Sentara Health Plans

Commercial

Cervical Fusion Procedures, Surgical 117

Table of Content

Description & Definitions
Criteria
Document History
Coding
Special Notes
References
Keywords

Effective Date	8/1/2026
Next Review Date	4/2027
Coverage Policy	Surgical 117
Version	8

Member-specific benefits take precedence over medical policy and benefits may vary across plans. Refer to the individual's benefit plan for details *.

Description & Definitions:

Discectomy is a procedure that involves removal of the herniated or degenerated disc, normally thought to be the cause of pain to relieve symptoms. Discectomy can be done by the standard open procedure or by microdiscectomy which is performed with an operating microscope through a smaller incision.

Laminotomy is a procedure that involves the removal of part or all of one or both lamina of the vertebra at the involved level. This is done to decompress the spinal canal in cases of spinal stenosis.

Foraminotomy is a procedure that involves removal of bone around the neural foramen thereby enlarging the space where the nerve root exists and relieving these nerve roots from compression.

Fusion is a procedure that unites(fuses) two or more vertebral bodies together. The goal is to restrict spinal motion, provide stability and relieve pain. All involve the placement of a bone graft between the vertebrae. Fusion can be performed with or without supplemental hardware (instrumentation) such as plates, screws or cages-for additional stability. Fusion can be performed at the Cervical, Thoracic, lumbar or sacral levels.

Criteria:

Cervical Fusion Procedures - Anterior cervical discectomy and fusion or posterior cervical foraminotomy with or without discectomy are considered medically necessary for **ALL** of the following are present and will be approved as ambulatory (outpatient) unless additional criteria are met as noted by MCG's Ambulatory Surgery or Procedure criteria located at the bottom of this section:

- Procedure is indicated for **1 or more** of the following:
  - **Cervical radiculopathy** and **ALL** of the following:
    - Individual has significant (eg, impacts activities or sleep) signs or symptoms due to nerve root compression (eg, pain, weakness).
    - Confirmed by imaging studies (e.g., CT or MRI), or other neuroimaging finding correlates with clinical signs and symptoms of a herniated disc causing nerve root and/or spinal cord compression and/or spinal stenosis (central, lateral recess or foraminal stenosis) graded by a board-certified radiologist as moderate, moderate to severe or severe (not mild or mild to moderate) with unremitting pain, at the level expected to produce corresponding neurological findings.

- Surgery appropriate, as indicated by **1 or more** of the following:
    - Failure of a 6-week trial of nonoperative/conservative treatment that includes **1 or more** of the following:
        - NSAIDs
        - Non-narcotic analgesics (eg, tricyclic antidepressants, anticonvulsants)
        - Narcotic analgesics
        - Cervical collar
        - Physical therapy with **ALL** of the following:
            - A discharge note from a physical therapist documents lack of utility of further physical therapy
        - Epidural or oral corticosteroids
    - Progressive and/or profound (ie, worsening) neurologic deficit (eg, weakness, paralysis)
    - The requirement for a trial of nonoperative/conservative measures may be waived in **1 or more** of the following situations indicating need for urgent intervention:
        - Spinal cord compression (this does not include nerve root compression)
        - Stenosis causing cauda equina syndrome
        - Stenosis causing myelopathy
        - Stenosis causing severe weakness (graded 4 minus or less on MRC scale
        - Severe stenosis associated with instability ((dynamic excursion of greater than 1mm translation or greater than 5 degrees angulation at an interspace) when fusion is requested (not just decompression only)
        - Progressive neurological deficit on serial examinations

