and combined impingement.
- Pincer: This type of impingement occurs because extra bone extends out over the normal rim of the acetabulum. The labrum can be crushed under the prominent rim of the acetabulum.
- Cam: In cam impingement the femoral head is not round and cannot rotate smoothly inside the acetabulum. A bump forms on the edge of the femoral head that grinds the cartilage inside the acetabulum.
- Combined: Combined impingement just means that both the pincer and cam types are present.

The most common symptoms of FAI include:
- Pain
- Stiffness
- Limping

Pain often occurs in the groin area, although it may occur toward the outside of the hip. Turning, twisting, and squatting may cause a sharp, stabbing pain. Sometimes, the pain is just a dull ache (OrthoInfo, 2016).

Conservative treatments for FAI include rest, modification and limitation of activities, anti-inflammatory medications, physical therapy, and injection of the hip joint with a steroid or analgesic. If these treatments fail to provide adequate relief, hip surgery may be indicated.

Several different types of arthroscopic surgery have been developed to reshape bone and remove or repair damaged cartilage with the goal of restoring normal hip function (Hayes, 2020).

Three surgical approaches are commonly used to accomplish the goals of surgical intervention: an open approach, arthroscopy or arthroscopy with a limited open approach (mini-open). The appropriate surgical technique depends on the type of impingement, the extent of damage, the labral and cartilage pathology, and the physician/patient preferences and desired outcomes (Barton, et al., 2009).

Components that may be performed during FAI surgery include but are not limited to:

- Removing the nonspherical sections of the femoral head and prominent sections of the anterior femoral neck (osteoplasty)
- Debridement of chondral lesions
- Labral debridement (resection) or labral repair (refixation or reattachment)
- Evaluation and repair of chondral defects using microfracture or drilling chondroplasty
- Excising bony prominence and reshaping the acetabular rim (NICE, 2011)

Clinical Evidence

A systematic review with meta-analysis was conducted by Ferreira et al. (2020) to determine the effectiveness of hip arthroscopic surgery for the treatment of pain in femoroacetabular impingement syndrome (FAI). The study included three randomized controlled trials (n = 650 participants) comparing hip arthroscopic surgery to a placebo/sham surgery and other non-operative comparators (e.g. no intervention, physiotherapy, etc.). Hip-specific quality of life (QoL) at 12 months was the primary outcome. The authors found that there is evidence from three RCTs that hip arthroscopic surgery provided superior outcomes compared to non-operative care for hip-specific QoL at 12 months (mean difference (MD): 11.02 points, 95% CI 4.83-17.21). Low quality evidence suggested that arthroscopic surgery provided similar outcomes to non-operative care for hip-specific QoL at 24 months (MD: 6.3, 95% CI -6.1 to 18.7). They concluded that hip arthroscopic surgery for FAI provides better outcomes compared to non-operative care at 12 months, but not at 24 months. (Authors Mansell 2018, Griffin 2016 and Palmer 2019 which were previously cited in this policy, are included in this systematic review).

Bastos et al. (2020) performed a systematic review and meta-analysis of RCTs to summarize the effects of surgical treatment (arthroscopy or open hip surgery) compared to conservative treatment on functional status in femoroacetabular impingement syndrome in the short, medium, and long term. work. The same three RCTs as in the Ferreira systematic review discussed above met the full-text inclusion criteria. All studies were of good methodological quality. Follow up ranged from six months to two years, with 650 participants in total. The meta-analyses found no difference in disability between surgical versus conservative treatment, with a mean difference (MD) between groups of 3.91 points (95% CI -2.19 to 10.01) at six months, MD of 5.53 points (95% CI -3.11 to 14.16) at 12 months and 3.8 points (95% CI -6.0 to 13.6) at 24 months. The quality of the evidence (GRADE) varied from moderate to low across all comparisons. The authors concluded that patients with femoroacetabular impingement syndrome can benefit from both conservative treatment and surgical treatment. The evidence shows that there is little knowledge on the long-term effects (beyond 2 years) of surgical treatment and conservative treatment (Authors Mansell 2018, Griffin 2016 and Palmer 2019 which were previously cited in this policy, are included in this systematic review).

