

MEDICAL POLICY



MEDICAL POLICY DETAILS	
Medical Policy Title	AUTOMATED PERCUTANEOUS AND ENDOSCOPIC DISCECTOMY
Policy Number	7.01.16
Category	Technology Assessment
Effective Date	05/28/09
Revised Date	04/22/10, 03/17/11, 05/24/12, 04/18/13, 03/20/14, 02/19/15, 01/21/16, 01/19/17, 01/18/18, 06/21/18, 07/18/19
Product Disclaimer	<ul style="list-style-type: none"> • If a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply. • If a commercial product (including an Essential Plan product) or a Medicaid product covers a specific service, medical policy criteria apply to the benefit. • If a Medicare product covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.

POLICY STATEMENT

- I. Based upon our review and assessment of peer-reviewed literature, *automated percutaneous discectomy* has not been medically proven to be effective and is considered **investigational** as a technique of intervertebral disc decompression in patients with disc herniation of the cervical, thoracic or lumbar spine.
- II. Based upon our review and assessment of peer-reviewed literature, *endoscopic discectomy techniques*, including endoscopic discectomy, endoscopic microdiscectomy, and percutaneous endoscopic discectomy have not been medically proven to be effective and are considered **investigational** as a technique of intervertebral disc decompression in patients with disc herniation of the cervical, thoracic or lumbar spine.
- III. Based upon our review and assessment of peer-reviewed literature, *minimally invasive lumbar decompression (mild®)*, has not been medically proven to be effective and is considered **investigational** as a technique of spinal canal decompression in patients with spinal stenosis of the lumbar spine.

Refer to Corporate Medical Policy #7.01.62 regarding *Intervertebral Disc Decompression: Laser and Radiofrequency Coblation Techniques*.

Refer to Corporate Medical Policy #7.01.97 regarding *Lumbar Decompression*.

Refer to Corporate Medical Policy #11.01.03 regarding *Experimental and Investigational Services*.

POLICY GUIDELINES

The Federal Employee Health Benefit Program (FEHBP/FEP) requires that procedures, devices or laboratory tests approved by the U.S. Food and Drug Administration (FDA) may not be considered investigational and thus these procedures, devices or laboratory tests may be assessed only on the basis of their medical necessity.

DESCRIPTION

Back pain and sciatica related to herniated discs is an extremely common condition and a frequent cause of chronic disability. Although many cases of acute back pain will resolve with conservative care, a surgical decompression is often considered when the pain is unimproved and is clearly neuropathic in origin. The primary surgical procedure for disc herniation/prolapse has been open discectomy for the relief of nerve root compression by removing the herniated nuclear material. However, minimally invasive options have also been proposed to relieve nerve root compression without damaging surrounding tissues, allowing for a quicker recovery and minimizing post-operative complications.

Originally, percutaneous discectomy was performed manually, using cutting forceps to remove nuclear material from within the disc annulus. This technique has been replaced with automated percutaneous discectomy (APD). APD is performed using local anesthetic with or without conscious sedation. Under fluoroscopic guidance, a cannula is placed

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centrally within the disc using a posterolateral approach on the symptomatic side. A probe, connected to an automated cutting and aspiration device, is then introduced through the cannula. The disc is aspirated until no more nuclear material can be obtained. The Stryker DeKompressor Percutaneous Discectomy Probe (Stryker), the Nucleotome (Clarus Medical), and SpineJet Hydrodiscectomy System (HydroCision) are examples of devices utilized inADP.

Endoscopic techniques have also been developed to perform discectomy under local anesthesia. The procedure involves the percutaneous placement of a working channel under image guidance, followed by visualization of the working space and instruments through an endoscope. Endoscopic techniques may be intradiscal or may involve the extraction of non-contained and sequestered disc fragments from inside the spinal canal using an interlaminar or transforaminal approach. Following insertion of the endoscope, the decompression is performed under visual control.

Image-guided minimally invasive lumbar decompression (mild®) is a percutaneous procedure for decompression of the central spinal canal in individuals with lumbar spinal stenosis using a specially designed tool kit (mild®) has been proposed as an ultra-minimally invasive treatment of central LSS. In this procedure, the epidural space is filled with contrast medium under fluoroscopic guidance. Using a 6-gauge cannula clamped in place with a back plate, single-use tools (portal cannula, surgical guide, bone rongeur, tissue sculpter, trocar) are used to resect thickened ligamentum flavum and small pieces of lamina. The tissue and bone sculpting is conducted entirely under fluoroscopic guidance, with contrast media added throughout the procedure to aid visualization of the decompression. The process is repeated on the opposite side for bilateral decompression of the central canal. The devices are not intended for use near the lateral neural elements and are contraindicated for disc procedures.

