Surgical Treatment of Femoroacetabular Impingement

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Section: Surgery
Place(s) of Service: Outpatient

I. Description

Femoroacetabular impingement (FAI) results from localized compression in the joint due to an anatomical mismatch between the head of the femur and the acetabulum. 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 possess 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. Symptoms of impingement typically occur in young to middle-aged adults prior to the onset of osteoarthritis, but may be present in younger patients with developmental hip disorders. The objective of surgical treatment of FAI is to improve symptoms and reduce further damage to the joint.

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 (CT) 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 musculature. 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 physis 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. Therefore, 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.

II. Criteria/Guidelines

Open or arthroscopic treatment of FAI is covered (subject to Limitations/Exclusions and Administrative Guidelines) when all of the following conditions have been met:

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

B. Symptoms:
   1. Moderate-to-severe hip pain that is worsened by flexion activities (e.g., squatting or prolonged sitting) that significantly limits activities; AND
   2. Unresponsive to conservative therapy for at least three months (including activity modifications, restriction of athletic pursuits and avoidance of symptomatic motion); AND
   3. Positive impingement sign on clinical examination (pain elicited with 90 degrees of flexion and internal rotation and adduction of the femur)

C. Imaging:
   1. 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
   2. 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.

III. Limitations/Exclusions

Surgical treatment of FAI is not covered for patients with the following conditions:

A. Advanced osteoarthritis, defined as Tonnis grade II or III or joint space of less than 2 mm; AND

B. Severe (Outerbridge grade IV) chondral damage

IV. Administrative Guidelines

A. Precertification is required. Complete HMSA's Precertification Request and mail or fax the form as indicated. Include the following documentation:
   1. Clinical notes from the patient's medical records
   2. Imaging studies that support the diagnosis of FAI
   3. History and duration of the conservative therapy that was tried and failed
B. Applicable CPT codes:

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<tr>
<th>CPT</th>
<th>Description</th>
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<tbody>
<tr>
<td>29914</td>
<td>Arthroscopy, hip, surgical; with femoroplasty (i.e., treatment of cam lesion)</td>
</tr>
<tr>
<td>29915</td>
<td>Arthroscopy, hip, surgical; with acetabuloplasty (i.e., treatment of pincer lesion)</td>
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<tr>
<td>29916</td>
<td>Arthroscopy, hip, surgical; with labral repair</td>
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V. Important Reminder

The purpose of this Medical Policy is to provide a guide to coverage. This Medical Policy is not intended to dictate to providers how to practice medicine. Nothing in this Medical Policy is intended to discourage or prohibit providing other medical advice or treatment deemed appropriate by the treating physician.

Benefit determinations are subject to applicable member contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

This Medical Policy has been developed through consideration of the medical necessity criteria under Hawaii's Patients' Bill of Rights and Responsibilities Act (Hawaii Revised Statutes § 432E-1.4), generally accepted standards of medical practice, and review of medical literature and government approval status. HMSA has determined that services not covered under this Medical Policy will not be medically necessary under Hawaii law in most cases. If a treating physician disagrees with HMSA’s determination as to medical necessity in a given case, the physician may request that HMSA reconsider the application of the medical necessity criteria to the case at issue in light of any supporting documentation.

VI. References

33. NICE: Open femoro-acetabular surgery for hip impingement syndrome. 2007
34. NICE: Arthroscopic femoro-acetabular surgery for hip impingement syndrome. 2007