- **Cervical myelopathy** (Note: may be combined with a laminectomy) and **ALL** of the following:
    - Signs or symptoms of myelopathy, as evidenced by **1 or more** of the following:
        - Upper limb weakness in more than single nerve root distribution
        - Lower limb weakness in upper motor neuron distribution
        - Loss of dexterity (eg, clumsiness of hands)
        - Bowel or bladder incontinence
        - Frequent falls
        - Hyperreflexia
        - Hoffmann sign
        - Increased extremity muscle tone or spasticity
        - Gait abnormality
        - Positive Babinski sign
        - Alternative clinical signs or symptoms of myelopathy
    - Confirmed by imaging studies (e.g., CT or MRI), or other neuroimaging finding correlates with clinical signs and symptoms of a herniated disc causing nerve root and/or spinal cord compression and/or spinal stenosis (central, lateral recess or foraminal stenosis) graded by a board-certified radiologist as moderate, moderate to severe or severe (not mild or mild to moderate) with unremitting pain, at the level expected to produce corresponding neurological findings.
    - Surgery appropriate, as indicated by **1 or more** of the following:
        - Failure of a 6-week trial of nonoperative/conservative treatment that includes **1 or more** of the following:
            - NSAIDs
            - Non-narcotic analgesics (eg, tricyclic antidepressants, anticonvulsants)
            - Narcotic analgesics
            - Cervical collar
            - Physical therapy with **ALL** of the following:
                - A discharge note from a physical therapist documents lack of utility of further physical therapy
            - Epidural or oral corticosteroids
        - The requirement for a trial of nonoperative/conservative measures may be waived in **1 or more** of the following situations indicating need for urgent intervention:
            - Spinal cord compression (this does not include nerve root compression)
            - Stenosis causing cauda equina syndrome

        - Stenosis causing myelopathy
        - Stenosis causing severe weakness (graded 4 minus or less on MRC scale
        - Severe stenosis associated with instability ((dynamic excursion of greater than 1mm translation or greater than 5 degrees angulation at an interspace) when fusion is requested (not just decompression only)
        - Progressive neurological deficit on serial examinations
- Need for procedure as part of decompression procedure for primary or metastatic cervical spine tumors with **ALL** of the following:
    - Confirmed by imaging studies (e.g., CT or MRI), which may be combined with a laminectomy
- Need for procedure as part of decompression or debridement procedure for cervical spine infection with **ALL** of the following:
    - Confirmed by imaging studies (e.g., CT or MRI) and/or other studies (e.g., biopsy), which may be combined with a laminectomy
- Need for procedure as part of treating cervical spine injury/trauma confirmed by imaging studies (e.g., CT or MRI), which may be combined with a laminectomy, including **1 or more** of the following:
    - Spinal cord compression (central cord syndrome)
    - Hyperextension injury, with or without avulsion fracture
    - Unilateral or bilateral facet subluxation
    - Unilateral or bilateral facet fracture dislocation
    - Foreign bodies
    - Bony fracture fragments
    - Epidural hematoma
    - Other severe or unstable injury
- Anterior cervical disectomy and fusion, posterior cervical foraminotomy with or without discectomy for 2-4 contiguous levels (Note: may be combined with a laminectomy) for individuals with **ALL** of the following (**Note: For radiographic evidence of cervical cord compression, immediate surgical intervention will be authorized):**
    - Skeletally mature persons
    - Symptomatic cervical degenerative disc disease or herniated disc at one level from C3 to T1 (e.g., radicular neck and/or arm pain and/or functional/neurological deficit)
    - Confirmed by imaging radiographic studies (e.g., CT, MRI, x-rays)
    - Failed at least 6 weeks of conservative management that includes **1 or more** of the following:
        - NSAIDS
        - Non-narcotic analgesics (eg, tricyclic antidepressants, anticonvulsants)
        - Narcotic analgesics
        - Cervical collar
        - Physical therapy with **ALL** of the following:
            - A discharge note from a physical therapist documents lack of utility of further physical therapy
        - Epidural or oral corticosteroids
- **Cervical kyphosis** associated with cord compression (Note: may be combined with a laminectomy)
- **Symptomatic pseudarthrosis** (non-union of prior fusion) with **1 or more** of the following:
    - Confirmed by imaging studies (e.g., CT or MRI) demonstration of non-union of prior fusion (lack of bridging bone or abnormal motion at fused segment) after 12 months since fusion surgery
    - Confirmed by imaging studies of hardware failure (fracture or displacement)
- **Atlantoaxial (C1-C2) subluxation** (e.g., associated with congenital anomaly, os odontoideum, or rheumatoid arthritis) noted as widening of the atlantodens interval greater than 3 mm with **ALL** of the following:
    - Confirmed by imaging studies (e.g., CT or MRI)
- **Basilar invagination** of the odontoid process into the foramen magnum
- **Subaxial (C2-T1) instability** with **ALL** of the following:
    - Confirmed by imaging studies, when **ALL** of the following are met:
        - Significant instability (sagittal plane translation of at least 3 mm on flexion and extension views or relative sagittal plane angulation greater than 11 degrees)