RATIONALE

Automated percutaneous discectomy

The Stryker DeKompressor Percutaneous Discectomy Probe (Stryker), and the Nucleotome (Clarus Medical) have received clearance from the U.S. Food and Drug Administration (FDA) through the 510(k) process. Both have the same labeled intended use, e.g., “for use in aspiration of disc material during percutaneous discectomies in the lumbar, thoracic and cervical regions of the spine.” In 2003, HydroCision announced that the FDA had granted 510(k) clearance to market the SpineJet Hydrodiscectomy System for the cutting, resection and removal of soft tissue in minimally invasive percutaneous spinal surgery.

The vast majority of the published literature addresses the use of ADP in lumbar disc herniation. Overall, based on conflicting evidence, the literature remains insufficient to determine the efficacy of ADP as a technique for disc decompression.

A Cochrane systematic review (Gibson, et al. 2000, 2003 and 2007) concluded, “trials of percutaneous discectomy provided moderate evidence that it produces poorer clinical outcomes than standard discectomy or chymopapain.” For example, Chatterjee, et al. reported on the results of a study that randomized 71 patients with lumbar disc herniation to undergo either percutaneous discectomy or lumbar microdiscectomy. A successful outcome was reported in only 29% of those undergoing percutaneous discectomy compared to 80% in the microdiscectomy group. The trial was halted early due to this inferior outcome. In a 1993 randomized study, Revel and colleagues compared the outcomes of percutaneous discectomy to chymopapain injection in 141 patients with disk herniation and sciatica. Treatment was considered successful in 61% of patients in the chymopapain group compared to 44% in the percutaneous discectomy group. Another trial cited in the Cochrane review, Mayer et al, is not applicable since the technique used modified forceps in addition to a suction probe. Finally, the last trial cited in the Cochrane review, Hermantin, et al, provided insufficient data to allow detailed analysis of results.

The Lumbar Automated Percutaneous Discectomy Group (LAPDOG) study (Haines, et al. 2002), a randomized trial was designed to compare percutaneous and open discectomy in patients with lumbar disc herniation. This trial was designed to recruit 330 patients, but only was able to recruit 36 patients. Of the evaluable 27 patients, 41% of the percutaneous discectomy patients and 40% of the conventional discectomy patients were assessed as having successful outcomes at six months. The authors concluded that this trial was unable to enroll sufficient numbers of patients to reach a definitive conclusion. The authors state, “It is difficult to understand the remarkable persistence of percutaneous discectomy in the face of a virtually complete lack of scientific support for its effectiveness in treated lumbar disc herniation.”

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A task force of the American Society of Interventional Pain Physicians (Boswell, et al. 2007) reports that percutaneous disc decompression remains controversial; although all observational studies were positive, the evidence from four of four randomized published studies was negative. Questions also remain about the appropriate patient selection criteria (particularly related to the size and migration of the disc herniation) for this procedure.

The 2005 National Institute for Health and Excellence guidance for automated percutaneous mechanical lumbar discectomy concluded, “There is limited evidence of efficacy based on uncontrolled case series of heterogeneous groups of patients, but evidence from small randomized controlled trials shows conflicting results. In view of the uncertainties about the efficacy of the procedure, it should not be used without special arrangements for consent and for audit or research.”

Endoscopic discectomy

A variety of endoscopes and associated surgical instruments have received marketing clearance through the FDA’s 510(k) process. There is insufficient evidence from clinical studies proving additional benefits from using an endoscope for performing disc decompression. Currently, there are no reliable clinical studies of endoscopic spinal surgery that have included an adequate comparison group of patients receiving open procedures. In addition, there is limited evidence on the long-term outcomes resulting from these endoscopic procedures. The current evidence is insufficient to evaluate the overall health outcomes of endoscopic discectomy in the treatment of disc herniation.

In 2010, Nellensteijn and colleagues published a systematic review of the literature on transforaminal endoscopic surgery for symptomatic lumbar disc herniations that included English, German, and Dutch language articles published through May 2008. One randomized controlled trial, seven non-randomized controlled trials, and 31 observational studies were identified. Analysis of the eight controlled trials found no significant differences between the endoscopic and open microdiscectomy groups for leg pain reduction (89% vs. 87%), overall improvement (84% vs. 78%), re-operation rate (6.8% vs. 4.7%) or complication rate (1.5% vs. 1%, all respectively). The methodologic quality of these studies was described as poor, providing insufficient evidence to support or refute this procedure.

