Arthroscopic Microdiscectomy

Policy Number: 7.01.511
Last Review: 9/2014
Next Review: 9/2015

Policy
Blue Cross and Blue Shield of Kansas City (Blue KC) will not provide coverage for arthroscopic microdiscectomy. This is considered investigational.

When Policy Topic is covered
Not Applicable

When Policy Topic is not covered
Arthroscopic microdiscectomy is considered investigational.

Considerations
Microdiscectomy: Where a microscope is used in performing discectomy, it is considered an integral part of the discectomy.

Description of Procedure or Service
Lumbar disc herniation is a condition in which one or more of the cushioning discs between the spinal vertebrae in the lower back are damaged and bulge outwards. Pressure exerted on the spinal nerves can cause sciatica (pain or weakness in the legs). Herniations are caused by injury or by normal wear and tear on the spine with aging. This is called degenerative disc disease (DDD). Most herniations respond to physical therapy, exercise, and painkillers. However, surgery may be considered when these measures fail. Traditionally, surgery was performed through a large open incision over the spine followed by removal of some vertebral bone to access the rear of the disc and remove the herniation directly. This operation, called open discectomy, is still considered the best treatment for patients with severe pain or very complicated herniations. However, concerns about complications and the length of postoperative recovery have driven the development of minimally invasive discectomy techniques. The gold standard, open microdiscectomy, is similar to open discectomy and has comparable efficacy but is performed through a smaller incision using surgical microscopes to improve visibility. Microendoscopic discectomy is another emerging technique for the same operation via an endoscope (long hollow surgical scope) through even smaller incisions. Arthroscopic microdiscectomy (AMD) is a term coined by the originator of this surgical procedure, which has evolved into a number of similar procedures sometimes referred to as percutaneous (through the skin) or posterolateral (in back and away from the midline) endoscopic discectomy.

In AMD, an orthopedic surgeon or neurosurgeon accesses the disc from the side, through a very small opening some 8 to 12 cm away from the spine. A fine cannula is introduced into the disc that allows the surgeon to view the herniation(s) through an endoscope and remove them with small instruments. Usually the operation can be performed through one opening (uniportal approach), but large herniations may necessitate two incisions, called a biportal approach. Potential candidates for this operation are those with sciatica caused by a single herniation, confirmed by magnetic resonance imaging, computed tomography, or other diagnostic imaging, that occupies less than 50% of the spinal canal and who have not responded to conservative therapies. Traditionally there are many patients who are not suitable for
this procedure, including those with certain anatomical characteristics (spinal stenosis or elevated iliac crest) that limit access and those with large herniations or herniations that have broken off and migrated within the spinal canal. Recently, simplifications in the procedure have broadened the eligible patient group.

**Rationale**

A literature search of MEDLINE and EMBASE spanning the years 1997 through April 2007 was done using the terms *arthroscopic* combined with *discectomy*, *microdiscectomy* and then combined with *herniated*, *degenerative*, *biportal*, *two-portal*, *uniportal*; *microdiscectomy* combined with *disc AND discectomy*. The search was limited to English-language human clinical trials and review articles published in the last 10 years. The search was repeated using the terms (*arthroscopic OR endoscopic AND microdiscectomy*) and bibliographies of retrieved articles hand-searched for particularly relevant papers. Two randomized controlled trials (RCTs) and two large case series (one of which combined a number of previously published studies) were retrieved as well as one systematic review and one health technology assessment. The review of the evidence focuses on the comparative data.

In one of the RCTs with a mean follow-up of approximately 1 month, Hermantin et al. (1999) randomized 30 patients to open laminectomy/discectomy and 30 to video-assisted AMD. Patients had single intracanalicular lumbar herniations with radiculopathy that had not responded to at least 14 weeks of conservative therapy including oral or epidural steroids. The mean follow-up was 31 weeks (range 19 to 42) in open surgery patients versus 32 weeks (range 21 to 42) in the AMD group. Open discectomy patients received patient-controlled morphine postoperatively and oral narcotics for a mean of 25 days, while AMD patients received oral narcotics for a mean of 7 days and did not need intravenous (IV) morphine postoperatively.

