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Cervical Laminoplasty

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NASS NORTH AMERICAN SPINE SOCIETY

DEFINING APPROPRIATE COVERAGE POSITIONS

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COVERAGE COMMITTEE

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

Cervical Laminoplasty, also described as **Cervical Laminaplasty**, is a decompressive and reconstructive procedure of the cervical spine. It is utilized to access and/or decompress the cervical spinal canal. It may be performed with or without reconstruction of the posterior cervical elements. Each spinal level (eg. C3, C4, C5) represents a single level of laminoplasty with or without reconstruction. Cervical Laminoplasty may be combined with cervical laminectomy but both procedures cannot be performed at the same level (eg. C3 laminectomy, C4-6 laminoplasty, C7 laminectomy). Cervical Laminoplasty may be combined with cervical foraminotomy at either the same levels or at different levels (eg. C4-6 laminoplasty with C4-5 foraminotomy).

Cervical Laminoplasty (also defined as Cervical Laminaplasty) may be indicated for the following diagnoses with qualifying criteria, when appropriate.

1. **Spinal Stenosis** in the cervical spine including recurrent spinal stenosis, congenital stenosis, or stenosis caused by cervical spondylosis or ossification of the posterior longitudinal ligament (OPLL) meeting the following criteria:

   a. Signs and symptoms of cervical myelopathy correlated with diagnostic imaging
   b. Neutral to Lordotic Cervical alignment with no greater than 13 degrees of kyphosis
   c. Decompression of the neural elements as an adjunct to stabilization when indicated for mechanical spinal column instability
2. **Cervical disc herniation** including recurrent disc herniation meeting the following criteria:
   a. Signs and symptoms of cervical myelopathy correlated with diagnostic imaging
3. **Tumor** in any of the following cases:
   a. In order to perform an open biopsy for tissue diagnosis
   b. In order to remove tumor to decompress the spinal canal or neural elements
4. **Trauma** to the cervical spinal cord, without spinal instability, in any of the following cases
   a. In order to decompress the spinal canal
   b. In order to access the thecal sac to repair a traumatic dural tear/CSF leak
5. **Epidural Hematoma** in the following case:
   a. In order to evacuate a symptomatic epidural hematoma causing neural compression
6. **Infection** in the following case:
   a. In order to perform a spinal canal decompression and debridement if ANY of the following is present:
      i. Lack of clinical response to an appropriate course of antibiotics
      ii. Epidural abscess with associated neurological deficits
      iii. Signs of systemic sepsis associated with spinal infection
      iv. Need to obtain tissue diagnosis
      v. Decompression of the neural elements as an adjunct to stabilization when indicated for mechanical spinal column instability

Cervical Laminoplasty is NOT indicated in cases that do not fulfill the following criteria. Of note, Cervical Laminoplasty alone is not indicated in the following scenarios:

- Patients with asymptomatic spinal stenosis with complaints of isolated neck pain (i.e. patients without signs or symptoms of cervical myelopathy) without MRI evidence of myelomelacia (intrinsic spinal cord signal)
- Patients without confirmatory cross-sectional imaging showing neurological compression
- Patients with spinal instability including that caused by trauma, tumor, infection, rheumatoid arthritis, or other destructive spondyloarthropathies, who do not have symptomatic cervical myelopathy

- Patients with greater than 13 degrees cervical kyphotic alignment

Rationale

In Item 1 (Spinal Stenosis) and Item 2 (Cervical Disc Herniation), there is a large body of literature that reports the outcomes of cervical Laminoplasty for the treatment of symptomatic cervical spinal stenosis. A systematic review of this data is beyond the scope of this coverage document. Spinal stenosis may be associated, either in isolation or in combination, with recurrent spinal stenosis, congenital stenosis, cervical spondylosis, or ossification of the posterior longitudinal ligament (OPLL).[1, 4,5,7,8, 11-13, 15, 16, 19-27]

Symptoms of cervical stenosis would include those of cervical myelopathy with or without cervical radiculopathy. Cervical disc herniation, typically involving multiple levels, may also produce symptoms of cervical myelopathy with or without radiculopathy amenable to treatment with Cervical Laminoplasty. Patients must have either a lordotic or neutral alignment prior to surgery; this alignment allows for posterior spinal cord migration which has been correlated to neurological improvement.[2, 3] Individuals with cervical kyphosis of greater than 13 degrees have been found to have less satisfactory outcomes.[24] Those with greater than 50 percent anterior canal compression may fare better with anterior surgery.[21] Regarding nonsurgical treatment of cervical myelopathy, a number of studies investigating the natural history of myelopathy have demonstrated poor results with nearly all patients experiencing progressive, and potentially irreversible, neurological decline (weakness, numbness, clumsiness, gait disturbances).[6] In patients with mild cervical myelopathy, close observation has been shown in one study to be an option[9], however this study had a small population of patients and was not statistically powered to detect a difference. The surgical treatment of patients with symptomatic spinal stenosis, to the contrary, demonstrates that Cervical Laminoplasty can improve pain and prevent neurological decline and, in some patients, improve neurological function.[4, 5, 17]

In Item 3 (Tumor) and Item 6 (Infection), Cervical Laminoplasty can be utilized to obtain access to the cervical spinal canal for the biopsy and/or removal of tumors or infections.[14, 18] This would be utilized as an alternative to cervical laminectomy or cervical laminectomy and fusion.

In Item 4 (Trauma), Cervical Laminoplasty has been demonstrated to provide surgical decompression in the setting of a traumatic spinal cord injury (complete, incomplete or central cord syndrome).[13, 14] Cervical Laminoplasty would be utilized as an alternative to cervical laminectomy and fusion. Cervical

Laminoplasty would be contra-indicated in the setting of traumatic instability of the cervical spine (eg. facet dislocation or a distraction injury).

In Item 5 (Epidural Hematoma), Cervical Laminoplasty can be utilized to provide a decompression of the spinal canal and to provide access for an evacuation and removal of hematoma.[10]

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Financial Statement

These Coverage Recommendations were developed in their entirety by the North American Spine Society (NASS). All participating authors have disclosed potential conflicts of interest consistent with NASS' disclosure policy.

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Comments

Comments regarding the coverage recommendations may be submitted to coverage@spine.org and will be considered in development of future revisions of the work.