Arthroscopic Debridement and Lavage as Treatment for Osteoarthritis of the Knee

Medical Policy

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Description

Arthroscopic lavage and cartilage debridement are operative treatments for osteoarthritis (OA). Lavage is a procedure in which intra-articular fluid is aspirated and the joint is washed out, removing inflammatory mediators, debris, or small loose bodies from the osteoarthritic knee. Articular debridement involves removal of cartilage or meniscal fragments but also can include cartilage abrasion, excision of osteophytes, and synovectomy. Debridement is intended to improve symptoms and joint function in patients with mechanical symptoms such as locking or catching of the knee.

Osteoarthritis (OA) affects approximately 21 million people in the United States. (1) By age 65 years, the majority of the population has radiographic evidence of OA, and 11% have symptomatic OA of the knee. The diagnosis of OA is established using a combination of clinical information derived from history, physical examination, radiologic imaging, and laboratory evaluation. An algorithm of diagnostic criteria for OA of the knee has been proposed by the American College of Rheumatology (ACR). The diagnosis of OA of the knee is defined as presenting with pain and meeting at least 5 of the following criteria:

- Patient older than 50 years of age
- Less than 30 minutes of morning stiffness
- Crepitus (noisy, grating sound) on active motion
- Bony tenderness
- Bony enlargement
- No palpable warmth of synovium
- Erythrocyte sedimentation rate (ESR) <40 mm/hr
- Rheumatoid factor <1:40
Noninflammatory synovial fluid.

The presence of clinical symptoms of OA does not always correlate well with the degree of abnormality seen radiographically. It has been noted that approximately 40% of patients who have severe findings on x-ray film report no symptoms; conversely, patients with clinical symptoms may show no significant radiologic changes.

Treatment for OA of the knee aims to alleviate pain and improve function to mitigate reduction in activity. However, most treatments do not modify the natural history or progression of OA and thus are not considered curative. Nonsurgical modalities that are used include exercise; weight loss; various supportive devices; acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen; nutritional supplements (glucosamine and chondroitin); and intraarticular viscosupplements. Corticosteroid injection may be considered when relief from NSAIDs is insufficient or the patient is at risk from gastrointestinal adverse effects. If symptom relief is inadequate with conservative measures, invasive treatments may be considered. Operative treatments for symptomatic OA of the knee include arthroscopic lavage and cartilage debridement, osteotomy, and ultimately, total joint arthroplasty. Surgical procedures intended to repair or restore articular cartilage in the knee, e.g., abrasion arthroplasty, microfracture techniques, and autologous chondrocyte implantation, are appropriate only for younger patients with focal cartilage defects secondary to injury and are not addressed in this policy.

Policy

Except as noted below, arthroscopic debridement and/or lavage are considered not medically necessary for treatment of osteoarthritis of the knee.

Note: Arthroscopic debridement may be considered medically necessary when preoperative imaging indicates that specific anatomic lesions other than osteoarthritis, e.g., large meniscal tears, loose bodies, are the cause of the patient’s symptoms regardless of the presence of osteoarthritis.

Policy Guidelines

No applicable information

Rationale

This policy was created in 2009 and updated periodically with literature searches using the MEDLINE database. The most recent update was performed for the period of November 2011 through October 2012.

Arthroscopic debridement and lavage have been used extensively for the treatment of osteoarthritis (OA) of the knee. Because lavage and debridement are often performed at the same time, it is difficult to attribute the success or failure of arthroscopy to a specific procedure. (1)
Evidence of efficacy had for many years consisted of reports of case series or controlled trials with methodologic problems. In 2002, Moseley et al. published a randomized placebo-controlled trial (RCT) that found limited efficacy of arthroscopy for OA of the knee. (2) A total of 180 patients were randomly assigned to debridement (without abrasion or microfracture), lavage, or placebo surgery. Placebo surgery involved a skin incision and simulated debridement without insertion of the arthroscope. Patients and assessors were blinded to treatment group. Neither treatment group reported less pain or better function than the placebo group at any time point during the 2-year follow-up. A systematic review produced in 2007 for the Agency for Healthcare Research and Quality (AHRQ) by the Blue Cross and Blue Shield Association Technology Evaluation Center Evidence-based Practice Center noted that generalizability of these study results was limited by the lack of detail provided regarding the patient sample, use of a single surgeon, and enrollment of patients at a single Veterans Affairs Medical Center. (1) The report concluded that “the existing evidence does not definitively show that arthroscopic lavage with or without debridement is no more effective than placebo. However, additional placebo-controlled RCTs showing clinically significant advantage for arthroscopy would be necessary to refute the Moseley results, which show equivalence between placebo and arthroscopy.”

