The following Protocol contains medical necessity criteria that apply for this service. It is applicable to Medicare Advantage products unless separate Medicare Advantage criteria are indicated. If the criteria are not met, reimbursement will be denied and the patient cannot be billed. Preauthorization is not required. Please note that payment for covered services is subject to eligibility and the limitations noted in the patient’s contract at the time the services are rendered.

Description
Femoroacetabular impingement (FAI) results from localized compression in the joint due to an anatomic mismatch between the head of the femur and the acetabulum. Symptoms of impingement typically occur in young to middle-aged adults before 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.

Background
FAI arises from an anatomic mismatch between the head of the femur and the acetabulum, causing 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 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.

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 primarily consisted of debridement and/or labral reattachment. A technique for hip dislocation with open osteochondroplasty that preserved the femoral blood supply was reported by Ganz et al 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 of 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 criterion 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 nonunion 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 three-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 oblique, 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, 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 (THA) 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 at which 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 to 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.

Related Protocol

Hip Resurfacing

Policy (Formerly Corporate Medical Guideline)

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

Age

- Candidates should be skeletally mature with documented closure of growth plates (e.g., 15 years or older).
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 three 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.

Treatment of FAI is considered investigational in all other situations.

Policy Guideline

If FAI morphology is identified, patients should be advised not to play aggressive sports. In addition to magnetic resonance (MR) arthrography, some clinicians may 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.

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 before 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 intraoperative assessment of impingement after bone debridement and reshaping.

Services that are the subject of a clinical trial do not meet our Technology Assessment Protocol criteria and are considered investigational. For explanation of experimental and investigational, please refer to the Technology Assessment Protocol.

It is expected that only appropriate and medically necessary services will be rendered. We reserve the right to conduct prepayment and postpayment reviews to assess the medical appropriateness of the above-referenced procedures. Some of this Protocol may not pertain to the patients you provide care to, as it may relate to products that are not available in your geographic area.
References

We are not responsible for the continuing viability of web site addresses that may be listed in any references below.