- Symptomatic unremitting pain that has failed 3 months of conservative management (unless there is evidence of cervical cord compression or other indications for waiver of requirements for conservative management, noted below)

- **Adjunct to excision of synovial cysts** causing spinal cord or nerve root compression with unremitting pain with **ALL** of the following:
  - Confirmed by imaging studies (e.g., CT or MRI) and with corresponding neurological deficit
  - Documentation of **1 or more** of the following:
    - Failure of a 6-week trial of nonoperative/conservative treatment that includes **1 or more** of the following:
      - NSAIDs
      - Non-narcotic analgesics (eg, tricyclic antidepressants, anticonvulsants)
      - Narcotic analgesics
      - Cervical collar
      - Physical therapy with **ALL** of the following:
        - A discharge note from a physical therapist documents lack of utility of further physical therapy
      - Epidural or oral corticosteroids
    - The requirement for a trial of nonoperative/conservative measures may be waived in **1 or more** of the following situations indicating need for urgent intervention:
      - Spinal cord compression (this does not include nerve root compression)
      - Stenosis causing cauda equina syndrome
      - Stenosis causing myelopathy
      - Stenosis causing severe weakness (graded 4 minus or less on MRC scale
      - Severe stenosis associated with instability ((dynamic excursion of greater than 1mm translation or greater than 5 degrees angulation at an interspace) when fusion is requested (not just decompression only)
      - Progressive neurological deficit on serial examinations
- Clinically **significant deformity of the spine** (kyphosis, head-drop syndrome, post-laminectomy deformity) that meets **1 or more** of the following criteria:
  - The deformity prohibits forward gaze
  - The deformity is associated with severe neck pain, difficulty ambulating, and interference with activities of daily living
  - Documented progression of the deformity

- Individual smoking requirement meets **1 or more** of the following
  - Single level Anterior Cervical Discectomy and Fusion or posterior Foraminotomy may be performed in patients that smoke
  - The individual must be a nonsmoker and in the absence of progressive neurological compromise will refrain from use of tobacco products for at least 6 weeks prior to the planned surgery and 6 weeks after the surgery
  - If individual is a smoker, cessation must be confirmed by a negative urine nicotine test, prior to surgery approval.
- As noted in MCG's Ambulatory Surgery or Procedure GRG PG-AS (ISC GRG): This surgery or procedure will be traditionally approved ambulatory (outpatient), but may receive initial approval for Inpatient Care when **1 or more of the following** are met:
  - Not applicable – additional time is not requested.
  - Inpatient care needed for clinically significant disease or condition identified preoperatively, as indicated by **one or more of the following**:
    - Severe infection
    - Altered mental status
    - Dangerous arrhythmia
    - Hypotension
    - Hypoxemia
  - Complex surgical approach or situation anticipated, as indicated by **1 or more** of the following:
    - Prolonged airway monitoring required (eg, severe obstructive sleep apnea, open neck procedure)

