Vertebral Corpectomy - Single Service

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System (M00-M99)
Guideline Name: Vertebral Corpectomy - Single Service

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Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Vertebral Corpectomy

General Guidelines

- **Units, Frequency, & Duration**: There is no clearly established consensus or criteria regarding surgical intervention timing.
- **Criteria for Subsequent Requests:** None
- **Recommended Clinical Approach:** Corpectomy involves surgical removal of the central portion of a vertebral body and replacement with graft material.[1] Single or multi-level disc disease may be treated via an anterior approach (with fusion) as well as improvement of symptoms related to short-segment ossification of the posterior longitudinal ligament.[2-3] Other approaches (posterior, lateral, oblique) may be chosen based on the location of compression or if a contraindication to the anterior approach exists.[4] Corpectomy may be used to treat degenerative disease, infection, tumor, or fracture. Partial vertebral excision/partial corpectomy may be used based on the patient's anatomical presentation and degree of spinal compression.
- **Exclusions:** Risk of permanent neurological damage, infection, CNS fluid leak, quadriparesis, bowel and/or bladder dysfunction.

Medical Necessity Criteria

Indications

➔ **Full/partial vertebral corpectomy** is considered appropriate when **ANY** of the following is **TRUE:**

- ◆ The procedure is a **full/partial cervical corpectomy** and **ALL** of the following are **TRUE**[5]:
  - **ANY** of the following radiographic findings on advanced imaging (MRI or CT myelogram) is **TRUE**:
    - Existence of ossified posterior longitudinal ligament; **OR**
    - The patient has an unstable cervical burst fracture; **OR**
    - Cervical vertebral osteomyelitis that has not responded to nonoperative management (intravenous and oral antimicrobial therapy); **OR**
    - Cervical vertebral body tumor; **OR**
    - Correction of cervical kyphosis; **OR**

    - Failure of previous cervical surgery such as disc replacement; **OR**
    - Cervical vertebral fracture related to previous surgery; **AND**
- **ANY** of the following is **TRUE**:
    - The patient has **cervical myelopathy** and **ANY** of the following is **TRUE**[3,6]:
        - **ANY** of the following **cervical myelopathy** symptoms:
            - Gait disturbance or abnormality; **OR**
            - Lower or upper extremity weakness; **OR**
            - Paresthesias or numbness in the upper extremities; **OR**
            - Loss of dexterity/coordination; **OR**
            - Bowel or bladder dysfunction; **OR**
        - **ANY** of the following **cervical myelopathy** physical examination findings:
            - Lhermitte's sign: an electric shock-like sensation down the spine or into the upper extremities with forward flexion of the cervical spine; **OR**
            - Hoffman's sign; **OR**
            - **ANY** of the following upper lower motor neuron (ULMN) findings in the upper extremities:
                - Weakness; **OR**
                - Atrophy; **OR**
            - **ANY** of the following upper lower motor neuron (ULMN) findings in the lower extremities:
                - Hypertonicity; **OR**
                - Hyperreflexia; **OR**
                - Positive Babinski (extension of toes with distal to proximal plantar stimulation of foot); **OR**
                - Multiple beats or sustained clonus; **OR**
                - Decreased sensation, proprioception, or vibratory sense; **OR**
                - Loss of sphincter tone; **OR**
    - The patient has **cervical radiculopathy** and **ALL** of the following are **TRUE:**
        - **ANY** of the following **cervical radiculopathy** symptoms:

- Neck pain; **OR**
- Arm pain; **OR**
- Scapular pain; **OR**
- Periscapular pain; **OR**
- Anterior chest pain; **OR**
- Weakness, numbness, or paresthesia in the upper extremity; **OR**
- Headache; **OR**

◆ **ANY** of the following **cervical radiculopathy** positive specialty tests:

- Spurling's test or maneuver or compression test (reproduction of symptoms with neck extension, lateral flexion, and downward compression or loading); **OR**
- Shoulder abduction test (symptoms relieve with shoulder abduction); **AND**

◆ **ANY** of the following is **TRUE**:

- No significant improvement in pain or disability level due to symptoms, despite receiving non-surgical management interventions for more than six (6) weeks, including **ALL** of the following (unless medically contraindicated)[8]:
  - Physical therapy including home exercise program; **AND**
  - Anti-inflammatory medications or oral steroids; **AND**
  - Facet injections/medial branch blocks (MBBB); **AND**
  - Epidural steroid injections (ESI); **OR**
- The patient's severe pain or disability is affecting their quality of life and limiting their daily life (including working and ability to provide self care); **OR**

◆ The procedure is a **full/partial lumbar corpectomy** and **ALL** of the following are **TRUE:**

- **ANY** of the following seen on advanced imaging (MRI or CT myelogram):
  - The patient has an unstable lumbar burst fracture; **OR**
  - Lumbar vertebral osteomyelitis that has not responded to nonoperative management (intravenous and oral antimicrobial therapy); **OR**
  - Lumbar vertebral body tumor; **OR**
  - Lumbar kyphosis; **OR**

- Failure of previous lumbar surgery such as disc replacement; **OR**
- Lumbar vertebral fracture related to previous surgery

Non-Indications

➔ **Full/partial vertebral corpectomy** is not considered appropriate if **ANY** of the following is **TRUE**:

- The procedure is for a cervical vertebral corpectomy, and the patient has had previous radiation treatment to the anterior neck; **OR**
- The procedure is for a cervical vertebral corpectomy, and the patient has had previous multiple anterior neck surgeries

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS/CPT Code	Code Description
22100	Partial excision of posterior vertebral component (eg, spinous process, lamina or facet) for intrinsic bony lesion, single vertebral segment; cervical
22101	Partial excision of posterior vertebral component (eg, spinous process, lamina or facet) for intrinsic bony lesion, single vertebral segment; thoracic
22102	Partial excision of posterior vertebral component (eg, spinous process, lamina or facet) for intrinsic bony lesion, single vertebral segment; lumbar
22103	Partial excision of posterior vertebral component (eg, spinous process, lamina or facet) for intrinsic bony lesion, single vertebral segment; each additional segment (List separately in addition to code for primary procedure)
22110	Partial excision of vertebral body, for intrinsic bony lesion, without decompression of spinal cord or nerve root(s), single vertebral segment; cervical
22112	Partial excision of vertebral body, for intrinsic bony lesion, without decompression of spinal cord or

	nerve root(s), single vertebral segment; thoracic
22114	Partial excision of vertebral body, for intrinsic bony lesion, without decompression of spinal cord or nerve root(s), single vertebral segment; lumbar
22116	Partial excision of vertebral body, for intrinsic bony lesion, without decompression of spinal cord or nerve root(s), single vertebral segment; each additional vertebral segment (List separately in addition to code for primary procedure)
22899	Unlisted procedure, spine
63081	Vertebral corpectomy (vertebral body resection), partial or complete, anterior approach with decompression of spinal cord and/or nerve root(s); cervical, single segment
63082	Vertebral corpectomy (vertebral body resection), partial or complete, anterior approach with decompression of spinal cord and/or nerve root(s); cervical, each additional segment (List separately in addition to code for primary procedure)
63085	Vertebral corpectomy (vertebral body resection), partial or complete, transthoracic approach with decompression of spinal cord and/or nerve root(s); thoracic, single segment
63086	Vertebral corpectomy (vertebral body resection), partial or complete, transthoracic approach with decompression of spinal cord and/or nerve root(s); thoracic, each additional segment (List separately in addition to code for primary procedure)
63087	Vertebral corpectomy (vertebral body resection), partial or complete, combined thoracolumbar approach with decompression of spinal cord, cauda equina or nerve root(s), lower thoracic or lumbar; single segment
63088	Vertebral corpectomy (vertebral body resection), partial or complete, combined thoracolumbar approach with decompression of spinal cord, cauda equina or nerve root(s), lower thoracic or lumbar;