Dwyer et al. (2020) performed a meta-analysis to compare the outcomes of patients with femoroacetabular impingement (FAI) syndrome treated with hip arthroscopy versus those treated with physical therapy alone. The same three RCTs (Level I) as in the two systematic reviews above were included with a total of 650 patients (323 randomized to surgery and 327 randomized to physical therapy), follow-rate of 90% (583 patients, 295 operative and 288 nonoperative), and average of 11.5 months' follow-up. Patients treated with operative management had improved preoperative-to-postoperative change scores on the International Hip Outcome Tool 33 compared with the nonoperative group (standardized mean difference, 3.46; 95% confidence interval, 0.07-6.86; P < .05). One study reported on the achievement of clinically relevant outcomes at the individual level, with 51% of the operative group and 32% of the nonoperative group achieving the minimal clinically important difference and with 48% and 19%, respectively, achieving the patient acceptable symptomatic state for the Hip Outcome Score-Activities of Daily Living. The

authors concluded that the results of this meta-analysis showed that patients with FAI syndrome treated with hip arthroscopy have superior hip-related outcomes in the short term compared with those treated with physical therapy alone.

A meta-analysis study was conducted by Gatz et al. (2020) to compare the outcomes between two different treatment regimens; physiotherapy versus arthroscopic treatment for FAI. The same three RCTs as in the three systematic reviews above with data from 644 patients were evaluated with a mean follow-up of 14.67 ± 8.3 months. In the arthroscopy group, a total of 346 patients were analyzed and the mean duration of the symptoms was 29.5±10.6 months. In the physiotherapy group, a total of 298 patients were analyzed and the mean duration of the symptoms was 30.5 ± 13.4 months. The VAS subscale of the score EQ-5D and the mean iHOT33 reported favorable values in the arthroscopic group ($p = 0.03$ and $p < 0.0001$, respectively). The iHOT33 subgroup values were 6-months ($p = 0.70$) and 12-months ($p = 0.0002$). The HOS score, the ADL ($p < 0.0001$) and the sport ($p = 0.0003$) subscales reported both greater values in the arthroscopic group. No statistical significance was found concerning the risk to incur in further total hip arthroplasty ($p = 0.72$). The authors concluded that arthroscopic surgery had better overall outcomes compared to a conservative physiotherapy-based treatment and is an adequate treatment option and might be considered as treatment of first choice in selected patients. Only three high quality RCTs were included in the present meta-analysis, and future studies need to provide further evidence and specify indications for physiotherapy and arthroscopic surgery.

An updated Hayes Medical Technology literature search for arthroscopic hip surgery for femoroacetabular impingement yielded twenty-nine studies, including 3 randomized controlled trials, 1 case-control study, 2 matched cohort studies, 5 retrospective cohort studies, 6 database or registry analyses, 1 case series study, 8 systematic reviews and meta-analyses, 1 meta-analysis, 1 systematic review, and 1 cost-effectiveness study. The study results suggested that arthroscopic surgery for FAI is safe and improves hip function and reduces pain. In a small number of poor-quality studies, arthroscopic surgery results in comparable and, in some cases, better clinical outcomes than open surgery. There was limited comparative evidence evaluating variations of arthroscopic surgical techniques or arthroscopic surgery relative to nonoperative management for FAI (Hayes, 2020).

