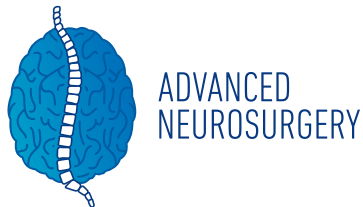


Cervical radiculopathy

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- clinical description of pain and neurological symptoms resulting from any type of condition that irritates a nerve in the cervical spine (neck)
- When any nerve root in the cervical spine is irritated through compression or inflammation, the symptoms can radiate along that nerve's pathway into the arm and hand

Causes

- Cervical Herniated Disc. If the inner material of the cervical disc herniates, or leaks out, and inflames and/or impinges on the adjacent nerve, it can cause a cervical radiculopathy.
- Cervical Spinal Stenosis. As part of the degenerative process of the cervical spine, changes in the spinal joints can lead to tightening of the space for the spinal canal.
- Cervical Degenerative Disc Disease. When the cervical spine degenerates over time, it can result in degenerated discs and a pinched nerve

Types of radiculopathy

- C5 radiculopathy can cause pain and/or weakness in the shoulders and upper arms. Especially may cause discomfort around the shoulder blades. It rarely causes numbness or tingling.
- C6 radiculopathy (one of the most common), causes pain and/or weakness along the length of the arm, including the biceps (the muscles in front of the upper arms), wrists, and the thumb and index finger.¹
- C7 radiculopathy (the most common) causes pain and/or weakness from the neck to the hand and can include the triceps (the muscles on the back of the upper arms) and the middle finger.²
- C8 radiculopathy causes pain from the neck to the hand. Patients may experience weakness in hand grip, and pain and numbness can radiate along the inner side of the arm, ring, and little fingers

Indications for surgery

- 1. persistent or recurrent radicular symptoms unresponsive to nonoperative management for at least six weeks
- 2. disabling motor weakness of six week duration or less (i.e., deltoid palsy, wrist drop)
- 3. progressive neurologic deficit
- 4. static neurologic deficit combined with radicular or referred pain
- 5. instability or deformity of the functional spinal unit in combination with radicular symptoms

Approaches

- Anterior cervical discectomy and fusion (ACDF)
- Anterior cervical discectomy without fusion (ACD)
- Disc arthroplasty
- Anterior cervical foraminotomy (ACNF)
- Posterior cervical laminoforaminotomy (+/- discectomy)

Anterior vs Posterior Pros

Anterior	Posterior
Good visualization of pathological changes	No need for fusion
Stabilization of motion segment	No complications of attempted fusion
Direct and indirect decompression and enlargement of neural foramen	Direct decompression of neural elements
Muscle sparing approach	Post-operative immobilization unnecessary
Post-op absorption of residual osteophyte	Less risk of visceral damage
Also relieves central stenosis	Useful in smokers, athletes, singers
Useful in axial neck pain, restoring lordosis	Useful for C7/T1 in obese pts with short neck (anatomical challenge)
No neural retraction	Useful for recurrence after ACDF

Anterior vs Posterior Cons

Anterior	Posterior
Adjacent segment degeneration	Neural retraction
Pseudoarthrosis	Risks instability when bilateral or multilevel
Visceral damage (incl rec. Laryngeal n.)	Incomplete decompression of anterior compressive lesion
Graft site complications when autograft harvested	No absorption residual osteophyte
Not recommended > 3 levels	Does not address kyphosis/axial neck pain
Cage/plate complications	Does not address central canal stenosis

Indications

Anterior	Posterior
Instability	No instability on F/E
Hard disc disease	Soft disc
Co-existent central canal stenosis	Younger patient
Bilateral disease	Preferably unilateral
<= 3 levels	Single level/multilevel
Axial neck pain	Certain groups: athletes, singers, smokers, obese C7/T1
Kyphosis	Recurrent focal lesion post-ACDF

Other alternatives

Disc arthroplasty

- Preserves motion segment, theoretical decrease in adjacent segment degeneration
- Avoids cage/plate complications : backout, oesophageal erosion, periplate ossification
- May be useful while employing anterior approach in younger patients with stable spine as an alternative to ACDF
- Contraindications: instability, facet arthropathy, osteoporosis, infection, prior laminectomy, OPLL, ank spond, DISH

Anterior cervical foraminotomy

- Refined by Jho in 1996
- Useful in single/two level unilateral compression from ventral fragment in **stable** patients
- Technically challenging
- Unsuitable for bilateral compression/neck pain
- Unfamiliar approach