

Lumbar Laminotomy



**DEFINING APPROPRIATE
COVERAGE POSITIONS**

Introduction

North American Spine Society (NASS) coverage policy recommendations are intended to assist payers and members by proactively defining appropriate coverage positions. Historically, NASS has provided comment on payer coverage policy upon request. However, in considering coverage policies received by the organization, NASS believes proactively examining medical evidence and recommending credible and reasonable positions may be to the benefit of both payers and members in helping achieve consensus on coverage before it becomes a matter of controversy.

Methodology

The coverage policies put forth by NASS use an evidence-based approach to spinal care when possible. In the absence of strict evidence-based criteria, policies reflect the multidisciplinary and non-conflicted experience and expertise of the authors in order to reflect reasonable standard practice indications in the United States.

[NASS Coverage Policy Methodology](#)

Scope and Clinical Indications

Lumbar laminotomy is most commonly indicated for the treatment of radicular pain with or without neurological deficit that arises from nerve root compression associated with lateral recess stenosis or foraminal stenosis arising from degenerative conditions such as spondylosis, spondylolisthesis, or facet cysts. Central stenosis may also be addressed via bilateral laminotomies, though more typically addressed via a central laminectomy. There is a wide range of other conditions that can be also be associated with nerve root compression that may be treated via laminotomy, such as nerve root compression from fractures, infection, neoplasms, epidural lipomatosis, and epidural hematoma. Laminotomy is usually performed in conjunction with a lumbar discectomy for disc herniations. This indication is discussed in another coverage document (***Lumbar Discectomy***). It is important to note that a laminotomy may be performed by itself or in conjunction with other procedures, such as a spinal fusion with or without stabilization. In addition, there are a number of different codes that may be appropriately used in order to describe a laminotomy depending on the indication. Most commonly, 63030 is used for degenerative conditions such as stenosis. This is the same code that is used for a discectomy. While there may be little distinction in reimbursement and billing between a laminotomy and discectomy versus a laminotomy alone, there are certainly clinical discriminators that would make one procedure preferred over the other. When a laminotomy is performed for the evacuation of a spinal abscess or removal of a synovial facet cyst, other codes may be appropriate. Likewise, when a revision

laminotomy is performed in an area in which previous surgery has been performed, a different code is used (63042).

Coverage Recommendation(s)

Lumbar laminotomy (excluding discectomy), whether performed in standard open fashion or using less invasive approaches such as tubular retractors, may be indicated for the following diagnoses with qualifying criteria, when appropriate:

1. **Spinal stenosis** (central, lateral recess, or foraminal) associated with symptoms of nerve root compression (e.g. radiculopathy or neurogenic claudication)
 - a. Pattern of radiculopathy/neurogenic claudication is explained by the imaging findings
 - b. 6-12 weeks of nonoperative treatment has been performed
 - c. The following can mitigate the need for an initial nonoperative trial
 - i. Severity of symptoms causes forced bed rest
 - ii. Severity of symptoms prevents the patient from working
 - iii. Stenosis results in functionally limiting motor weakness (e.g. foot drop)
2. **Recurrent/residual stenosis** (central, lateral recess, or foraminal) associated with symptoms of nerve root compression (e.g. radiculopathy or neurogenic claudication) in an area that has been previously decompressed/operated
 - a. Pattern of radiculopathy/neurogenic claudication is explained by the imaging findings
 - b. 6-12 weeks of nonoperative treatment has been performed
 - c. The following can mitigate the need for an initial nonoperative trial
 - i. Severity of symptoms causes forced bed rest
 - ii. Severity of symptoms prevents the patient from working
 - iii. Stenosis results in functionally limiting motor weakness (e.g. foot drop)
3. **Facet cyst** associated with symptoms of nerve root compression (e.g. radiculopathy or neurogenic claudication)
 - a. Pattern of radiculopathy/neurogenic claudication is explained by the imaging findings
 - b. 6-12 weeks of nonoperative treatment has been performed
 - c. The following can mitigate the need for an initial nonoperative trial
 - i. Severity of symptoms causes forced bed rest
 - ii. Severity of symptoms prevents the patient from working
 - iii. Cyst results in functionally limiting motor weakness (e.g. foot drop)
4. **Infection/epidural abscess** involving the lumbar spinal canal in a localized region (e.g. 1 level on one side) in EITHER of the following cases:
 - a. In the absence of any other urgent surgical indication (e.g. neurological deficit, sepsis), in order to perform an open biopsy and culture when an organism has not been