A systematic review and meta-analysis was conducted by Gohal et al. (2019) to assess the health-related quality of life (HRQL) outcomes after arthroscopic management of FAI. A total of 29 studies (24 case series, 3 case-control studies, 1 retrospective comparative study, and 1 RCT; some with control groups) were included for assessment. Of the 6476 patients (6959 hips), significant improvements were reported in all studies assessing generic HRQL outcomes, including the 12-Item Short Form Health Survey (range of mean postoperative scores, 82.2-89.8), and EuroQOL-5D scores (range of mean postoperative scores, 0.74-0.87) between 12 and 24 months postoperatively. Significant improvements were similarly identified in the hip-specific HRQL outcomes scores, with the majority of studies also reporting improvement between 12 and 24 months postoperatively. Mean improvement in International Hip Outcome Tool-33 scores from preoperative values to postoperative values ranged from 22.7 to 43.2, for studies with follow-up between 12 and 24 months. The authors concluded that hip arthroscopy can lead to significant improvement in generic and hip-specific HRQL outcomes at 12 to 24 months postoperatively in patients with FAI who do not have advanced hip osteoarthritis.

In a meta-analysis performed by Lei et al. (2019), the prognostic value of osteoarthritis (OA) on the overall failure rate, pain, and function of surgical management of femoroacetabular impingement (FAI) was evaluated. Seven studies were identified with 1,129 total patients, with 819 patients in the FAI group and 310 patients in the FAI with OA group. Pooled analyses showed that the overall failure rate was significantly higher in the FAI-OA group than in the FAI group. In addition, the rate of conversion to total hip arthroplasty was significantly higher in the FAI-OA group (37.3%) than in the FAI group (9.7%). The authors found that radiographic OA was correlated with higher failure rates, increased conversion to total hip arthroplasty, and worse outcomes after surgical management of FAI.

Öhlin et al. (2019) conducted a prospective case series which included a total of 184 patients who underwent arthroscopic treatment for FAI syndrome. Preoperatively and at the 5-year follow-up, patients completed a set of self-administered web-based PROMs consisting of the International Hip Outcome Tool (iHOT-12), the Copenhagen Hip and Groin Outcome Score (HAGOS), the Hip Sports Activity Scale (HSAS), the EuroQoL-5 Dimension Questionnaire (EQ-5D), the EQ-Visual Analogue Scale (VAS) and the VAS for overall hip function and overall satisfaction. Of the included hips, 74 were isolated cam morphology (41.1%), 2 were isolated pincer morphology (1.1%) and 104 had both cam and pincer morphology (57.8%). During the follow-up period, four re-operations were performed following index surgery (2.2%). A comparison of preoperative PROM scores and those obtained at the 5-year follow-up showed improvements for all outcome scores ($p < 0.05$), except for the HSAS score, which were unchanged; iHOT-12 (42.9 vs 67.2), HAGOS different subscales (50.2 vs 69.6, 55.7 vs 76.1, 59.2 vs 72.3, 41.1 vs 66.4, 30.8

vs 60.2, 31.6 vs 60.4), EQ-5D (0.570 vs 0.742), EQ-VAS (66.6 vs 74.4), HSAS (3.13 vs 3.17) and VAS for overall hip function (47.9 vs 69.2). At the 5-year follow-up, 154 patients reported that they were satisfied with surgery (84.6%). Survivorship at the 5-year follow-up was 86.4%. The authors concluded that arthroscopic treatment for FAI syndrome can be regarded as a viable treatment option, as PROM scores are reported at the 5-year follow-up; comparable to the results obtained at the 2-year follow-up.

A study was performed by Lee et al. (2019) to report the long-term follow-up results of arthroscopic repair of acetabular labral tears with femoroacetabular impingement (FAI). Forty-one patients were included in the analysis. Long-term follow-up results were compared with the previously reported short-term follow-up results of the same patients. The mean follow-up period was 92.4 months. The mean visual analog scale (VAS) score decreased from 6.4 points to 1.8 points, the mean modified Harris hip score (mHHS) increased from 59.5 points to 86.8 points, and the mean hip outcome score-activity of daily living (HOS-ADL) and hip outcome score-activity-sport-specific subscale (HOS-SSS) increased from 58.3 and 51.2, respectively, to 85.2 and 82.4, respectively, between the preoperative and last follow-up assessment. The mean patient satisfaction score was 7.6 of 10. The average Tönnis grade at the last follow-up was not significantly different from the preoperative average. Only one case was converted to total hip arthroplasty because of progression of OA at 8 years after surgery. The authors concluded that the clinical and radiological long-term follow-up revealed that improvement after arthroscopic labral repair and osteoplasty for FAI were maintained in most cases without significant progression of arthritis. Anatomical recovery of the acetabular labrum was associated with the improvement of clinical symptoms.

