Corporate Medical Policy

Surgery for Femoroacetabular Impingement

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Description of Procedure or Service

Femoroacetabular impingement (FAI), a condition that has been recently recognized, is an anatomical mismatch between the head of the femur and the acetabulum resulting in compression of the labrum or articular cartilage during flexion. The mismatch can arise from subtle morphologic alterations in the anatomy or orientation of the ball-and-socket components (for example, a bony prominence at the head-neck junction or acetabular overcoverage) with articular cartilage damage initially occurring from abutment of the femoral neck against the acetabular rim, typically at the anterosuperior aspect of the acetabulum. Although hip joints can posses the morphologic features of FAI without symptoms, FAI may become pathologic with repetitive movement and/or increased force on the hip joint. High-demand activities may also result in pathologic impingement in hips with normal morphology.

Two types of impingement, known as cam impingement and pincer impingement, may occur alone or more frequently together. Cam impingement is associated with an asymmetric or nonspherical contour of the head or neck of the femur jamming against the acetabulum, resulting in cartilage damage and delamination (detachment from the subchondral bone). Deformity of the head/neck junction that looks like a pistol grip on radiographs is associated with damage to the anterosuperior area of the acetabulum. Symptomatic cam impingement is found most frequently in young male athletes. Pincer impingement is associated with overcoverage of the acetabulum and pinching of the labrum, with pain more typically beginning in women of middle age. In cases of isolated pincer impingement, the damage may be limited to a narrow strip of the acetabular cartilage. It has been proposed that impingement with damage to the labrum and/or acetabulum is a causative factor in the development of hip osteoarthritis, and that as many as half of cases currently categorized as primary osteoarthritis may have an etiology of FAI.

Previously, access to the joint space was limited and treatment consisted primarily of debridement and/or labral reattachment. A technique for hip dislocation with open osteochondroplasty that preserved the femoral blood supply was reported by Ganz and colleagues in 2001. Visualization of the entire joint with this procedure led to the identification and acceptance of FAI as an etiology of cartilage damage (the association between abnormal femoral head/neck morphology and early-age-onset osteoarthritis had been described earlier by others) and the possibility of correcting the abnormal femoroacetabular morphology. Open osteochondroplasty of bony abnormalities and treatment of the symptomatic cartilage defect is considered the gold standard for complex bony abnormalities. However, open osteochondroplasty is invasive, requiring transection of the greater trochanter (separation of the femoral head from the femoral shaft) and dislocation of the hip joint to provide full access to the femoral head and acetabulum. In addition to the general adverse effects of open surgical procedures, open osteochondroplasty with dislocation has been associated with non-union, and neurologic and soft tissue lesions. Less invasive hip arthroscopy and an arthroscopy-assisted mini-approach were adapted from the open approach by 2004. Arthroscopy requires specially designed instruments and is considered to be more technically difficult due to reduced visibility and limited access to the joint space. Advanced imaging techniques, including computed tomography and fluoroscopy, have been utilized to improve visualization of the 3-dimensional head/neck morphology during arthroscopy.

An association between FAI and athletic pubalgia, sometimes called sports hernia, has been proposed. Athletic pubalgia is an umbrella term for a large variety of musculoskeletal injuries involving attachments and/or soft tissue support structures of the pubis. It is believed that if FAI presents with limitations in hip range of motion, compensatory patterns during athletic activity may lead to increased stresses involving the abdominal obliques, distal rectus abdominis, pubic symphysis, and adductor musculator. The condition is more common in men than in women, and is associated with sports in which high speed twisting of the hip and pelvis occur (e.g., football and hockey). Under surgical exploration, a variety of musculotendinous defects, nerve entrapments, and inflammatory conditions have been observed. These defects are often discovered and repaired during open or minimally invasive exploratory laparoscopy. Surgery for athletic pubalgia has been performed concurrently with treatment of FAI, or might be performed following FAI surgery if symptoms do not resolve.

The recognition and treatment of FAI has also brought attention to the possibility of cam-type FAI after slipped capital femoral epiphysis (SCFE). The standard treatment for SCFE is stabilization across the epiphysis by in-situ pinning, although it is not uncommon for patients with SCFE to develop premature osteoarthritis requiring total hip arthroplasty within 20 years. Treatments being evaluated for pediatric patients with SCFE-related FAI include osteoplasty without dislocation, or with the open dislocation technique described by Ganz. The Ganz technique (capital realignment with open dislocation) is technically demanding with a steep learning curve and a high risk of complications. Therefore, early treatment to decrease impingement must be weighed against increased risk for adverse events including avascular necrosis in patients with SCFE.

It is known that surgical treatment of FAI pathology is less effective for pain reduction in patients with late stage osteoarthritis. In addition, delay in the surgical correction of bony abnormalities may lead to disease progression to the point where joint preservation is no longer appropriate. It is believed that osteoplasty of the impinging bone is needed to protect the cartilage from further damage and preserve the natural joint. If FAI morphology is shown to be an etiology of osteoarthritis, a future strategy to reduce the occurrence of idiopathic hip osteoarthritis could be early recognition and treatment of FAI before cartilage damage occurs.

******Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.***

Policy

BCBSNC will provide coverage for Surgery for Femoroacetabular Impingement when it is determined to be medically necessary because the criteria and guidelines shown below have been met.

Benefits Application

Please refer to Certificate for availability of benefits. This policy relates only to the services or supplies described herein. Benefits may vary according to benefit design, therefore certificate language should be reviewed before applying the terms of the policy.

When Surgery for Femoroacetabular Impingement is covered

Open or arthroscopic treatment of femoroacetabular impingement may be **medically necessary** when all of the following conditions have been met:

Age

- Adolescent patients should be skeletally mature with documented closure of growth plates (e.g., 15 years or older). Adult patients should be too young to be considered an appropriate candidate for total hip arthroplasty or other reconstructive hip surgery (e.g., younger than 55 years).

Symptoms

- Moderate-to-severe hip pain that is worsened by flexion activities (e.g., squatting or prolonged

sitting) that significantly limits activities; AND
- Unresponsive to conservative therapy for at least 3 months (including activity modifications, restriction of athletic pursuits and avoidance of symptomatic motion); AND
- Positive impingement sign on clinical examination (pain elicited with 90 degrees of flexion and internal rotation and adduction of the femur).

Imaging

- Morphology indicative of cam or pincer-type FAI, e.g., pistol-grip deformity, femoral head-neck offset with an alpha angle greater than 50 degrees, a positive wall sign, acetabular retroversion (overcoverage with crossover sign), coxa profunda or protrusion, or damage of the acetabular rim; AND
- High probability of a causal association between the FAI morphology and damage, e.g., a pistol-grip deformity with a tear of the acetabular labrum and articular cartilage damage in the anterosuperior quadrant; AND
- No evidence of advanced osteoarthritis, defined as Tonnis grade II or III, or joint space of less than 2 mm; AND
- No evidence of severe (Outerbridge grade IV) chondral damage.

When Surgery for Femoroacetabular Impingement is not covered

Treatment of FAI is considered **investigational** in all other situations.

Policy Guidelines

If femoroacetabular impingement (FAI) morphology is identified, patients should be advised not to play aggressive sports. No more frequent than annual follow-up with magnetic resonance (MR) arthrography may be indicated for FAI morphology to evaluate cartilage changes before damage becomes severe. It should be noted that current imaging techniques limit the early identification of cartilage defects, whereas delay in the surgical correction of bony abnormalities may lead to disease progression to the point at which joint preservation is no longer appropriate. Confirmation of subtle FAI morphology may require 3-D computed tomography. Some clinicians may also use local anesthetic injection into the joint to assist in confirming FAI pathology.

Treatment of FAI should be restricted to centers experienced in treating this condition and staffed by surgeons adequately trained in techniques addressing FAI. Because of the differing benefits and risks of open and arthroscopic approaches, patients should make an informed choice between the procedures.

The arthroscopic procedure was developed around 2004, therefore long-term follow-up is limited.

What can be ascertained from the current literature:

- Not all patients with FAI morphology will have FAI pathology.
- There is a high association between FAI pathology and idiopathic osteoarthritis, but this may represent a small proportion of the total cases of hip osteoarthritis.
- Patients may present with hip pain that can be diagnosed as FAI by a combination of clinical evaluation, radiographs, and MR arthrography.
- In cases in which there is a positive impingement test result, anterosuperior labral or acetabular damage identified on MR arthrography and a pistol-grip morphology identified on imaging, there is a very high probability that the acetabular damage is caused by impingement of the femoral head-neck junction against the acetabular rim. FAI can be verified intraoperatively.
- Repair of the labrum alone can improve symptoms in the short term. It is reasonable to expect that debridement/osteoplasty of the bump or bone spur would reduce continued abrasion in the long term. Some studies, albeit of low quality, support this view.
- Treatment of FAI is most effective in younger patients without osteoarthritis (Tonnis grade 0 or I) or severe cartilage damage. Although osteoarthritis can be identified with plain film radiographs, articular damage is not always identified with current imaging techniques.

- There is a high probability that symptoms in patients with osteoarthritis (Tonnis grade II or III, or joint space of less than 2 mm) or severe cartilage damage (Outerbridge grade IV) will not improve following osteoplasty. These patients may require THA for progressing pain within 5 years.
- In large case series, arthroscopic treatment of FAI in young to middle-age patients without osteoarthritis and showing mild to moderate cartilage damage results in 75% to 85% of patients improved.
- Smaller case series suggest that open treatment of FAI in young to middle-age patients with moderate to severe cartilage damage results in 50% to 70% of patients improved. Non-union has been reported to occur in 27% of patients following the transection of the great trochanter with hip dislocation.