        - Other aspect or feature of procedure that indicates a likely need for prolonged postoperative care or monitoring
    - High patient risk identified preoperatively, as indicated by **1 or more** of the following:
        - American Society of Anesthesiologists class IV or greater American Society of Anesthesiologists (ASA) Physical Status Classification System
        - Severe frailty
        - Severe valvular disease (eg, severe aortic stenosis)
        - Symptomatic coronary artery disease, or heart failure
        - Symptomatic chronic lung disease (eg, COPD, chronic lung disease of prematurity)
        - Severe renal disease (eg, glomerular filtration rate (GFR) less than 30 mL/min/1.73m^2 (0.5 mL/sec/1.73m^2) or on dialysis) eGFR - Adult Calculator
        - Morbid obesity (eg, body mass index greater than 40 BMI Calculator) with hemodynamic or respiratory problems (eg, severe obstructive sleep apnea, hypoventilation)
        - Complex chronic condition in children (eg, ventilator-dependent, neuromuscular, genetic, or immunologic disease)
        - Other patient condition or finding that places patient at increased anesthetic risk such that prolonged postoperative inpatient monitoring or treatment is anticipated
    - Presence of drug-related risk identified preoperatively, as indicated by **1 or more** of the following:
        - Not applicable
        - Procedure requires discontinuing medication (eg, antiarrhythmic medication, antiseizure or anticoagulant medication), which necessitates preoperative or prolonged postoperative inpatient monitoring or treatment.
        - Preoperative use of drugs that may interact with anesthetic (eg, cocaine, amphetamines, monoamine oxidase inhibitor) such that prolonged postoperative monitoring or treatment is needed

Anterior cervical disectomy and fusion, posterior cervical foraminotomy with or without discectomy ~~is~~ is considered **not medically necessary** for any use other than those indicated in clinical criteria, to include but not limited to:

- Microsurgical anterior foraminotomy for cervical spondylotic myelopathy or other indications
- Percutaneous cervical diskectomy
- Stereotactic computer-assisted (navigational) procedure for cervical spinal fusion

Document History:

Revised Dates**:**

- 2026: April – Implementation date of August 1, 2026. Review product. Housekeeping remove name of implant device. CPT add on code already in covered section.
- 2025: September – Implementation date of January 1, 2026. Annual review completed. No changes to criteria, housekeeping to new policy format, clarified OBS criteria.
- 2025: January – Criteria updated to for non-smoking indications.
- 2024: June – added the following codes 22614, 22847
- 2022: November
- 2020: August
- 2016: April
- 2015: February, May, September
- 2014: January, June, August, November
- 2013: May, June
- 2012: February, May

- 2011: May, June, November
- 2010: May
- 2009: May
- 2008: May
- 2006: October
- 2004: September
- 2002: August

Reviewed Dates:

- 2024: September – No criteria changes, references and coding updated.
- 2023: October
- 2019: April
- 2018: November
- 2017: December
- 2016: May
- 2014: May
- 2010: April
- 2007: December
- 2005: February, October
- 2004: July
- 2003: July

Origination Date: May 2002

Coding:

Medically necessary with criteria:

Coding	Description
20930	Allograft, morselized, or placement of osteopromotive material, for spine surgery only (List separately in addition to code for primary procedure)
20931	Allograft, structural, for spine surgery only (List separately in addition to code for primary procedure)
20932	Allograft, includes templating, cutting, placement and internal fixation, when performed; osteoarticular, including articular surface and contiguous bone (List separately in addition to code for primary procedure)
20933	Allograft, includes templating, cutting, placement and internal fixation, when performed; hemicortical intercalary, partial (ie, hemicylindrical) (List separately in addition to code for primary procedure)
20936	Autograft for spine surgery only (includes harvesting the graft); local (eg, ribs, spinous process, or laminar fragments) obtained from same incision (List separately in addition to code for primary procedure)
20939	Bone marrow aspiration for bone grafting, spine surgery only, through separate skin or fascial incision (List separately in addition to code for primary procedure)