- The mean duration of postoperative disability (time lost from work or until patients were able to resume normal activity) was 49 days in open surgery patients versus 27 days in AMD recipients. Comparing open surgery patients with AMD patients, 28 of 30 (93%) in the former group versus 29 of 30 (97%) in the AMD group were judged to have a good or excellent result, respectively, and 20/30 (67%) versus 22/30 (73%) patients considered themselves “very satisfied” with the operative result.
- Open discectomy patients required 1 night of hospitalization, whereas AMD was performed on an outpatient basis. One dural leak and one operative failure occurred in the open surgery group, and one AMD recipient required further surgery to correct spinal stenosis not recognized at initial operation. The authors did not specify a uni- or bi-portal approach, but a uniportal approach appears to have been used.
- Overall the results appear to demonstrate similar outcomes between the 2 groups, with a suggestion of decreased hospitalization and postoperative disability among the AMD group.

In another RCT with 2 years of follow-up, Mayer and Brock (1993) prospectively randomized 20 patients to percutaneous endoscopic discectomy (PED) and 20 patients to conventional open microdiscectomy. Patients had contained or noncontained herniations confirmed by MRI, CT, discography, and/or myelography that occupied less than 30% of the sagittal diameter of the spinal canal and were associated with radicular symptoms. Conservative therapy had been unsuccessful in all patients, who had a mean disability period of 10.4 weeks. A biportal approach was used for those patients with medial herniations and bilateral symptoms, although results are not presented separately. The mean operative time was 40.7 minutes in PED recipients versus 58.2 minutes in open microdiscectomy patients.

- At 2 years, the following results were obtained in the PED and open surgery groups, respectively: sciatica had resolved in 16/20 (80%) versus 13/20 (65%), low back pain improved in 9/19 (47%) versus 5/20 (25%), postoperative disability duration was a mean of 7.7 weeks (range 1 to 26)
versus 22.9 weeks (range 4 to 52) weeks and 19/20 (95%) versus 13/20 (65%) patients returned to work.

- Patients’ subjective assessments of the results of surgery were excellent in 9 PED patients versus 8 open surgery patients, good in 5 versus 3, moderate in 6 versus 6 and poor in 0 versus 3, respectively.
- This trial also appears to show similar outcomes and less postoperative disability after PED compared with standard microdiscectomy, but there are also some concerns about the trial design and reporting of results including the method of randomization (not stated) and the small sample size. The duration of follow-up was not always clear and the overall results presented include those patients who were re-operated on because of persistent or recurrent symptoms, such that definite conclusions cannot be drawn from this data.

Yeung and Tsou (2002) retrospectively evaluated 307 consecutive cases of lumbar disc herniation treated with posterolateral endoscopic excision. Patients included those with central, paramedian, foraminal, and extraforaminal herniations at 1 level with intractable leg pain, who had failed at least 2 months conservative treatment. Patients with personal injury or on workers’ compensation were included, and patients with large iliac crest or large central herniations were not excluded, which differs from other studies. Surgeon assessment of efficacy was available for 307 patients at 1 year or more and patient-reported assessment (from a mailed questionnaire at least 1 year following surgery) was available for 280 of the original group.

- Results were assessed as excellent or good in 81.4% of patients by the surgeon and in 83.6% by patients, fair in 7.8% and 7.1%, and poor in 10.7% and 9.3%, respectively. Overall, 89.2% of patients were considered by the authors to have had a satisfactory result, defined as an excellent, good, or fair response. Complications included deep infection (2, 0.65%), thrombophlebitis (2, 0.65%), dysethesia (6, 1.9%) and dural tear (1, 0.3%).

Kambin and Savitz (2000) presented their combined retrospective experience with 600 patients treated with AMD, incorporating a number of previous publications. Patients had unilateral sciatica of at least 6 months duration caused by a single level lumbar herniation confirmed on CT or MRI that did not exceed 50% of the spinal canal and included sequestered but not migrated fragments. Exclusions included disc extrusion, foraminal compression, cauda equina syndrome, prior surgery, obese patients, diabetic neuritis, central herniations or elevated iliac crest. Both biportal and uniportal approaches were used, although results were not analyzed by surgical approach. The patient-reported satisfaction rate ranged from 85% to 92%, and fewer than 2% of cases required a second surgery.