A 2008 Cochrane review of arthroscopic debridement for knee OA assessed 3 RCTs, including the study by Moseley et al. and concluded that there is gold-level evidence that arthroscopic debridement has no benefit for undiscriminated OA (mechanical or inflammatory causes). (3) The other 2 studies included in the Cochrane review were of lower methodologic quality and compared arthroscopy with lavage. In one of the reviewed studies Chang et al. compared arthroscopy with closed needle lavage and found no significant between-group differences in pain, self-reported and observed functional status, and patient and physician global assessments. (4) This study was small (32 subjects) with only 3 months of follow-up. The second study was a randomized trial of 76 knees, 40 laparoscopic debridement and 36 washout, with mean follow-up time of 4.5 years and 4.3 years, respectively. (5) At 1 year, 32 of the debridement group and 5 of the washout group were pain-free. At 5 years, 19 of the survivors in the debridement group and 3 of the 26 in the washout group were free of pain. This study was noted by the Cochrane review to be at high risk of bias; specifically, outcome assessors were neither independent nor blinded, and pain was measured as success when absent and failure when present.

An updated systematic review of the evidence for joint lavage for OA of the knee was published by the Cochrane Musculoskeletal Group in May 2010 and was based on the literature to April 2009. (6) This review included 7 trials with 567 patients. The Cochrane review did not include the study described below by Kirkley et al., (7) since that trial focused on debridement. The authors concluded that joint lavage does not result in a benefit for patients with knee OA for pain relief or improvement in function.

In 2008, Kirkley et al. (7) published a single-center RCT comparing surgical lavage and/or arthroscopic debridement (without abrasion or microfracture) together with optimized physical and medical therapy, or physical and medical therapy alone. Patients with more than 5 degrees of misalignment were excluded. Both men and women were enrolled. Seven experienced arthroscopists performed lavage, debridement, or both, at their discretion. Between January 1999 and August 2005, 277 patients were assessed for eligibility; 58 were not eligible (most [38%] because of substantial misalignment), and 31 declined participation. Ninety-two patients were randomly assigned to the surgery arm, and 86 were assigned to physical and medical therapy alone. Ten withdrew consent (2 in the surgery group and 8 in the control group). Six in the surgery group did not undergo surgery. Data from these patients were included in the intent-
to-treat analysis. The primary outcome was total Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score. Secondary outcomes included the Short Form-36 (SF-36) Physical Component Summary score. After 2 years, the mean (standard deviation, SD) WOMAC score for the surgery group was 874 (624), as compared with 897 (583) for the control group (absolute difference [surgery-group score minus control-group score], -23 (605); 95% confidence interval [CI]: -208 to 161; p=0.22). The SF-36 Physical Component Summary scores were 37.0 and 37.2, respectively (absolute difference, -0.2; 95% CI: -3.6 to 3.2; p=0.93).

Analyses of WOMAC scores at interim visits and other secondary outcomes also failed to show superiority of surgery. Prespecified analyses of subgroups were performed for patients with less severe disease (Kellgren-Lawrence grade 2) at baseline and patients with mechanical symptoms of catching or locking, and no significant difference between treatment groups was found. A post hoc analysis of patients with more severe radiographic disease (Kellgren-Lawrence grade 3 or 4) also found no benefit of surgery.

A 2012 meta-analysis found no additional randomized trials on arthroscopic joint debridement for knee osteoarthritis. (8) Meta-analysis of studies with follow-up of 2 years or more found a conversion rate to joint replacement of 6.1% at 1 year, 16.8% at 2 years, 21.7% at 3 years, and 34.1% at 4 years. Data were not available on conversion to joint replacement in patients treated conservatively. This systematic review is limited by the inclusion of poor quality studies (level IV, uncontrolled and retrospective) and heterogeneity in study results. In addition, the definition of joint debridement in this meta-analysis included smoothing of cartilage lesions, removal of loose bodies, meniscectomy, synovectomy, and ligament release. The debridement could be combined with other types of treatment, including osteotomies or cartilage-restoring techniques (drilling, abrasion, microfracturing, and autologous chondrocyte implantation), making it difficult to isolate the specific impact of debridement on outcomes. Thus, interpretation of this meta-analysis is limited.