22548	Arthrodesis, anterior transoral or extraoral technique, clivus-C1-C2 (atlas-axis), with or without excision of odontoid process
22551	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2
22552	Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2, each additional interspace (List separately in addition to code for separate procedure)
22554	Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); cervical below C2
22590	Arthrodesis, posterior technique, craniocervical (occiput-C2)
22595	Arthrodesis, posterior technique, atlas-axis (C1-C2)
22600	Arthrodesis, posterior or posterolateral technique, single interspace; cervical below C2 segment
22614	Arthrodesis, posterior or posterolateral technique, single interspace; each additional interspace (List separately in addition to code for primary procedure)
22840	Posterior non-segmental instrumentation (eg, Harrington rod technique, pedicle fixation across 1 interspace, atlantoaxial transarticular screw fixation, sublaminar wiring at C1, facet screw fixation) (List separately in addition to code for primary procedure)
22841	Internal spinal fixation by wiring of spinous processes (List separately in addition to code for primary procedure)
22842	Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 3 to 6 vertebral segments (List separately in addition to code for primary procedure)
22843	Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 7 to 12 vertebral segments (List separately in addition to code for primary procedure)
22844	Posterior segmental instrumentation (eg, pedicle fixation, dual rods with multiple hooks and sublaminar wires); 13 or more vertebral segments (List separately in addition to code for primary procedure)
22845	Anterior instrumentation; 2 to 3 vertebral segments (List separately in addition to code for primary procedure)
22846	Anterior instrumentation; 4 to 7 vertebral segments (List separately in addition to code for primary procedure)

22847	Anterior instrumentation; 8 or more vertebral segments (List separately in addition to code for primary procedure)
22853	Insertion of interbody biomechanical device(s) (eg, synthetic cage, mesh) with integral anterior instrumentation for device anchoring (eg, screws, flanges), when performed, to intervertebral disc space in conjunction with interbody arthrodesis, each interspace (List separately in addition to code for primary procedure)
22854	Insertion of intervertebral biomechanical device(s) (eg, synthetic cage, mesh) with integral anterior instrumentation for device anchoring (eg, screws, flanges), when performed, to vertebral corpectomy(ies) (vertebral body resection, partial or complete) defect, in conjunction with interbody arthrodesis, each contiguous defect (List separately in addition to code for primary procedure)
22856	Total disc arthroplasty (artificial disc), anterior approach, including discectomy with end plate preparation (includes osteophytectomy for nerve root or spinal cord decompression and microdissection); single interspace, cervical
22858	Total disc arthroplasty (artificial disc), anterior approach, including discectomy with end plate preparation (includes osteophytectomy for nerve root or spinal cord decompression and microdissection); second level, cervical (List separately in addition to code for primary procedure)
22859	Insertion of intervertebral biomechanical device(s) (eg, synthetic cage, mesh, methylmethacrylate) to intervertebral disc space or vertebral body defect without interbody arthrodesis, each contiguous defect (List separately in addition to code for primary procedure)
22861	Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, single interspace; cervical
22864	Removal of total disc arthroplasty (artificial disc), anterior approach, single interspace; cervical
63001	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (eg, spinal stenosis), 1 or 2 vertebral segments; cervical
63015	Laminectomy with exploration and/or decompression of spinal cord and/or cauda equina, without facetectomy, foraminotomy or discectomy (eg, spinal stenosis), more than 2 vertebral segments; cervical
63020	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; 1 interspace, cervical
63035	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; each additional interspace, cervical or lumbar (List separately in addition to code for primary procedure)
63040	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; cervical
63043	Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; each additional cervical interspace (List separately in addition to code for primary procedure)
63045	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [eg, spinal or lateral recess stenosis]), single vertebral segment; cervical
63048	Laminectomy, facetectomy and foraminotomy (unilateral or bilateral with decompression of spinal cord, cauda equina and/or nerve root[s], [eg, spinal or lateral recess stenosis]), single vertebral segment; each additional vertebral segment, cervical, thoracic, or lumbar (List separately in addition to code for primary procedure)

63075	Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophytectomy; cervical, single interspace
63076	Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophytectomy; cervical, each additional interspace (List separately in addition to code for primary procedure)
63270	Laminectomy for excision of intraspinal lesion other than neoplasm, intradural; cervical
63280	Laminectomy for biopsy/excision of intraspinal neoplasm; intradural, extramedullary, cervical
63285	Laminectomy for biopsy/excision of intraspinal neoplasm; intradural, intramedullary, cervical

Considered Not Medically Necessary:

Coding	Description
	None

The preceding codes are included above for informational purposes only and may not be all inclusive. Additionally, inclusion or exclusion of a treatment, procedure, or device code(s) does not constitute or imply member coverage or provider reimbursement. 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.