Minkara et al. (2018) performed a meta-analysis and systematic review to evaluate risk factors and outcomes after arthroscopic management of femoroacetabular impingement (FAI), including return to play, revision rate, surgical and nonsurgical complications, change in α-angle, intraoperative bone resection, and patient-reported. A total of 1981 hips among 1911 patients were identified, with a mean ± SD age of 29.9 ± 1.9 years and 29.5 ± 14.0 months of follow-up. The incidence of bilateral FAI in these studies that required operative intervention was 3.6%. The pooled risk of reoperation after hip arthroscopy, including revision surgery or subsequent total hip arthroplasty, was 5.5%. The risk of clinical complications was 1.7%. In total, 87.7% of patients demonstrated return to sport after surgery and all patient-reported outcomes improved postoperatively, with the highest increase observed in the Hip Outcome Score sports scale (41.7 points). The α-angle decreased by an average of 23.6°. The authors reported that a high percentage of patients return to sport activities after hip arthroscopy for FAI, with a low rate of complications and reoperation. All patient-reported outcome measures, except for mental health, significantly improved after surgery.

Kierkegaard et al. (2017) conducted a systematic review and meta-analysis to investigate pain, activities of daily living (ADL) function, sport function, quality of life and satisfaction at different time points after hip arthroscopy in patients with femoroacetabular impingement (FAI). Weighted mean differences between preoperative and postoperative outcomes were calculated and used for meta-analysis. Twenty-six studies (22 case series, 3 cohort studies, 1 randomized controlled trial (RCT)) were included in the systematic review and 19 in the meta-analysis. ADL function improvements were first reported between 3 and 6 months and maintained through at least 3 years of follow-up. Sport function improvements were noted between 6 months and 1 year after surgery. On average, residual mild pain and ADL and sport function scores lower than their healthy counterparts were reported by patients following surgery. Postoperative patient satisfaction ranged from 68% to 100%.

The purpose of a cohort study (Sansone et al., 2017) was to report outcome 2 years after the arthroscopic treatment of femoroacetabular impingement (FAI) using validated outcome measurements. Two hundred and eighty-nine patients underwent arthroscopic surgery for FAI. The mean follow-up time was 25.4 months. Pre-operative scores compared with those obtained at follow-up revealed statistically and clinically significant improvements for all measured outcomes; International Hip Outcome Tool (iHOT-12) (43 vs 66), visual analog scale (VAS) for global hip function (50 vs 71), Hip Sports Activity Scale (HSAS) (2.9 vs 3.6), EuroQol (EQ-5D) index (0.58 vs 0.75), EuroQol visual analogue scale (EQ-VAS) (67 vs 75) and the Copenhagen Hip and Groin Outcome Score (HAGOS) different subscales (56 vs 76, 51 vs 69, 60 vs 78, 40 vs 65, 29 vs 57, 33 vs 58). At the 2-year follow-up, 236 patients (82%) reported they were satisfied with the outcome of surgery. The authors concluded that arthroscopic treatment for FAI resulted in statistically and clinically significant improvements in outcome parameters.

Khan et al. (2016) conducted a systematic comprehensive review in duplicate of Arthroscopy and The American Journal of Sports Medicine (AJSM) from February 2012 to February 2015 for all articles related to Femoroacetabular Impingement (FAI). A total of 4,131 patients in 104 studies were included in this review. The modified Harris Hip Score (mHHS) mean values after arthroscopic surgery for FAI showed improvements at the midterm from 60.5 points to 80.5 points out of a possible 100 points.

