Anthem

Clinical UM Guideline

Subject: Lumbar Discography
Guideline #: CG-SURG-29
Status: Revised

Publish Date: 01/03/2024
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Description

This document addresses lumbar discography as a diagnostic tool for individuals with low back pain.

Lumbar discography involves the injection of one to three (1-3) ml of contrast agent usually followed by CT imaging to evaluate the nature and extent of vertebral disc abnormality. The objective is also to characterize the pain response (if any) on disc injection and observe whether this reproduces the individual's usual pain so as to confirm the disc as the source of the back pain.

Note: For information on cervical or thoracic discography, refer to:

- RAD.00053 Cervical and Thoracic Discography

Clinical Indications

Medically Necessary:

Discography of the *lumbar* vertebrae is considered **medically necessary** for the evaluation of low back pain with or without lower extremity pain when ALL of the following are present:

A. Pain is unrelenting and has persisted for an extended period of time (at least 3 months); **and**
B. Pain has not responded to conservative therapy*; **and**
C. Noninvasive diagnostic studies have failed to provide sufficient diagnostic information regarding the origin of pain; **and**
D. There is no evidence of contraindications such as severe spinal stenosis resulting in intraspinal obstruction, infection, or predominantly psychogenic pain.

In addition to those listed above, **at least ONE of the following indications must be present:**

A. A high index of suspicion for discogenic pain and the pain is severe enough to consider surgical intervention; **or**
B. For failed back surgery individuals, to distinguish between painful pseudoarthrosis or a symptomatic disc in a posteriorly fused segment.

***Note:** Conservative therapy consists of an appropriate combination of medication (for example, NSAIDs, analgesics, etc.) in addition to physical therapy or other interventions based on the individual's specific presentation, physical findings, and imaging results.

Not Medically Necessary:

Lumbar discography is considered **not medically necessary** for individuals who do not meet the medically necessary criteria set forth above.

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services may be Medically Necessary when criteria are met:

CPT	
62290	Injection procedure for discography, each level; lumbar
72295	Discography, lumbar; radiological supervision and interpretation

ICD-10 Diagnosis	
	All diagnoses

When services are Not Medically Necessary:
For the procedure codes listed above when criteria are not met.

Discussion/General Information

Low back pain (LBP) occurs in approximately 70-85% of all people at some time during life. Kallewaard and colleagues (2018) state that although the exact cause of chronic LBP remains uncertain in the majority of individuals, the most common pathway is believed to be degenerative lumbar disc disease. Lumbar discogenic pain due to internal disc disruption (IDD) remains a topic of wide controversy, is poorly understood, and has been estimated to account for as many as 39% of individuals with LBP. While imaging techniques such as computed tomography (CT), magnetic resonance imaging (MRI) and myelography may identify disc pathology, they may be unable to determine if a diseased (disrupted) disc is the source of LBP. Zhou (2006) reported that MRI lumbar imaging has a low sensitivity (26.7%-59%) and high false-positive (24%) and false-negative (38%) rates when used in screening for the existence of IDD. Lumbar discography is an invasive diagnostic procedure proposed for the evaluation of chronic LBP when disc pathology is suspected, and surgery is being considered. Lumbar discography is used to determine if a disc is painful on injection and if the pain elicited reproduces the individual's LBP. The current method for this procedure involves the pressure-controlled injection of radiopaque dye into the intervertebral disc followed by CT imaging. CT imaging is used to evaluate the integrity of the central disc and annular ring to identify tears or disruption as a source of LBP. In addition to using lumbar discography to identify disc morphologic

pathology, proponents also use the test as a measure of “disc nociception” and argue that injecting a disc that is compromised will reproduce the individual’s pain syndrome. Only a few studies have looked at the incidence of false positive discography induced pain in asymptomatic volunteers and have reported it to be as low as 0% (Derby, 2005), but potentially as high as 25% (Carragee, 2006). Since discography is invasive, it is performed only after other diagnostic tests have failed to isolate the cause of back pain or are equivocal or inconsistent. Discography is usually reserved for individuals who have had back pain for an extended period of time and who have not obtained satisfactory pain relief from noninvasive treatments such as modified activities, medication, and physical therapy.