In an editorial, Marx comments that OA is not a contraindication to arthroscopic surgery and that it “remains appropriate in patients with arthritis in which osteoarthritis is not believed to be the primary cause of pain.” (9)

**Input Received Through Physician Specialty Societies and Academic Medical Centers**

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

In response to requests, input was received from 2 physician specialty societies and 3 academic medical centers while this policy was under review for April 2009. The majority of the 5 reviewers providing input supported the conclusions of this policy that arthroscopic debridement and/or lavage are considered not medically necessary for treatment of osteoarthritis of the knee.

**Summary**

Arthroscopic lavage and cartilage debridement are operative treatments for OA that may be performed separately or at the same time. The evidence base includes 2 large well-designed controlled trials, one comparing arthroscopic debridement with lavage and placebo, and the other comparing arthroscopy and lavage along with medical and physical therapy to medical and physical therapy alone. These studies provide sufficient evidence to conclude that
arthroscopic debridement and lavage, separately or together, do not improve symptoms of OA of the knee and, therefore, are considered not medically necessary.

Practice Guidelines and Position Statements

The Osteoarthritis Research Society International (OARSI) convened 16 experts from primary care, rheumatology, orthopedics, and evidence-based medicine from 6 countries, including the United States, to develop consensus recommendations for management of hip and knee OA. (10) OARSI concluded that “the roles of joint lavage and arthroscopic debridement are controversial and that, although some studies have demonstrated short-term symptom relief, others suggest that improvement in symptoms could be attributable to a placebo effect.”

Guideline recommendations from the American Academy of Orthopaedic Surgeons (AAOS) in December 2008 indicate: “We recommend against performing arthroscopy with debridement or lavage in patients with a primary diagnosis of symptomatic OA (osteoarthritis) of the knee.” (11) In September 2009, AAOS published guideline recommendations for knee OA for treatments that are less invasive than knee replacement. (12) The guideline indicates that patients need not undergo needle lavage or arthroscopy with debridement or lavage.

Centers for Medicare and Medicaid Services Coverage Position

The Centers for Medicare and Medicaid Services (CMS) determine that the following procedures are not considered reasonable or necessary in treatment of the osteoarthritic knee and are not covered by the Medicare program:

- Arthroscopic lavage used alone for the osteoarthritic knee;
- Arthroscopic debridement for osteoarthritic patients presenting with knee pain only; or
- Arthroscopic debridement and lavage with or without debridement for patients presenting with severe osteoarthritis. (Severe osteoarthritis is defined on the Outerbridge classification scale as grades III and IV. Outerbridge is the most commonly used clinical scale that classifies the severity of joint degeneration of the knee by compartments and grades. Grade I is defined as softening or blistering of joint cartilage. Grade II is defined as fragmentation or fissuring in an area <1 cm. Grade III presents clinically with cartilage fragmentation or fissuring in an area >1 cm. Grade IV refers to cartilage erosion down to the bone. Grades III and IV are characteristic of severe osteoarthritis.)

Other:

Apart from the noncovered indications above for arthroscopic lavage and/or arthroscopic debridement of the osteoarthritic knee, all other indications of debridement for the subpopulation of patients without severe OA of the knee who present with symptoms other than pain alone; i.e., (1) mechanical symptoms that include, but are not limited to, locking, snapping, or popping; (2) limb and knee joint alignment; and (3) less severe and/or early degenerative arthritis, remain at the discretion of the local contractor.

References:


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<td>For removal of loose body or foreign body (e.g., osteochondritis dissecans fragmentation, chondral fragmentation)</td>
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**Type of Service**: Surgery

**Place of Service**: Outpatient
Arthroscopic Debridement and Lavage for Osteoarthritis of the Knee
Osteoarthritis, Knee, Arthroscopic Debridement and Lavage