The outcomes for labral repair showed mean mHHS improvements from 63.8 points preoperatively to 86.9 points up to 24 months postoperatively. The authors concluded arthroscopic intervention results in improvements in functional outcomes at both the short-term and midterm for patients with symptomatic FAI in the absence of significant existing degenerative changes. Labral repair may result in improvements over labral debridement. The primary limitation of this study is the potential risk of bias in the findings from restricting this review to two journals. This however was done to allow for a comparison in the quality and content between these publications.

Fairley et al. (2016) conducted a systematic review to examine the evidence for surgical and non-surgical treatment of femoroacetabular impingement syndrome (FAI) on symptom and structural outcomes. Eighteen studies were identified comparing management strategies for FAI but no studies compared surgical and non-surgical treatment. Most studies had a high risk of bias. There was evidence that arthroscopy provided improved symptom outcomes compared to open surgery with labral preservation. There was some evidence that surgical interventions are effective in reducing alpha angle but no long-term outcomes data. The review found weak evidence that surgery was associated with structural progression of hip osteoarthritis. The authors concluded there is a lack of evidence for use of surgery in FAI and clarification of the role of non-surgical approaches vs surgery for the management of FAI is warranted.

A systematic review comparing outcomes of labral debridement/segmental resection with labral reconstruction as part of a comprehensive treatment strategy for femoroacetabular impingement was performed by Forster-Horvath et al. (2016). The study groups were divided into labral debridement/segmental resection (group 1) and labral reconstruction (group 2). Twelve studies explored outcomes after labral debridement/resection in a total of 400 hips and 7 studies reported on outcomes after labral reconstruction in a total of 275 hips. One additional matched-pair control study compared labral resection (22 hips) with reconstruction (11 hips). The surgical intervention was a revision in 0% to 100% for group 1 versus 5% to 55% for group 2. A direct anterior approach was not performed in group 2, and cam-type impingement appeared to make up a larger percentage of group 1. The Tönnis grade ranged from 0 to 1 for group 1 versus 0.3 to 1.1 for group 2. Joint replacements were performed in 0% to 30% and 0% to 25%, respectively. The modified Harris Hip Score suggested that labral reconstruction was not inferior to labral debridement/segmental resection. The authors concluded that clinical outcomes after labral debridement/segmental resection versus labral reconstruction were found to be comparable.

Zhang et al. (2016) conducted a meta-analysis to evaluate the efficacy and safety of hip arthroscopy versus open surgical dislocation for treating femoroacetabular impingement (FAI). Five controlled clinical trials evaluating a total of 352 hips were included. No randomized control trials were found. Compared with open surgical dislocation, hip arthroscopy resulted in significantly higher Nonarthritic Hip Scores (NAHS) at 3- and 12-month follow-ups, a significant improvement in NAHS from preoperation to 3 months postoperation, and a significantly lower reoperation rate. Open surgical dislocation resulted in a significantly improved alpha angle by the Dunn view in patients with cam osteoplasty from preoperation to postoperation, compared with hip arthroscopy. There were no significant differences in the modified Harris Hip Score, Hip Outcome Score-Activities of Daily Living, or Hip Outcome Score-Sport Specific Subscale at 12 months of follow-up, or in complications (including nerve damage, wound infection, and wound dehiscence). The authors concluded that this meta-analysis found that hip arthroscopy resulted in a significantly higher NAHS after 3 and 12 months of follow-up, and a significantly improved NAHS from preoperation to 3 months postoperation, than open surgical dislocation. Nwachukwu et al. (2015) performed a systematic review and meta-analysis to determine whether there was a significant difference in clinical outcomes and progression to total hip arthroscopy between hip arthroscopy and open surgical hip dislocation treatment for FAI at minimum medium-term follow-up (36 months). They concluded that both hip arthroscopy and open surgical hip dislocation showed excellent and equivalent hip survival rates at 36 months with hip-specific outcome measures, demonstrating equivalence between groups. However, hip arthroscopy was shown to have superior results regarding general health-related quality of life in comparison to open treatment. Further studies are needed through well-conducted clinical trials to assess long-term outcomes for patients with FAI and increase understanding of the natural history of FAI.