While discographic imaging alone may not be useful, that is, the presence of a degenerative disc will not predict whether a disc is painful in a particular individual (Slipman, 2001), the contemporary use of lumbar discography combines CT discography imaging with pain provocation to assist in the selection of individuals for intradiscal therapies. Shah and colleagues (2005) and Buenaventura and colleagues (2007) performed extensive reviews of the literature evaluating the diagnostic accuracy of discography in the management of chronic spinal pain. Studies were scored according to the Agency for Healthcare Research and Quality (West, 2002) and QUADAS (Whiting, 2003) rating scales for diagnostic testing. Evidence was classified into five levels: conclusive, strong, moderate, limited, or indeterminate. The authors concluded in their review of the evidence through November 2006 that there is strong evidence for the diagnostic accuracy of discography as an imaging tool, for its ability to evoke pain, and to support the role of discography in identifying a subset of individuals with lumbar discogenic pain. “Strong” evidence in this review was defined as “Research-based evidence from at least 1 properly designed randomized controlled trial; or research based evidence from multiple properly designed studies of small size; or multiple low quality trials.” These conclusions are similar to those of Manchikanti and colleagues who undertook a detailed review of the literature (Manchikanti, 2008). These authors concluded that lumbar discography was strongly recommended based on observational studies.

The ability of discography to identify lumbar disc disease has improved with advances in imaging techniques, the use of CT rather than plain X-ray, and the use of standardized pain assessment tools. Limitations to the study of discography include an incomplete understanding of the mechanisms generating discogenic pain, reliance on subjective information from the individual, the potential for psychosocial issues to influence reported pain/outcome, and the observation that normal tissue in areas adjacent to chronic pain generators may be more sensitive to painful stimuli.

There are few studies comparing surgical outcomes between individuals who have had discography pre-operatively and those who have not. The limited evidence which is available is conflicting, and while discography combined with CT may be more accurate than other imaging tests in detecting degenerative disc disease, its ability to result in improved surgical outcome is unproven (Cohen, 2005). Madan and colleagues (2002) reported on their findings of a non-randomized study of 73 consecutive participants who underwent postero-lateral interbody and posterior spinal fusion for discogenic LBP refractory to medical therapies. The first 41 participants were selected without the use of discography, while the remaining 32 participants were selected for surgery only if their pain syndrome was provoked with lumbar discography. The two groups were felt otherwise to be similar with regards to age, gender, psychometric profile and nature of disc disease seen on pre-operative imaging. Average follow-up was 2.8 years for the first group and 2.4 years for the second group. Using a standardized disability scale, Oswestry, there was no significant difference in surgical outcome between the two groups.

To date, a significant limitation of studies to establish the diagnostic accuracy of provocative lumbar discography has been the absence of an agreed upon gold standard. Some studies have used discography as a pre-surgical screening tool and concluded the validity of discography depends on the outcome of a lumbar spinal fusion, a controversial surgical treatment. Others argue that abnormal disc morphology should serve as a gold standard to judge the accuracy of lumbar discography rather than the response to an as yet unproven treatment for a disease difficult to treat. Sample sizes for most studies have been small as ethical concerns have prevented invasive tests on large individual samples that may not have disease. For this reason, although the majority of studies have been prospective, most have not been randomized, controlled or blinded. In the review of 69 studies meeting a minimal evidence threshold selected by Buenaventura (2007) outlined above, while 39 studies were prospective, only 8 studies were controlled, just 2 were randomized (Manchikanti, 2001) and only 1 small observational study (Carragee, 2000) used a prospective, controlled, and blinded design. No randomized, controlled, and blinded studies of discography have been reported.