identified by other less invasive means (e.g. blood cultures, percutaneous needle biopsy)

- b. In order to decompress/evacuate the abscess if ANY of the following is present:
 - i. Lack of clinical response to an appropriate course of antibiotics
 - ii. Associated neurological deficit
 - iii. Signs of systemic sepsis associated with the epidural abscess
5. **Acute fracture** causing symptomatic nerve root compression

Laminotomy is **NOT** indicated in cases that do not fall within the above parameters. In particular, laminotomy is not indicated for treatment of:

- Isolated axial low back pain
- Predominant low back pain associated with disc degeneration with or without stenosis
- Asymptomatic patients regardless of the presence of stenosis

Rationale

The conditions listed above lead to symptomatic neural compression. The rationale for decompression of neural elements in this segment is based on what most practitioners would consider to be reasonable and accepted practice patterns.

Laminotomy involves less bone removal than a laminectomy. Depending on the technical proficiency of the surgeon and the pathoanatomical findings in the patient, a laminotomy or laminectomy may be appropriate. In degenerative conditions, a laminotomy is generally performed when there is primarily lateral recess or foraminal stenosis. In other words, it is most often chosen when there is minimal central canal compression. However, this is not a hard and fast rule. There are some surgeons who would elect to perform bilateral laminotomies to address central stenosis as it can potentially preserve the midline structures (i.e. spinous processes and intervening ligaments).

Item 1

The spine patient outcomes research trial (SPORT) trial has shown clear efficacy of lumbar decompression for lumbar stenosis^{1,2}, however, it did not compare laminotomy to laminectomy. A number of clinical studies have compared laminotomy and laminectomy for lumbar stenosis treatment and all have concluded that laminotomy can be as effective as laminectomy for the treatment³⁻¹³.

Prospective randomized controlled trials have compared the results of these procedures. Cavusoglu et al⁴ randomized one hundred patients with lumbar stenosis to two treatment groups: unilateral laminectomy (Group 1) or laminotomy (Group 2). Clinical outcomes were assessed with the Oswestry

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Disability Index (ODI) and the Short Form-36 Health Survey (SF-36). The mean follow-up time was 5.4 years (range 4 to 7 years). Analysis of clinical showed significant improvements in early and late ODI and SF-36 outcomes with no differences between the two groups. Thomé et. al.¹³ randomized one hundred twenty consecutive patients with lumbar stenosis to three treatment groups (bilateral laminotomy [Group 1], unilateral laminotomy [Group 2], and laminectomy [Group 3]). Outcomes were evaluated using VAS, Roland-Morris Scale, and Short Form-36 (SF-36). Both bilateral and unilateral laminotomy significantly reduced pain and disability and improved health-related quality of life comparable to laminectomy.

There are other prospective comparative data available. Fu et. al.⁸ prospectively followed 152 patients who underwent laminotomies (76 patients) or laminectomy (76 patients) for lumbar stenosis. Outcomes were evaluated using the visual analogue scale (VAS) and ODI. Good to excellent outcomes were achieved in 89% of patients who underwent laminotomy for stenosis and 63% of patients who underwent laminectomy. While this was not a randomized study it did provide evidence of successful treatment of lumbar stenosis using laminotomies. Oertel et. al.¹⁰ prospectively followed one hundred thirty-three consecutive patients with lumbar stenosis who underwent unilateral laminotomy for bilateral decompression. 102 (77%) of the 133 patients were available for long-term examination after a mean duration of 5.6 years. Outcomes were evaluated using the scale of Finneson and Cooper. One hundred thirty patients (97.7%) improved immediately after surgery. At long-term follow-up, ninety-four (92.2%) of the 102 patients available for long-term follow-up examination remained improved, and 85.3% had an excellent-to-fair operative result.