	each additional segment (List separately in addition to code for primary procedure)
63090	Vertebral corpectomy (vertebral body resection), partial or complete, transperitoneal or retroperitoneal approach with decompression of spinal cord, cauda equina or nerve root(s), lower thoracic, lumbar, or sacral; single segment
63091	Vertebral corpectomy (vertebral body resection), partial or complete, transperitoneal or retroperitoneal approach with decompression of spinal cord, cauda equina or nerve root(s), lower thoracic, lumbar, or sacral; each additional segment (List separately in addition to code for primary procedure)
63101	Vertebral corpectomy (vertebral body resection), partial or complete, lateral extracavitary approach with decompression of spinal cord and/or nerve root(s) (eg, for tumor or retropulsed bone fragments); thoracic, single segment
63102	Vertebral corpectomy (vertebral body resection), partial or complete, lateral extracavitary approach with decompression of spinal cord and/or nerve root(s) (eg, for tumor or retropulsed bone fragments); lumbar, single segment
63103	Vertebral corpectomy (vertebral body resection), partial or complete, lateral extracavitary approach with decompression of spinal cord and/or nerve root(s) (eg, for tumor or retropulsed bone fragments); thoracic or lumbar, each additional segment (List separately in addition to code for primary procedure)
63300	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; extradural, cervical
63301	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; extradural, thoracic by transthoracic approach

63302	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; extradural, thoracic by thoracolumbar approach
63303	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; extradural, lumbar or sacral by transperitoneal or retroperitoneal approach
63304	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; intradural, cervical
63305	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; intradural, thoracic by transthoracic approach
63306	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; intradural, thoracic by thoracolumbar approach
63307	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; intradural, lumbar or sacral by transperitoneal or retroperitoneal approach
63308	Vertebral corpectomy (vertebral body resection), partial or complete, for excision of intraspinal lesion, single segment; each additional segment (List separately in addition to codes for single segment)

Medical Evidence

The North American Spine Society (NASS) has recently published the following Coverage Recommendations:

- NASS Coverage Recommendations (2023) Cervical Fusion (Kreiner et al.): anterior cervical corpectomy recommended in cervical myelopathy; however, they state that instability frequently results from the procedure.
- NASS Coverage Recommendations (2021) Lumbar Fusion (Kreiner et al) 2021: Discusses predominantly lumbar fusion, with mentions of lumbar corpectomy in addition to discectomy as a cause of postoperative spinal instability.

The American College of Radiology (ACR) Expert Panel on Neurological Imaging has published several guidelines related to myelopathic evaluation:

- Agarwal et al. (2021) updated the previous Myelopathy Appropriate Use Criteria, with MRI recommended as initial imaging for acute onset myelopathy as well as chronic or progressive myelopathy due to its superior resolution of soft tissue and ability to evaluate surrounding structures. CT is designated as May Be Appropriate in the ratings, with CT myelography of possible use prior to surgical intervention.
- McDonald et al. (2018) recommend radiography, MRI or CT for initial imaging in new or increasing nontraumatic neck pain, as well as in cervical radiculopathy. In patients with a history of cervical spine surgery, radiography and noncontrast CT are primary recommendations with a disagreement on the appropriateness of MRI (contrast and noncontrast). CT myelography is rated as May Be Appropriate.
- Hutchins et al. (2021) in the Low Back Pain ACR Appropriateness Criteria recommend noncontrast MRI as Usually Appropriate, and radiography and CT as May Be Appropriate in low back pain with and without radiculopathy. This applies to surgical candidates with persistence or progression of symptoms having failed six weeks of medical management. MRI, CT and CT myelography recommended for suspected cauda equina syndrome. In osteoporosis or chronic steroid use, radiography, noncontrast MRI or CT recommended as Usually Appropriate.

In a systematic review by Lannon et al. (2021), degenerative cervical myelopathy (DCM) is described as a leading cause of spinal cord injury and spinal stenosis with increasing incidence. Early surgical referral is recommended along with conservative management to prevent progressive neurologic compromise.

In a retrospective study, Audat et al. (2018) concluded that surgical treatment is the ideal choice for cervical spondylotic myelopathy and whether to use anterior or posterior approach is controversial. The studies reviewed revealed little difference in outcomes between approach types.

Tatter et al. (2021) concluded in a case series of 119 patients that anterior cervical corpectomy and fusion is safe and effective with low revision and complication rates for degenerative and traumatic spinal disorders. Single level surgery does not require posterior fixation; however, multi-level procedures do require posterior fixation.

In a 2022 systematic review, Piche et al. discuss large-scale open procedures in the past in contrast to current less invasive mini-open procedures, often avoiding complications such as vascular injury, bowel and urogenital injury, nerve injury, etc. The authors of the report state that their preference is the transpsoas method in order to improve visualization during the corpectomy procedure.

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Clinical Guideline Revision History/Information

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