What cannot be ascertained from the literature:

- It is not known whether arthroscopic or open approaches result in better net health outcomes when patients are matched for severity of FAI morphology and articular cartilage damage.
- It is not known which patients with FAI morphology are most likely to progress to osteoarthritis. The progression of pincer impingement with damage initially restricted to the labrum may follow a different time course than cam-type impingement.
- It is not known whether treatment of FAI will reduce the occurrence of osteoarthritis.

Based on 1) the intraoperatively established relationship between FAI morphology and damage to the acetabulum, 2) the consistent improvement in symptoms reported in large prospective case series, and 3) the potential for continued and irreparable cartilage damage if FAI pathology is not addressed, it may be considered medically necessary to debride the bone at the same time that the labrum and/or articular cartilage is being repaired when specific criteria are met. This conclusion is supported by clinical input from physician specialty societies and academic medical centers. Because of the differing benefits and risks of open and arthroscopic approaches, patients should make an informed choice. Also, treatment of FAI should be restricted to centers experienced in treating this condition and staffed by surgeons adequately trained to techniques addressing FAI.

Some patients may require a second procedure if they have persistent or recurrent symptoms and meet the criteria for treatment of FAI. Published studies indicate that not all sources of impingement may have been identified prior to surgery, and those that had been identified may not have been adequately treated. The risk of needing an additional surgical procedure can be reduced by intra-operative assessment of impingement after bone debridement and reshaping

Due to the unclear balance of risks and benefits, questions regarding whether, when and how to treat symptomatic FAI in children with SCFE are difficult. Although the impact of not treating FAI is established, there is limited evidence on treatment outcomes in pediatric patients. The open dislocation procedure is technically demanding with a high risk of serious complications and has not been shown to be safe and effective outside of a few highly specialized centers. In addition, questions remain concerning selection criteria and the appropriate timing and approach for FAI treatment in patients with developmental hip disorders.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: Effective January 1, 2011, three new codes have been added for arthroscopic surgical treatment of hip – 29914 for femoroplasty (ie, treatment of cam lesion), 29915 for acetabuloplasty (ie, treatment of pincer lesion), and 29916 for labral repair. Code 29914 and 29915 cannot be reported with

the hip arthroscopy codes for chondroplasty (29862) or synovectomy (29863). Code 29916 cannot be reported with 29915 (acetabuloplasty and labral repair represent overlapping services when reported together); and 29916 cannot be reported with 29862 or 29863.

This service was previously submitted with 29999. With specific codes now available, services should not be submitted using the unlisted code.

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

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Specialty Matched Consultant Advisory Panel review 7/2011

Policy Implementation/Update Information

3/26/07	New policy issued. BCBSNC will not provide coverage for Arthroscopic Surgery for Femoroacetabular Impingement. This procedure is considered Investigational.
618/07	Specialty Matched Consultant Advisory Panel review 5/18/07. No changes to policy coverage criteria. (adn)
7/6/09	Information regarding CPT codes for this procedure was added to the Billing/Coding section. Specialty Matched Consultant Advisory Panel review 5/21/09. No change to policy statement.
7/20/09	Description section extensively revised. Policy statement changed to read: BCBSNC will provide coverage for Arthroscopic Surgery for Femoroacetabular Impingement when it is determined to be medically necessary because the criteria and guidelines shown below have been met. Medical necessity criteria added to the When FAI is Covered section. Information in the When FAI is Not Covered section deleted and replaced with the following statement: Treatment of FAI is considered investigational in all other situations. (adn)
1/5/10	Information added to Billing/Coding section for clarification. (adn)
8/17/10	Removed "Arthroscopic" from title of policy to reflect that the policy addresses both open and arthroscopic procedures for treatment of FAI. Specialty Matched Consultant Advisory Panel review 7/2010. References updated. Medical Policy number removed. Information regarding treatment of slipped capital femoral epiphysis (SCFE) added to Description section and Policy Guidelines. No changes to policy coverage criteria. (mco)
1/4/11	Billing/Coding section updated to read: "Effective January 1, 2011, three new codes have been added for arthroscopic surgical treatment of hip – 29914 for femoroplasty (ie, treatment of cam lesion), 29915 for acetabuloplasty (ie, treatment of pincer lesion), and 29916 for labral repair. Code 29915 cannot be reported with the hip arthroscopy codes for chondroplasty (29862) or synovectomy (29863). Code 29916 cannot be reported with 29915, 29862 or 29863. This service was previously submitted with 29999. With specific codes now available, services should not be submitted using the unlisted code."(mco)
6/21/11	Billing/Coding section updated to state the following: "Code 29914 and 29915 cannot be reported with the hip arthroscopy codes for chondroplasty (29862) or synovectomy (29863). Code 29916 cannot be reported with 29915 (acetabuloplasty and labral repair represent overlapping services when reported together); and 29916 cannot be reported with 29862 or 29863. (mco)
8/16/11	"Description" section updated to include information regarding the association of FAI and sport hernias. Deleted the following statement in the "Policy Guidelines": "It is not known whether patients with FAI morphology are more likely to have osteoarthritis than those without FAI morphology." References updated. Specialty Matched Consultant Advisory Panel review 7/2011. (mco)