Large, retrospective series have documented the favorable results of laminotomy as well. Hong et al⁹ performed a retrospective review of clinical outcomes of 532 patients who underwent unilateral laminotomy or bilateral laminotomy for lumbar stenosis. Clinical outcomes were evaluated using VAS for back and leg pain and the Oswestry disability index (ODI). They showed that both unilateral laminotomies and bilateral laminotomies were equally successful in reducing pain and disability. Costa et al⁶ performed a retrospective review of a consecutive series of 473 patients treated with unilateral microdecompression (i.e. laminotomy) for lumbar stenosis. Clinical outcomes were measured using the Prolo Economic and Functional Scale and the visual analog scale (VAS). Follow-up was available in 374 (79.1%) of 473 patients. Three hundred twenty-nine patients (87.9%) experienced significant improvement in VAS and Prolo Scale scores.

Overall these studies provide substantial evidence that laminotomy is effective in reducing symptoms and improving health related quality of life in lumbar stenosis. Unilateral laminotomy has also been successfully used in setting of degenerative spondylolisthesis^{14, 15}, though this disorder is usually treated with the addition of fusion.

Item 2

Recurrent or residual stenosis is often encountered following an initial laminotomy. If associated symptoms are present and have not improved with nonoperative measures, surgery can be helpful. Revision surgery presents the technical challenge of having to separate the epidural scar from the remaining bone in order to safely perform adequate decompression.

There are limited data regarding revision laminotomy in the lumbar spine. Most reported cases of revision decompression are performed in conjunction with fusion and stabilization for instability or adjacent level disease. Even in cases in which there is no preoperative instability, revision laminotomy can involve removal of large portions of remaining facet joints which can in turn lead to anticipated iatrogenic destabilization. That being said, revision foraminotomy, with or without fusion, is a reasonable treatment option for symptomatic patients who have failed an appropriate course of nonoperative treatment and meet the above listed criteria.

Item 3

There is a wide body of literature regarding the treatment of synovial facet cysts in the lumbar spine. Both operative and nonoperative treatments can be effective. Regarding surgical treatments, patients may be treated via facet cyst removal with or without fusion. The relative benefits and indications for adding fusion in such cases is discussed in the **Lumbar Fusion** document.

Hsu et al (Spine, 1995), in a retrospective review, found that most patients with symptomatic facet cysts responded to nonoperative treatments. This included a variety of modalities, including rest, medication, bracing, and injections. Eight of 19 patients proceeded to have surgery, 7 of whom had good or excellent outcomes. It is unclear exactly what surgical technique was used in these patients, however, none underwent fusion. Other authors have described so-called microsurgical approaches to facet removal in which the facet is spared as much as possible via a laminotomy. Deinsberger et al (J Spinal Disord Tech) reported good or excellent results in 80% of 31 patients who underwent a surgical facet cyst excision via a microsurgical approach. Though most patients underwent a unilateral laminotomy, 4 patients required a full laminectomy. Other groups have reported similar results with other technique variations (James et al, J Spinal Disord Tech. 2012).

Items 4 and 5

Symptomatic epidural hematoma are rare events. There are few, if any, data regarding the outcomes of a laminotomy decompression for this condition. Similarly, there are few, if any data, regarding laminotomy for nerve root compression for an acute lumbar fracture. Despite this dearth of evidence, most surgeons would agree that an urgent decompression, potentially in the form of a laminotomy for either condition would be a reasonable treatment option.

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