Surgical Treatment of Femoroacetabular Impingement

Description

Femoroacetabular impingement results from localized compression within the joint as a result of 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 femoroacetabular impingement is to provide symptom relief and reduce further joint damage.

OBJECTIVE

The objective of this evidence review is to evaluate whether the use of surgical treatments (open surgery, arthroscopic surgery, mixed open/arthroscopic surgery) improves the net health outcome in individuals with femoroacetabular impingement.

POLICY STATEMENT

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 (eg, ≥15 years of age).
Symptoms

- Moderate-to-severe hip pain worsened by flexion activities (eg, 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 of flexion and internal rotation and adduction of the femur).

Imaging

- Morphology indicative of cam or pincer femoroacetabular impingement (eg, pistol-grip deformity, femoral head-neck offset with an alpha angle >50, 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 femoroacetabular impingement morphology and damage (eg, 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 2 or 3, or joint space of less than 2 mm; AND
- No evidence of severe (Outerbridge grade IV) chondral damage.

Treatment of femoroacetabular impingement is considered **investigational** in all other situations.

**POLICY GUIDELINES**

If femoroacetabular impingement morphology is identified, patients should be advised not to play aggressive sports. No more frequent than annual follow-up with magnetic resonance arthrography may be indicated for femoroacetabular impingement 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 femoroacetabular impingement morphology may require 3-dimensional computed tomography. Some clinicians may also use local anesthetic injection into the joint to assist in confirming femoroacetabular impingement pathology.

Treatment of femoroacetabular impingement should be restricted to centers experienced in treating this condition and staffed by surgeons adequately trained in techniques addressing femoroacetabular impingement. 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 revision procedure if symptoms recur or persist. Published studies have indicated that all sources of impingement might not have been identified before surgery, and those that had might not have been adequately treated. The risk of additional surgical procedures can be reduced by intraoperative assessment of impingement after bone debridement and reshaping.

**BENEFIT APPLICATION**

Experimental or investigational procedures, treatments, drugs, or devices are not covered (See General Exclusion Section of brochure).

**FDA REGULATORY STATUS**

Surgery for treatment of femoroacetabular impingement is a procedure and, as such, is not subject to regulation by the U.S. Food and Drug Administration.

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Rationale

Summary of Evidence

For individuals who are adults with asymptomatic femoroacetabular impingement who receive femoroacetabular impingement surgery, there is no direct evidence that the surgical treatment will prevent the development of osteoarthritis. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and change in disease status. Indirect evidence consists of observational studies. In retrospective studies of patients with osteoarthritis, the relevant outcomes were radiographic evidence of hip joint malformations. In prospective studies of patients with femoroacetabular impingement, the relevant outcome is progression to osteoarthritis. Several large observational studies (>1000 patients), as well as smaller studies, have shown radiographic evidence of relationships between abnormal hip morphology and the development of osteoarthritis. There have been no studies in which femoroacetabular impingement surgery was performed on patients with femoroacetabular impingement morphology but no symptoms. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who are adults with symptomatic femoroacetabular impingement who receive femoroacetabular impingement surgery, the evidence includes systematic reviews of large and small observational studies and a small randomized controlled trial. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and change in disease status. Open hip dislocation surgery and arthroscopic surgery are the most common surgical techniques performed on patients with femoroacetabular impingement. Systematic reviews have evaluated open hip dislocation surgery and arthroscopic surgery, compared with no comparator, nonsurgical management, and other surgical techniques. Compared with nonsurgical management, all types of surgical techniques have resulted in significant improvements in functional outcomes, pain, and radiographic measurements. The reviews were limited when comparing surgical techniques with each other because patient characteristics and outcome measurements were heterogeneous among studies. The evidence is sufficient to determine the technology results in a meaningful improvement in the net health outcome.

For individuals who are children 15 years of age or younger with symptomatic femoroacetabular impingement who receive femoroacetabular impingement surgery, the evidence includes systematic reviews evaluating small observational studies and case series. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and change in disease status. While the studies reported reductions in pain and improvements in functional outcomes, the sample sizes were relatively small, with an average of 54 patients per study. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who are children 15 years of age or younger with slipped capital femoral epiphysis-associated femoroacetabular impingement who receive femoroacetabular impingement surgery, the evidence includes small observational studies (range, 19-51 patients). Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and change in disease status. While most patients experienced symptom relief following femoroacetabular impingement surgery, the surgery is invasive and complications (eg, nonunions) were reported. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have residual femoroacetabular impingement symptoms following a primary surgery who receive revision arthroscopic surgery, the evidence includes systematic reviews of observational studies (>400 patients). Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and change in disease status. Though the studies were of low-quality, consistent improvements in functional outcomes, pain relief, and patient satisfaction were reported, in some cases beyond three years. The evidence is sufficient to determine the technology results in a meaningful improvement in the net health outcome.

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SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

National Institute for Health and Care Excellence

In 2011, the National Institute for Health and Care Excellence (NICE) issued guidance on arthroscopic femoroacetabular surgery for hip impingement syndrome. The NICE considered the evidence on the efficacy of arthroscopic femoroacetabular surgery for hip impingement syndrome to be adequate for symptom relief in the short and medium term.

The NICE (2011) guidance on open femoroacetabular surgery for hip impingement syndrome indicated that evidence for this procedure was adequate for symptom relief in the short and medium term.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

REFERENCES

PMID 27811519


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**POLICY HISTORY** - THIS POLICY WAS APPROVED BY THE FEP® PHARMACY AND MEDICAL POLICY COMMITTEE ACCORDING TO THE HISTORY BELOW:

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<th>Date</th>
<th>Action</th>
<th>Description</th>
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<tr>
<td>December 2011</td>
<td>New policy</td>
<td>Policy updated and references added with literature review, policy statements unchanged.</td>
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<tr>
<td>December 2012</td>
<td>Replace policy</td>
<td>Policy updated with literature review, references added and reordered; age restriction on older adults removed; age restriction on pediatric patients clarified.</td>
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<tr>
<td>September 2013</td>
<td>Replace policy</td>
<td>Policy updated with literature review; references 13, 18, 40, 41 added; policy statements unchanged.</td>
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<tr>
<td>September 2014</td>
<td>Replace policy</td>
<td>Policy updated with literature review; references 4, 14, and 34 added. Policy statements unchanged.</td>
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<tr>
<td>September 2015</td>
<td>Replace policy</td>
<td>Policy updated with literature review through February 23, 2017; references 1, 16, 27-28, 34, 38, 42, and 44 were added. Rationale section reorganized. Policy statements unchanged.</td>
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<td>June 2018</td>
<td>Replace policy</td>
<td>Policy updated with literature review through March 8, 2018; references 18-19, 42, and 49 added. Minor edits to the Policy section; statements unchanged.</td>
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<tr>
<td>June 2019</td>
<td>Replace policy</td>
<td>Policy updated with literature review through February 7, 2019; references PMID 29893223 and PMID: 30733197 added. Policy statements unchanged.</td>
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<tr>
<td>June 2020</td>
<td>Replace policy</td>
<td>Policy updated with literature review through January 30, 2020; references added. Policy statements unchanged.</td>
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