In 2010, Teli et al. reported a randomized controlled trial of micro-endoscopic interlaminar lumbar discectomy compared to microdiscectomy or open discectomy in 240 patients with posterior lumbar disc herniation. The majority of herniations (60%) were extrusions. Group assignment was randomized but was revealed to the patients before the surgery due to a requirement of the local ethics committee. Laminotomy, medial facetectomy when needed, and nerve root retraction followed by discectomy were performed identically in the three groups. Surgeons had at least five years’ experience in all of the operative techniques. The average surgical time was longer in the endoscopic group (56 minutes) compared to micro or open discectomy (43 and 36 minutes, respectively). Follow-up assessments were performed at six, 12, and 24 months by an independent investigator; 212 patients (91%) completed the 24-month evaluation. Intent-to-treat analysis showed no significant difference in the outcome variables (VAS, ODI, Short Form-36 [SF-36]). The endoscopic procedure resulted in an increase in dural tears (8.7% vs. 2.7 or 3%), root injuries (3% vs. 0% or 0%), and recurrent herniations (11.4% vs. 4.2% or 3%) compared with the microdiscectomy or open approach, although these were not statistically different.

The 2009 clinical practice guidelines from the American Pain Society found insufficient evidence to evaluate alternative surgical methods to standard open discectomy and microdiscectomy, including laser or endoscopic-assisted techniques, various percutaneous techniques, coblation nucleoplasty, or the Disc Decompressor.

Minimally invasive lumbar decompression

The largest RCT (Staats, et al. 2016 and Benyamin, et al. 2016) compared mild® with ESIs (control) in 302 patients who had ligamentum flavum hypertrophy and who failed conservative therapy. Early results have suggested reductions in pain and improvements in function scores in the mild® group vs the control group. The trial was unblinded and there is evidence of differing expectations and follow-up in the two groups, suggesting a high-risk of bias. The available evidence is insufficient to determine the efficacy of mild® compared with placebo or to determine the efficacy of mild® compared with open decompression. Trials with relevant control groups could provide greater certainty on the risks and benefits of this procedure. The evidence is insufficient to determine the effects of the technology on health outcomes.

CODES

- *Eligibility for reimbursement is based upon the benefits set forth in the member’s subscriber contract.*

Proprietary Information of Excellus Health Plan, Inc.

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- *CODES MAY NOT BE COVERED UNDER ALL CIRCUMSTANCES. PLEASE READ THE POLICY AND GUIDELINES STATEMENTS CAREFULLY.*
- *Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.*

CPT Codes

Code	Description
62287 (E/I)	Decompression procedure, percutaneous, of nucleus pulposus of intervertebral disc, any method, utilizing needle based technique to remove disc material under fluoroscopic imaging or other form of indirect visualization, with discography and/or epidural injection(s) at the treated level(s), when performed, single or multiple levels, lumbar (e.g. manual or automated percutaneous discectomy, percutaneous laser discectomy)
62380 (E/I)	Endoscopic decompression of spinal cord, nerve root(s), including laminotomy, partial facetectomy, foraminotomy, discectomy and/or excision of herniated intervertebral disc, 1 interspace, lumbar
0274T (E/I)	Percutaneous laminotomy/laminectomy (interlaminar approach) for decompression of neural elements, (with or without ligamentous resection, discectomy, facetectomy and/or foraminotomy), any method, under indirect image guidance (eg, fluoroscopic, CT), with or without the use of an endoscope, single or multiple levels, unilateral or bilateral; cervical or thoracic
0275T (E/I)	Percutaneous laminotomy/laminectomy (interlaminar approach) for decompression of neural elements, (with or without ligamentous resection, discectomy, facetectomy and/or foraminotomy), any method, under indirect image guidance (eg, fluoroscopic, CT), with or without the use of an endoscope, single or multiple levels, unilateral or bilateral; lumbar

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HCPCS Codes

Code	Description
C2614 (E/I)	Probe, percutaneous lumbar discectomy
G0276	Blinded procedure for lumbar stenosis, percutaneous image-guided lumbar decompression (PILD) or placebo-control, performed in an approved coverage with evidence development (CED) clinical trial

ICD10 Codes

Code	Description
M50.20-M50.23	Other cervical disc displacement (code range)
M50.30-M50.33	Other cervical disc degeneration (code range)
M51.24-M51.27	Other intervertebral disc displacement (code range)
M51.34-M51.37	Other intervertebral disc degeneration (code range)
M51.9	Unspecified thoracic, thoracolumbar and lumbosacral intervertebral disc disorder

REFERENCES

Ahn SS, et al. Comparison of outcomes of percutaneous endoscopic lumbar discectomy and open lumbar microdiscectomy for young adults: a retrospective matched cohort study. World Neurosurg 2016 Feb;86:250-258.