One of the publications incorporated in the aforementioned study was another case series of 175 patients in which the results were presented for biportal and uniportal techniques. Satisfactory outcomes (excellent or good results) were obtained in 95/116 (86%) uniportal access recipients versus 54/59 (92%) biportal access recipients. Otherwise, review of the other individual case series did not reveal significant additional information to the overview presented in Kambin and Savitz (2000).

**Summary**

Overall, the evidence base is insufficient to demonstrate equivalent or superior efficacy of AMD compared with standard microdiscectomy or open discectomy. A review of the data suggests that the procedure has advantages in terms of a shorter hospitalization and reduced postoperative disability, although some authors maintain similar results may be obtained by standard microdiscectomy. Reported success rates for AMD in case series appear similar to those reported after standard microdiscectomy—variously reported as from 76% to 100%, 90% to 95%, and 88% to 98.5%. However, due to the inadequate quality of the comparative data and lack of data on long-term outcomes, it is difficult to draw definitive conclusions. Evidence from large comparative studies with long-term follow-up is needed in order to determine the optimal clinical role of these procedures.

Similar conclusions were reached by Gibson and Waddell in a 2007 systematic review for the Cochrane Collaboration and by Lühmann et al. in a 2005 health technology assessment by the German Agency for Health Technology Assessment. Both assessments included the RCTs reviewed herein by
Hermantin and Mayer in the analyses. These two groups found that “microdiscectomy gives broadly comparable results to open discectomy. The evidence on other minimally invasive techniques remains unclear (with the exception of chemonucleolysis using chymopapain, which is no longer widely available”; and that “compared to standard technologies (open discectomy, microdiscectomy) and with the exception of chemonucleolysis, the developmental status of all other minimally-invasive procedures assessed must be termed experimental. To date there is no dependable evidence-base to recommend their use in routine clinical practice.”

An assessment of the efficacy of AMD is complicated by the number and variety of similar procedures that have evolved over the last 2 decades. As noted in the technology description, studies that used a similar posterolateral approach but that also included either bone removal to access the intervertebral foramen or lasers to accomplish disc decompression were excluded from this analysis. Inclusion of these studies would not have markedly affected the overall conclusions.

References:


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**Billing Coding/Physician Documentation Information**

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<th>Description</th>
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<td>64999</td>
<td>Unlisted procedure, nervous system</td>
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The following codes might be used, but are incorrect for the procedure:

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<tr>
<td>62287</td>
<td>Decompression procedure, percutaneous, of nucleus pulposus of intervertebral disc, any method utilizing needle based technique to remove disc material under fluoroscopic</td>
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imaging or other form of indirect visualization, with the use of an endoscope, with
discography and/or epidural injection(s) at the treated level(s), when performed, single or
multiple levels, lumbar

63030  Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial
facetectomy, foraminotomy and/or excision of herniated intervertebral disc; one interspace,
lumbar (including open or endoscopically-assisted approach)

63035  Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial
facetectomy, foraminotomy and/or excision of herniated intervertebral disc; each additional
interspace, cervical or lumbar (List separately in addition to code for primary procedure)

63056  Transpedicular approach with decompression of spinal cord, equina and/or nerve root(s)
(eg, herniated intervertebral disc), single segment; lumbar (including transfacet, or lateral
extraforaminal approach) (eg, far lateral herniated intervertebral disc)

63057  Transpedicular approach with decompression of spinal cord, equina and/or nerve root(s)
(eg, herniated intervertebral disc), single segment; each additional segment, thoracic or
lumbar (List separately in addition to code for primary procedure)

The correct code for this procedure is 64999.

Policy Implementation/Update Information

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<th>Description</th>
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<td>4/1/07</td>
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<tr>
<td>9/1/07</td>
<td>No policy statement changes. Updated coding.</td>
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