POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Decompression – Surgery to relieve pressure on neural or vascular structures
Fusion – Surgically induce union or healing of bone

Basic Anatomical Landmarks:
Posterior Cervical Spine

Posterior View
Bone Structure of the Cervical Spine
(C1/Atlas–C7)
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Basic Anatomical Landmarks:
Posterior Cervical Spine

Posterior View Occipital-C2

Facet Joints
A Facet Joint is a synovial joint formed by the inferior articular process of one vertebra and the superior process of the adjacent vertebra. Also called the Zygaphyseal Joint.

Posterior View C1-C3
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Basic Anatomical Landmarks: Posterior Cervical Spine

Vertebral Bodies
- C2-C6 have bifid spinous processes
- Vertebral arteries pass through the transverse foramen from C3-C6 (sometimes C7)

Vertebra Prominens
C7 is sometimes referred to as the vertebra prominens because it has a longer and larger spinous process. This spinous process is easily palpated at the base of the neck and is used as an anatomic landmark when deciding where an incision should be made.
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Approach/Patient Position

For a posterior cervical procedure the patient is placed prone in an appropriate manner to avoid pressure points. The head may be placed in a padded head holder or secured in three point pins. The back and neck are prepped and draped in a sterile fashion. A midline incision is made and dissection is carried down to the spinous processes of the appropriate vertebrae.

The posterior musculature is dissected and retracted laterally to expose the facets and the transverse processes. Attention is given to the preservation of the most cephalad (toward the head) facet capsule while all other soft tissue is removed from the facets to be included in the fusion. Attention is now directed toward instrumentation of the spine.

Prone Position
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Techniques

Laminotomy – An opening made in a lamina. Formation of a hole in the lamina without disrupting the continuity of the entire lamina to approach the intervertebral disc or neural structures

Foraminotomy – Surgical opening or enlargement of the bony opening traversed by a nerve root as it leaves the spinal canal. A procedure carried out alone or in conjunction with disc surgery

Laminoplasty – Surgical reconstruction of the posterior vertebral elements to increase space for the neural structures while maintaining the posterior arch

Laminectomy – Surgical removal of part or all of the posterior vertebral elements to allow space for the neural structures

Discectomy – Surgical removal of part or all of an intervertebral disc

Fusion – Surgically induces union or healing of bone

Occipital Cervical Fusion – Fusion of the Occiput to C2

Sub-axial Fusion – Most common posterior cervical procedure. A sub-axial cervical fusion is an instrumented fixation of C2-C7. Typically this procedure involves up to four levels of fixation

Cervical/Thoracic Fusion – Fusion that spans the cervical-thoracic junction of the spine
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

**Technique: Laminoplasty**

*Laminoplasty* – Surgical reconstruction of the posterior vertebral elements to increase space for the neural structures while maintaining the posterior arch.

**Technique: Laminectomy and Fusion**

*Laminectomy* – Partial or complete removal of the bony elements allowing increased space for neural structures.

*Fusion* – Surgically induce union or healing of bone.

Illustration A shows spinal cord compression from an ossified PLL at C4, C5 and C6. Illustration B shows posterior laminectomy at those levels for decompression of the spinal cord.
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Technique: Occipital/Cervical Fusion

Occipital/Cervical Fusion – Instrumented fixation and fusion of the occiput to the cervical spine
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Technique: Sub-axial Fusion

**Sub-axial Fusion** – Most common posterior cervical procedure. A sub-axial cervical fusion is an instrumented fixation of specific cervical vertebrae between levels C2-C7. Typically this procedure involves up to four levels of fixation.

*Sub-axial Fixation of C5–C7 with Hooks and Rods*
POSTERIOR CERVICAL DECOMPRESSION AND FUSION

Technique: Cervical/Thoracic Fusion

Cervical/Thoracic Fusion – Fusion that spans the cervical-thoracic junction of the spine.

Preparation of the Cervical/Thoracic Junction

Fixation of C5–T3 Utilizing Hooks, Screws and Rods

Note: Screws are intended for T1–T3 use only