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*Benyamin RM, et al. MILD(R) is an effective treatment for lumbar spinal stenosis with neurogenic claudication: MiDAS ENCORE randomized controlled trial. Pain Physician May 2016;19(4):229-242.

BlueCross BlueShield Association. Automated percutaneous and percutaneous endoscopic discectomy. Medical Policy Reference Manual Policy #7.01.18. 2018 Dec 13.

BlueCross BlueShield Association. Image-guided minimally invasive decompression for spinal stenosis. Medical Policy Reference Manual Policy #7.01.126. 2019 Apr 08.

*Casal-Moro R, et al. Long-term outcome after microendoscopic discectomy for lumbar disk herniation: a prospective clinical study with a 5-year follow-up. Neurosurgery 2011 Jun;68(6):1568-75.

*Chatterjee S, et al. Report of a controlled clinical trial comparing automated percutaneous lumbar discectomy and microdiscectomy in the treatment of contained lumbar disc herniation. Spine 1995 Mar 15;20(6):734-8.

Chen Z, et al. Percutaneous transforaminal endoscopic discectomy compared with microendoscopic discectomy for lumbar disc herniation: 1-year results of an ongoing randomized controlled trial. J Neurosurg Spine Mar 2018;28(3):300-310.

Choi KC, et al. Unsuccessful percutaneous endoscopic lumbar discectomy: a single-center experience of 10,228 cases. Neurosurgery 2015 Apr;76(4):372-80.

Choi KC, et al. Percutaneous endoscopic lumbar discectomy as an alternative to open lumbar microdiscectomy for large lumbar disc herniation. Pain Physician 2016 Feb;19(2):E291-300.

Cong L, et al. A meta-analysis of endoscopic discectomy versus open discectomy for symptomatic lumbar disk herniation. Eur Spine J 2016 Jan;25(1):134-143.

Crockett MT, et al. Ozone-augmented percutaneous discectomy: a novel treatment option for refractory discogenic sciatica. Clin Radiol 2014 Dec;69(12):1280-86.

*Dasenbrock HH, et al. The efficacy of minimally invasive discectomy compared with open discectomy: a meta-analysis of prospective randomized controlled trials. J Neurosurg Spine 2012 May;16(5):452-62.

*Garg B, et al. Microendoscopic versus open discectomy for lumbar disc herniation: a prospective randomized study. J Orthop Surg 2011 Apr;19(1):30-4.

*Gibson JN, et al. Surgical interventions for lumbar disc prolapse: update Cochrane Review. Spine 2007 Jul 15;32(16):1735-47.

Gibson JNA, et al. A randomised controlled trial of transforaminal endoscopic discectomy vs microdiscectomy. Eur Spine J. 2017 Mar;26(3):847-856.

He J, et al. Microendoscopic discectomy versus open discectomy for lumbar disc herniation: a meta-analysis. Eur Spine J 2016 May;25(5):1373-1381.

Hussein M, et al. Surgical technique and effectiveness of microendoscopic discectomy for large uncontained lumbar disc herniations: a prospective, randomized, controlled study with 8 years of follow-up. Eur Spine J 2014 Sep;23(9):1992-9.

Kim CH, et al. The surgical outcome and surgical strategy of percutaneous endoscopic discectomy for recurrent disk herniation. J Spinal Disord Tech 2014 Dec;27(8):415-22.

Lee JH, et al. Clinical and radiographic changes after percutaneous endoscopic cervical discectomy: a long-term follow-up. Photomed Laser Surg 2014 Dec;32(12):663-8.

Lewis RA, et al. Comparative clinical effectiveness of management strategies for sciatica: systematic review and network meta-analyses. Spine J 2015 June 1;15(6):1461-1477.

Li X, et al. Percutaneous endoscopic lumbar discectomy for lumbar disc herniation. J Clin Neurosci 2016 Nov;33:19-27.

Li X, et al. Percutaneous endoscopic lumbar discectomy for recurrent lumbar disc herniation. Int J Surg 2016 March;27:8-16.

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Li XC, et al. Full-Endoscopic Procedures Versus Traditional Discectomy Surgery for Discectomy: A Systematic Review and Meta-analysis of Current Global Clinical Trials. Pain Physician. 2016 Mar;19(3):103-18.

*Liu WG, et al. Long-term outcomes of patients with lumbar disc herniation treated with percutaneous discectomy: comparative study with microendoscopic discectomy. Cardiovasc Intervent Radiol 2010 Aug;33(4):780-6.