Larson et al. (2016) conducted a cohort study which included 77 patients (88 hips). Dysplastic radiographic findings were retrospectively reviewed at a mean follow-up of 26.0 months after hip arthroscopy. Specific procedures included labral repair (76%), labral debridement (23%), capsular repair/plication (82%), and femoral osteochondroplasty (72%). Pre- and postoperative function were evaluated prospectively with the modified Harris Hip Score (mHHS), 12-Item Short Form Health Survey, and visual analog scale for pain. The results of the dysplastic cohort were compared with a cohort of 231 hips without radiographic dysplasia that underwent arthroscopic Femoroacetabular Impingement (FAI) correction during the study period. At the time of final follow-up, the dysplastic cohort demonstrated a mean mHHS of 81.3 with a mean 15.6-point improvement in mHHS, compared with 88.4 and 24.4 points, respectively, in the FAI cohort. The dysplastic cohort had 60.9% good/excellent

results and 32.2% failures, compared with 81.2% good/excellent results and 10.5% failures for the FAI cohort. Failure was defined as a mHHS ≤70 or eventual pelvic/femoral osteotomy or total hip arthroplasty. Dysplastic hips that underwent capsular plication and labral repair had greater good/excellent results (73%) and mean latest mHHS (85), as well as lower failure rates (18%) compared with the remainder of the dysplastic cohort. The authors concluded that arthroscopic management of mild to moderate acetabular dysplasia had inferior good/excellent results and higher failure rates when compared with an FAI cohort; therefore, isolated arthroscopic procedures in this population should be cautiously considered. Labral repair and capsular plication resulted in better clinical outcomes.

Collins et al. (2015) conducted a systematic review of the literature to determine if prophylactic surgical intervention for asymptomatic patients with radiographic evidence of FAI is warranted to prevent early degenerative joint disease of the hip. Inclusion criteria were prospective or retrospective studies comparing skeletally mature asymptomatic patients with radiographic evidence of FAI treated with prophylactic hip arthroscopic surgery versus nonoperative management. As none of the references met the eligibility criteria, they conclude that current evidence does not support prophylactic surgery for asymptomatic FAI in the vast majority of cases. However, they also identified that limited evidence suggests that asymptomatic patients who have previously undergone total hip arthroplasty for FAI-induced osteoarthritis of the contralateral hip are at a significantly increased risk for early degenerative joint disease. Further research is needed through well-conducted clinical trials to better clarify surgical indications for prophylactic surgical intervention of patients with asymptomatic FAI.

de Sa et al. (2015) conducted a systematic review aimed to establish specific indications, outcomes, and complications of surgical management of adolescent FAI (patients aged 10-19 years of age). There were 6 eligible case series (4 with arthroscopic and 2 with open technique) and 2 conference abstracts examining 388 patients in total (435 hips), 81% of which were treated with hip arthroscopy. Overall, patients were followed up for a mean of 23.4 months postoperatively (range, 3 to 75 months). The main indication for surgery was a confirmed diagnosis of FAI with persistent pain and impaired function refractory to nonsurgical interventions (activity modification, intra-articular injections, etc.). The review concluded that both arthroscopic and open surgical dislocation approaches for the treatment of adolescent FAI appear to be safe and effective options for patients with persistent pain and limited function after an appropriate trial of nonoperative therapy.

Fukui et al. (2015) conducted a study of patients with dysplasia whose affected hip had a Wiberg center-edge angle of 20° to 25° and who underwent primary hip arthroscopy. One hundred two hips underwent hip arthroscopy with labral repair with correction of Femoroacetabular Impingement (FAI) and capsular closure. At a mean follow-up point of 40 months, the preoperative modified Harris Hip Score had improved from a mean of 63.5 points to a mean of 84.9 points. The mean score on the Western Ontario and McMaster Universities Arthritis Index improved from 25.3 to 9.7. The 12-Item Short Form Health Survey Physical Component Summary score also significantly improved (from 42.5 to 50.9), whereas the 12-Item Short Form Health Survey Mental Health Component Summary score showed an insignificant improvement (from 52.4 to 54.1). The authors concluded that this study showed that FAI and labral pathology can be successfully managed using hip arthroscopy, with capsular management, in patients with borderline dysplasia. Patients showed significant improvements in outcomes and high levels of satisfaction after hip arthroscopy.

