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**Cervical Radiculopathy** is the clinical description of pain, numbness, or weakness resulting from irritation of the nerve in the cervical spine (neck). There are 8 cervical nerves, C1-C8, all of which exit the cervical spine then branch out to supply skin sensation and movement of the shoulders, arms, hands, and fingers.

When any of the nerve roots in the cervical spine is irritated through compression or inflammation, symptoms of pain, tingling, numbness, and/or weakness can radiate anywhere along that nerve's pathway into the shoulder, arm, and/or hand.

**Causes of Cervical Radiculopathy:** Any condition that compresses or irritates a cervical nerve can cause cervical radiculopathy. The most common cause is cervical disc degeneration and herniation. Other causes include spine infections and tumors.

**Cervical Radiculopathy Treatment:** There is a wide range of treatment options available for cervical radiculopathy. The treatment will depend mainly on the underlying cause of the patient's symptoms as well as the severity of symptoms.

**Nonsurgical Treatment:** This could include some combination of the following:

* Rest and activity modification: Limiting strenuous activities, like sports or lifting heavy objects, or using better posture while sitting or driving might be all that is needed.
* Physical therapy: Exercise and cervical spine traction can be done during physical therapy session or at home.
* Ice and/or heat therapy: Applying an ice pack or a heated gel pack to the neck might offer pain relief for some people. For example, applying cold therapy after an activity-related flare-up of pain is often helpful in reducing inflammation and pain.
* Over the counter muscle relaxant and anti-inflammatory medications: These medications are used to reduce swelling and inflammation such as aspirin, ibuprofen (Motrin, Advil) and naproxen (Aleve).
* Short course of oral steroids: This medication is prescribed for more severe pain because of its very powerful anti-inflammatory effect.
* Spine injections: Epidural injections or nerve block may be recommended for severe arm pain. These are injections of steroids into the epidural space (the area around the spinal nerves). The purpose of the injection is to reduce inflammation of the nerve and the disc.

**Surgical Management:** Cervical spine surgery may be recommended if pain and symptoms progressively worsen despite nonoperative therapies.

* The goal of surgery is to alleviate pressure on the spinal cord and nerves
* Depending on the location of the herniated disc, the surgery may be performed from the front or back of the neck to reach the spine
* The technical decision of whether to perform the operation from the front or the back of the neck is influenced by many factors including the exact location of the disc herniation, spine alignment and how many levels are affected
* With either approach, the disc material is removed from the nerve usually with good results
* Because removal of the herniated disc fragment from the front removes most of the disc in addition to the herniated portion, fusion of the spine is often recommended and performed at the same time

**Cervical Myelopathy** occurs when the spinal cord is compressed. Cervical myelopathy commonly has a stepwise progressive nature. The clinical presentation of myelopathy involves a combination of:

* Hand numbness
* Hand clumsiness such as fastening buttons on a shirt
* Weak hand grip, dropping objects
* Difficulties with balance during walking
* May progress into weakness in both arms and legs resulting in an inability to walk
* Pain is an uncommon symptom

**Possible Causes of Cervical Myelopathy:** There are many different causes of myelopathy; several are listed below.

* Herniated disc
* Degenerative spondylosis (spinal arthritis and bone spurs)
* Spine infection (epidural abscess)
* Inflammatory diseases (rheumatoid arthritis)
* Tumor

**Surgical Management:** Pressure on the spinal cord generally does not resolve on its own and requires surgical treatment. Any small trauma such as a fall can lead to permanent spinal cord injury. Any sporting activities or other strenuous activities are not recommended given that the spinal cord is at risk of injury. The goals of spine surgery are to remove pressure from the spinal cord, prevent symptoms from becoming worse, and provide some improvement of the condition.

The type of surgery that may be recommended is called spinal decompression, which means removing (or reducing) pressure from the spinal cord. Depending on the cause of the myelopathy, surgery may be done from the front of the neck to remove a herniated disc or bone spurs to decompress the cord. Surgery may be done from the back of the neck to take the back cover of the spine, a procedure called laminectomy and fusion. It may be necessary to implant instrumentation such as screws, a plate and rods to stabilize the spine.



MRI of a patient's cervical spine, (A) before surgery showing compression of the spinal cord, (B) after posterior laminectomy showing more space around the spinal cord.