Policy Approach and Special Notes: *

- Coverage:
  - See the appropriate benefit document for specific coverage determination. Member specific benefits take precedence over medical policy.
- Application to Products:
  - Policy is applicable to Sentara Health Plan Commercial products.
- Authorization Requirements:
  - Pre-certification by the Plan is required.
- Special Notes:
  - Medical policies can be highly technical and complex and are provided here for informational purposes. These medical policies are intended for use by health care professionals. The medical policies do not constitute medical advice or medical care. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Sentara Health Plan members should discuss the information in the medical policies with their treating health care professionals. Medical technology is constantly evolving, and these medical policies are subject to change without notice, although Sentara Health Plan will notify providers as required in advance of changes that could have a negative impact on benefits.
  - Services mean both medical and behavioral health (mental health) services and supplies unless We specifically tell You otherwise. We do not cover any services that are not listed in the Covered Services section unless required to be covered under state or federal laws and regulations. We do not cover any services that are not Medically Necessary. We sometimes give examples of specific services that are not covered but that does not mean that other similar services are covered. Some services are covered only if We authorize them. When We say You or Your We mean You and any of Your family members covered under the Plan. Call Member Services if You have questions.

References:

Specialty Association Guidelines; Government Regulations; Winifred S. Hayes, Inc; UpToDate; Literature Review; Specialty Advisors; National Coverage Determination (NCD); Local Coverage Determination (LCD).

(2026). Retrieved 3 2026, from Hayes: https://evidence.hayesinc.com/search?q=%257B%2522text%2522:%2522fusion%2520with%2520integrated%2520interbody%2520spacers%2522,%2522title%2522:null,%2522termsource%2522:%2522searchbar%2522,%2522page%2522:%257B%2522page%2522:0,%2522size%2522:50%257D,%2522ty

(2026). Retrieved 3 2026, from UpToDate: https://www.uptodate.com/contents/search?search=Anterior%20cervical%20discectomy%20and%20fusion&sp=0&searchType=PLAIN_TEXT&source=USER_INPUT&searchControl=TOP_PULLDOWN&autoComplete=false

(2026). Retrieved 3 2026, from DMAS: https://www.dmas.virginia.gov/for-providers/rates-and-rate-setting/procedure-fee-files-cpt-codes/

29th Edition. (2026). Retrieved 3 2026, from MCG: https://careweb.careguidelines.com/ed29/

Anterior cervical discectomy and fusion with Zero-P-Plate in the treatment of cervical disc prolapse. (2019). Retrieved 3 2026, from Journal of Clinical Orthopaedics: https://jcorth.com/2019/07/anterior-cervical-discectomy-and-fusion-with-zero-p-plate-in-the-treatment-of-cervical-disc-prolapse/

Carelon - Spine surgery. (2026). Retrieved 3 2026, from Anthem: https://guidelines.carelonmedicalbenefitsmanagement.com/current-musculoskeletal-guidelines/

Cervical Fusion. (2023). Retrieved 3 2026, from NASS: https://www.spine.org/

LCD Cervical Fusion CGS. (2025, 2). Retrieved 3 2026, from CMS: https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?lcdid=39741&ver=8&keywordtype=starts&keyword=Cervical%20Fusion&bc=0

Zero-profile implant versus conventional cage–plate construct in anterior cervical discectomy and fusion for the treatment of single-level degenerative cervical spondylosis: a systematic review and meta-analysis. (2022, 11). Retrieved 3 2026, from Journal of Orthopaedic Surgery and Research: https://link.springer.com/article/10.1186/s13018-022-03387-9?fromPaywallRec=false

Keywords:

Cervical Diskectomy or Microdiskectomy, Foraminotomy, Laminotomy, SHP Surgical 117, Cervical radiculopathy, Cervical myelopathy, primary cervical spine tumors, metastatic cervical spine tumors, cervical spine infection, cervical spine injury, Spinal cord compression, central cord syndrome, Hyperextension injury, with or without avulsion fracture, Unilateral or bilateral facet subluxation, Unilateral or bilateral facet fracture dislocation, Foreign bodies, Bony fracture fragments, Epidural hematoma, Cervical Discectomy Level 2