Ayeni et al. (2014) systematically reviewed the clinical literature to determine the identify outcomes addressing femoracetabular impingement, especially those comparing labral debridement to labral repair. Six studies met the inclusion criteria. The authors concluded that the review demonstrates better reporting of clinical outcomes with labral repair compared to labral debridement in all studies. Five of six studies reported statistically significant improvements (of repair over debridement). However, given the lack of high quality evidence and associated limitations in study design, these results should be interpreted with caution. Definitive treatment recommendations require further investigation with well-conducted clinical trials.

Matsuda et al. (2011) conducted a literature review to analyze the current approaches to the surgical management of symptomatic femoroacetabular impingement (FAI). Eighteen peer-reviewed treatment outcome studies met the inclusion criteria with minimum 1-year follow-up of the surgical treatment of skeletal pathoanatomy and associated chondrolabral pathology in skeletally mature patients with FAI. There were 6 open surgical dislocation, 4 mini-open, and 8 arthroscopic studies. The authors found that open dislocation, mini-open, and arthroscopic methods for treating symptomatic FAI are effective in improving pain and function in short-term to midterm studies and are relatively safe procedures. The historical gold standard of open dislocation surgery had a comparatively high major complication rate primarily because of trochanteric osteotomy-related issues. The mini-open method showed comparable efficacy but a significant incidence of iatrogenic injury to the lateral femoral cutaneous nerve in some studies. The arthroscopic method had surgical outcomes equal to or better than the other methods with a lower rate of major complications when performed by experienced surgeons.

The National Institute for Health and Care Excellence (NICE) 2011 guidance documents state that the current evidence on the safety and efficacy for arthroscopic and open femoroacetabular surgery for hip impingement syndrome is adequate in terms of symptom relief in the short and medium term. The management of hip impingement syndrome includes conservative measures, such as modification of activity and non-steroidal anti-inflammatory medication. Surgical treatment options include open femoro–acetabular hip impingement surgery.

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

Although arthroscopic hip surgery for FAI is a procedure that is not subject to FDA regulation, devices and instruments used during the surgery require FDA approval. A search of the FDA 510(k) database revealed over 500 arthroscopies approved for marketing (product code HRX); however, the available studies did not provide sufficient information to determine which 510(k) approvals correspond to the instruments used. Additional information is available at: http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmn.cfm. (Accessed December 1, 2020)

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Policy History/Revision Information

Date	Summary of Changes
04/01/2021	Template Update • Removed *Related Policies* and *CMS* sections • Updated *Instructions for Use*; replaced reference to "MCG™ Care Guidelines" with "InterQual® criteria"
01/01/2021	Template Update • Reformatted policy; transferred content to new template Supporting Information • Updated *Description of Services*, *Clinical Evidence*, *CMS*, and *References* sections to reflect the most current information • Archived previous policy version CS044LA.F

Instructions for Use

This Medical Policy provides assistance in interpreting UnitedHealthcare standard benefit plans. When deciding coverage, the federal, state or contractual requirements for benefit plan coverage must be referenced as the terms of the federal, state or contractual requirements for benefit plan coverage may differ from the standard benefit plan. In the event of a conflict, the federal, state or contractual requirements for benefit plan coverage govern. Before using this policy, please check the federal, state or contractual requirements for benefit plan coverage. UnitedHealthcare reserves the right to modify its Policies and Guidelines as necessary. This Medical Policy is provided for informational purposes. It does not constitute medical advice.

UnitedHealthcare may also use tools developed by third parties, such as the InterQual® criteria, to assist us in administering health benefits. The UnitedHealthcare Medical Policies are intended to be used in connection with the independent professional medical judgment of a qualified health care provider and do not constitute the practice of medicine or medical advice.