In 2013, Manchikanti and colleagues published an updated systematic review to assess and re-evaluate the diagnostic accuracy of lumbar discography utilizing provocation or analgesia in individuals suffering from chronic LBP for at least 3 months, with or without pain in the lower extremities. The authors found fair evidence for a significant correlation between discography and radiologic investigations, but poor evidence demonstrating a correlation with physical examination. The researchers also found limited evidence supporting the use of lumbar discography as a screening tool prior to fusion surgeries. Overall, the authors concluded that “there is fair evidence supporting the accuracy of provocation discography after controlling for various factors including methodological flaws, lack of standardization, and the absence of well-designed outcome studies” (Manchikanti, 2013a).

Divided opinion on the utility and application of lumbar discography can be seen in the position statements of professional societies. The American Association of Neurological Surgeons (Resnick, 2005) position statement does not recommend discography in subjects with normal lumbar MRI, but does acknowledge its role in the evaluation of individuals with LBP with: (1) abnormal interspaces identified on MRI; (2) the investigation of adjacent-level disc disease; and (3) as a means to rule out non-organic pain from surgical consideration.

The North American Spine Society’s broader recommendation (Guyer, 2003) limits the use of lumbar discography to select clinical indications including (1) correlation of an abnormal disc with clinical symptoms including pain following a previously operated disc or lateral disc herniation, (2) evaluation of persistent, severe symptoms when other diagnostic tests have failed to reveal a disc as the source of pain, (3) evaluation of a failed surgical intervention to diagnose symptomatic pseudoarthrosis, recurrent disc herniation, (4) evaluation prior to spinal fusion to determine if discs within the proposed fusion are symptomatic and adjacent discs are normal, and (5) evaluation of individuals being considered for minimally invasive surgical intervention.

The American Society of Interventional Pain Physicians (ASIPP) guidelines for interventional techniques in the diagnosis and treatment of chronic spinal pain point out that under ideal circumstances, the gold standard or criterion for the diagnostic accuracy of discography would be obtained by tissue confirmation of the presence or absence of disease; however, surgical inspection of a degenerated disc cannot determine if discogenic pain is or is not present. The ASIPP concluded that the diagnostic accuracy of lumbar discography when compared to other non-invasive modalities of assessment was fair and that there is limited evidence supporting the use of discography prior to surgical procedures (Manchikanti, 2013b).

The American College of Radiology (ACR) indicated that lumbar discography may be appropriate in individuals with a history of prior lumbar surgery and new or progressive symptoms or clinical findings and acknowledged that “the use of provocative injections in the lumbar spine to identify a discogenic source of pain remains controversial” (Patel, 2016).

References

Peer Reviewed Publications:

1. Anderson, SR, Flanagan B. Discography. Curr Rev Pain. 2000; 4(5):345-352.
2. Bogduk N, Modic MT. Controversy: lumbar discectomy. Spine. 1996; 21(3):402-404.
3. Boswell MV, Trescot AM, Datta S, et al. Interventional techniques: evidence-based practice guidelines in the management of chronic spinal pain. Pain Physician. 2007; 10(1):7-111.
4. Buenaventura RM, Shah RV, Patel V, et al. Systematic review of discography as a diagnostic test for spinal pain: an update. Pain Physician. 2007; 10(1):147-164.
5. Carragee EJ, Alamin TF, Carragee JM. Low-pressure positive discography in subjects asymptomatic of significant low back pain illness. Spine (Phila Pa 1976). 2006; 31(5):505-509.
6. Carragee EJ, Chen Y, Tanner CM, et al. Provocative discography in patients after limited lumbar discectomy: a controlled, randomized study of pain response in symptomatic and asymptomatic subjects. Spine (Phila Pa 1976). 2000; 25(23):3065-3071.
7. Carragee EJ, Paragioudakis SJ, Khurana S. 2000 Volvo Award Winner in clinical studies: Lumbar high-intensity zone and discography in subjects without low back problems. Spine (Phila Pa 1976). 2000; 25(23):2987-2992.
8. Carragee, EJ, Tanner CM, Yang B, et al. False-positive findings on lumbar discography. Reliability of subjective concordance assessment during provocative disc injection. Spine (Phila Pa 1976). 1999; 24(23):2542-2547.
9. Cohen SP, Hurley RW. The ability of diagnostic spinal injections to predict surgical outcomes. Anesth Analg. 2007; 105(6):1523-1525.
10. Derby R, Kim BJ, Lee SH, et al. Comparison of discographic findings in asymptomatic subject discs and the negative discs of chronic LBP patients: can discography distinguish asymptomatic discs among morphologically abnormal discs? Spine J. 2005; 5(4):389-394.
11. Guyer RD, Ohnmeiss DD. Contemporary concepts in spine care: lumbar discography. Spine (Phila Pa 1976). 1995; 20(18): 2048-2059.
12. Kallewaard JW, Geurts JW, Terheggen, M. et al. No transfer of pressure to adjacent discs during human low-pressure controlled discography: a prospective clinical study. Pain Medicine. 2018; 19(1):29-39.
13. Madan S, Gundanna M, Harley JM, et al. Does provocative discography screening of discogenic back pain improve surgical outcome? J Spinal Disord Tech. 2002; 15(3):245-251.
14. Manchikanti L, Abdi S, Atluri S, et al. An update of comprehensive evidence-based guidelines for interventional techniques in chronic spinal pain. Part II: guidance and recommendations. Pain Physician. 2013b; 16(2 Suppl):S49-S283.
15. Manchikanti L, Benyamin RM, Singh V, et al. An update of the systematic appraisal of the accuracy and utility of lumbar discography in chronic low back pain. Pain Physician. 2013a; 16(2 Suppl):SE55-SE95.
16. Manchikanti L, Singh V, Derby R et al. Reassessment of evidence synthesis of occupational medicine practice guidelines for interventional pain management. Pain Physician. 2008; 11(4):393-482.
17. Manchikanti L, Singh V, Pampati V, et al. Provocative discography in low back pain patients with or without somatization disorder: a randomized prospective evaluation. Pain Physician. 2001; 4(3):227-239.
18. Milette PC, Melanon D. A Reappraisal of lumbar discography. J Can Assoc Radiol. 1982; 33(3):176-182.
19. Resnick DK, Malone DG, Ryken TC. Guidelines for the use of discography for the diagnosis of painful degenerative lumbar disc disease. Neurosurg Focus. 2002; 13(2):E12.
20. Schellhas KP, Pollei SR. The role of discography in the evaluation of patients with spinal deformity. Orthop Clin North Am. 1994; 25(2):265-273.
21. Shah RV, Everett, CR. McKenzie-Brown AM, Sehgal N. Discography as a diagnostic test for spinal pain: a systematic and narrative review. Pain Physician 2005; 8(2):187-209.
22. Slipman CS, Patel RK, Zhang L, et al. Side of symptomatic annular tear and site of low back pain: is there a correlation? Spine (Phila Pa 1976). 2001; 26(8):E165-E169.
23. West S, King V, Carey TS, et al. Systems to rate the strength of scientific evidence. Evid Rep Technol Assess (Summ). 2002; (47):1-11.
24. Whiting P, Rutjes AW, Reitsma JB, et al. The development of QUADAS: a tool for the quality assessment of studies of diagnostic accuracy included in systematic reviews. BMC Med Res Metholol. 2003; 3:25.
25. Wichman HJ. Discography: over 50 years of controversy. WMJ. 2007; 106(1):27-29.
26. Zhou Y, Abdi S, Diagnosis and minimally invasive treatment of lumbar discogenic pain-a review of the literature. Clin J Pain. 2006; 22(5):468-481.