*Matsumoto M, et al. Recurrence of lumbar disc herniation after microendoscopic discectomy. J Neurol Surg A Cent Eur Neurosurg 2012 Dec 18 [Epub ahead of print].

*National Institute for Health and Clinical Excellence. Automated percutaneous mechanical lumbar discectomy. IPG 141. 2005 Nov [<https://www.nice.org.uk/guidance/ipg141>] accessed 6/5/19.

National Institute for Health and Clinical Excellence. Percutaneous interlaminar endoscopic lumbar discectomy for sciatica. IPG555. 2016 Apr [<https://www.nice.org.uk/guidance/ipg555>] accessed 6/5/19.

National Institute for Health and Clinical Excellence. Percutaneous transforaminal endoscopic lumbar discectomy for sciatica. IPG556. 2016 Apr [<https://www.nice.org.uk/guidance/ipg556>] accessed 6/5/19.

North American Spine Society (NASS). Coverage policy recommendations. Endoscopic decompression. 2019 Feb [<https://www.spine.org/coverage>] accessed 6/5/19.

Ong D, et al. Percutaneous disc decompression for lumbar radicular pain: a review article. Pain Pract 2014 Oct 29 [Epub ahead of print].

Phan K, et al. Full-endoscopic versus micro-endoscopic and open discectomy: A systematic review and meta-analysis of outcomes and complications. Clin Neurol Neurosurg. 2017 Mar;154:1-12.

Rasouli MR, et al. Minimally invasive discectomy versus microdiscectomy/open discectomy for symptomatic lumbar disc herniation. Cochrane Database Syst Rev 2014 Sep 4;9:CD10328.

Ruan W, et al. Comparison of percutaneous endoscopic lumbar discectomy versus open lumbar microdiscectomy for lumbar disc herniation: a meta-analysis. Int J Surg 2016 July;31:86-92.

*Ruetten S, et al. Full-endoscopic interlaminar and transforaminal lumbar discectomy versus conventional microsurgical technique: a prospective, randomized, controlled study. Spine 2008 Apr 20;33(9):931-9.

Sairyo K, et al. Surgery related complications in percutaneous endoscopic lumbar discectomy under local anesthesia. J Med Invest 2014;61(3-4):264-9.

Sencer A, et al. Fully endoscopic interlaminar and transforaminal lumbar discectomy: short-term clinical results of 163 surgically treated patients. World Neurosurg 2014 Nov;82(5):884-90.

*Staats PS, et al. MiDAS ENCORE: randomized controlled clinical trial report of 6-month results. Pain Physician Feb 2016;19(2):25-38.

Staats PS, et al. Long-term safety and efficacy of minimally invasive lumbar decompression procedure for the treatment of lumbar spinal stenosis with neurogenic claudication: 2-year results of MiDAS ENCORE. Reg Anesth Pain Med 2018 Oct;43(7):789-794.

*Wang M, et al. A 10-year follow-up study on long-term clinical outcomes of lumbar microendoscopic discectomy. J Neurol Surg A Cent Eur Neurosurg 2012 Aug;73(4):195-8.

Wu JJ, et al. Transforaminal Percutaneous Endoscopic Discectomy and Foraminoplasty after Lumbar Spinal Fusion Surgery. Pain Physician. 2017 Jul;20(5):E647-E651.

Yoshimoto M, et al. Microendoscopic discectomy for far lateral lumbar disk herniation: less surgical invasiveness and minimum 2-year follow-up results. J Spinal Disord Tech 2014 Feb;27(1):E1-7.

*Key Article

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KEY WORDS

Automated percutaneous discectomy, DeKompressor, hydrodiscectomy, Nucleotome, Percutaneous discectomy, Percutaneous Image-guided Lumbar Decompression, minimally invasive lumbar decompression.

CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS

Based on our review, neither automated percutaneous discectomy nor endoscopic discectomy is not addressed in National or Regional Medicare coverage determinations. There is currently a Local Coverage Determination (LCD) for Category III codes (L33392). Please refer to the following LCD website for Medicare Members: <https://www.cms.gov/medicare-coverage-database/details/article-details.aspx?articleId=56195&ver=11&SearchType=Advanced&CoverageSelection=Both&NCSelection=NCA%7cCAL%7cNCD%7cMEDCAC%7cTA%7cMCD&ArticleType=SAD%7cEd&PolicyType=Both&s=41&Keyword=discectomy&KeywordLookUp=Doc&KeywordSearchType=Exact&kq=true&bc=IAAAACAAAA&>

CMS issued a decision memo related to Percutaneous Image-guided Lumbar Decompression for Lumbar Spinal Stenosis (CAG-00433N) that includes 0275T and G0276. It is located at:

<https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=269>