Government Agency, Medical Society, and Other Authoritative Publications:

1. Guyer RD, Ohnmeiss DD: North American Spine Society. Lumbar discography. Spine J. 2003; 3(3 Suppl):11S-27S.
2. Manchikanti L, Falco FJE, Singh, et al. American Society of Interventional Pain Physicians. Interventional Pain Management (IPM) Practice Guidelines. An update of comprehensive evidence-based guidelines for interventional techniques in chronic spinal pain. 2013. Available at: https://asipp.org/ipm-practice-guidelines/. Accessed on September 5, 2023.
3. North American Spine Society. Evidence-based clinical guidelines for multidisciplinary spine care. Clinical guidelines for diagnosis and treatment of lumbar disc herniation with radiculopathy. 2012. Available at: https://www.spine.org/Portals/0/Assets/Downloads/ResearchClinicalCare/Guidelines/LumbarDiscHerniation.pdf. Accessed on September 5, 2023.
4. Patel ND, Broderick DF, Burns J. ACR Appropriateness Criteria® low back pain. J Am Coll Radiol. 2016; 13(9):1069-1078.
5. Resnick DK, Choudhri TF, Dailey AT, et al.; American Association of Neurological Surgeons/Congress of Neurological Surgeons. Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine. Part 6: Magnetic resonance imaging and discography for patient selection for lumbar fusion. J Neurosurg Spine. 2005; 2(6):662-669.

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Lumbar Discography

History

Status	Date	Action
Revised	11/09/2023	Medical Policy & Technology Assessment Committee (MPTAC) review. Reformatted MN criteria in Clinical Indications section. Updated References section.
Reviewed	11/10/2022	MPTAC review. Updated References section.
Reviewed	11/11/2021	MPTAC review. Updated References section.
Reviewed	11/05/2020	MPTAC review. Updated the Discussion and References sections. Reformatted Coding section.
Reviewed	11/07/2019	MPTAC review.

Reviewed	01/24/2019	MPTAC review. Updated the review date and History section.
Revised	02/27/2017	MPTAC review. The document header wording updated from “Current Effective Date” to “Publish Date.” In the Clinical Indications section, changed “conservative treatment measures” to “conservative therapy” and clarified the meaning of conservative therapy. Updated the Discussion/General Information section, References and History sections.
Reviewed	02/02/2017	MPTAC review. Updated review date, Rationale, References and History sections. Updated formatting in the “Clinical Indications” section.
Revised	02/04/2016	MPTAC review. In position statement, changed “i.e.” to “that is”. Updated review date, References and History sections. Removed ICD-9 codes from Coding section.
Reviewed	02/05/2015	MPTAC review. Updated review date, References and History sections.
Reviewed	02/13/2014	MPTAC review. Updated review date, Discussion/General Information, References and History sections.
Reviewed	02/14/2013	MPTAC review. Updated review date, Reference and History sections.
Reviewed	02/16/2012	MPTAC review. Updated review date, Reference and History sections.
Reviewed	02/17/2011	MPTAC review. Updated review date, Reference and History sections.
	10/14/2010	Category changed from CG-RAD-06 to CG-SURG-29. Updated Website information.
Reviewed	02/25/2010	MPTAC review. Updated review date, Reference and History sections.
Reviewed	02/26/2009	MPTAC review. Updated review date, Rationale, Reference and History sections. In the first bullet of the medically necessary clinical indications, changed the word “consisted” to “persisted.” No change to intent of patient selection criteria. Removed the Place of Service/Duration section from the document.
Revised	02/21/2008	MPTAC review. Revised guideline to address lumbar discography only. Updated review date, Discussion/General Information sections. Cervical and thoracic discography now addressed in RAD.00053.
Revised	11/29/2007	MPTAC review. In second paragraph of the medically necessary criteria, changed the word “should” to “must.” Updated review date, Reference and History sections.
Reviewed	12/07/2006	MPTAC review. A review of the literature from September 2005 – September 2006 did not result in a change in the policy stance. Updated Coding, Reference and History sections.
Revised	12/01/2005	MPTAC review. Revised medically necessary statement to clarify indications apply to lumbar discography only. Added not medically necessary statement. Added information in the Discussion/General Information section, including a discussion of the lack of clinical evidence to support cervical discography. Updated references.

Pre-Merger Organizations	**Last Review Date**	**Document Number**	**Title**
Anthem, Inc.		None	
WellPoint Health Networks, Inc.	12/02/2004	Guideline	Discography

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