

Neck Pain

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The etiology of injury to the cervical spine and the causes of cervical spine pathology are numerous. They can be myogenic, mechanical, neurogenic, or psychosomatic in origin and can be further divided into acute and chronic states. Acute injuries may be due to trauma, unaccustomed activity, or a poor working or sleeping position. Chronic pathology usually is due to poor posture, poor muscle tone, or illness. In a young child, it may be the result of an idiopathic torticollis.

In young people, mechanical and myogenic types of cervical pathology are most commonly due to a ligament sprain or muscle strain, whereas in older adults, they are more commonly due to cervical spondylosis (disc degeneration). Spinal stenosis (narrowing of the spinal canal) also can lead to symptoms. Facet syndrome (pathology in the zygapophyseal joints) also results in neck pain with or without radiation. Neurogenic neck pain is primarily due to facet impingement or disc degeneration or herniation, resulting in irritation of the cervical nerve roots and subsequent radicular pain into the shoulder and/or arm. Psychosomatic problems commonly are the result of depression, anxiety, hysteria or, in some cases, malingering.

One reason the cervical spine is vulnerable to injury is its high degree of mobility with a heavy weight, the head, perched on top of it. The cervical spine is the most flexible and mobile part of the spine, and the intervertebral discs make up about 40% of its height.

With regard to injuries, the cervical spine can be divided into two areas, the upper cervical spine and the lower cervical spine. Upper cervical injuries are associated with the vertebral segments CO (occiput) to C2; these injuries are referred to as cervico-encephalic injuries. The term cervico-encephalic portrays the relationship between the cervical spine and the occiput. Cervicoencephalic injuries can be severe enough to

involve the brain, brain stem, and spinal cord. The symptoms due to vertebral and/or internal carotid artery involvement (vascular dysfunction) tend to be headache, fatigue, vertigo, poor concentration, and inability to light.^{3,4} This is important to understand, because once sympathetic system dysfunction, cognitive dysfunction, cranial nerve dysfunction or vascular dysfunction is evident, the condition takes inordinate amount of time to resolve, is more difficult to treat, and may have more severe consequences. Cognitive dysfunction includes altered mental functions of comprehension, judgement, memory and reasoning. Sympathetic symptoms are a result of hypertonia of the sympathetic nervous system, affect emotions, and may include tinnitus, postural dizziness, blurred vision, photophobia, rhinorrhea, sweating, lacrimation, and weakness.^{3,s} Cranial nerve dysfunction involves one or more of the cranial nerves, and vascular dysfunction involves either the vertebral, basilar, or internal carotid arteries. Patients with severe injuries often may also demonstrate numbness or pain, sharp reversal of the cervical lordosis, and restricted motion, especially at one particular vertebral level.

Lower cervical spine injuries are associated with vertebral body segments C3 to C7; these injuries are referred to as cervicobrachial injuries. Pathology in this region commonly leads to pain in the upper extremity. Neck pain or extremity pain may occur individually, or the two may occur together. One may be greater than the other, or they may be equal. In any case, the clinician's main concern is whether the signs and symptoms are peripheralizing (moving more distally) or centralizing (moving more centrally). If they are peripheralizing, the condition usually is worsening. If they are centralizing, the condition is improving. Common signs of minor injury are neck stiffness and limited range of motion. Unfavorable signs include paresthesia, muscle weakness into the upper extremity, radicular signs, and neurological deficit.

Cervical spondylosis is a disorder in which there is abnormal wear on the cartilage and bones of the neck (cervical vertebrae). It is a common cause of chronic neck pain.

Causes

Cervical spondylosis is caused by [chronic](#) wear on the cervical spine. This includes the disks or cushions between the neck vertebrae and the joints between the bones of the cervical spine. There may be abnormal growths or "spurs" on the bones of the spine (vertebrae).

These changes can, over time, press down on (compress) one or more of the nerve roots. In advanced cases, the spinal cord becomes involved. This can affect not just the arms, but the legs as well.

Everyday wear and tear may start these changes. People who are very active at work or in sports may be more likely to have them.

The major risk factor is aging. By age 60, most women and men show signs of cervical spondylosis on x-ray.

Other factors that can make a person more likely to develop spondylosis are:

- Being overweight and not exercising
- Having a job that requires heavy lifting or a lot of bending and twisting
- Past neck injury (often several years before)
- Past spine surgery
- [Ruptured or slipped disk](#)
- Severe arthritis
- [Small fractures to the spine from osteoporosis](#)

Symptoms

Symptoms often develop slowly over time, but they may start or get worse suddenly. The pain may be mild, or it can be deep and so severe that you are unable to move.

You may feel the pain over the shoulder blade or it may spread to the upper arm, forearm, or (rarely) fingers.

The pain may get worse after standing or sitting, at night, when you sneeze, cough, or laugh, when you bend the neck backwards or walk more than a few yards.

You may also have weakness in certain muscles. Sometimes, you may not notice it until your doctor examines you. In other cases, you will notice that you have a hard time lifting your arm, squeezing tightly with one of your hands, or other problems.

Other common symptoms are:

- [Neck stiffness](#) that gets worse over time
- Numbness or [abnormal sensations](#) in the shoulders, arms, or (rarely) legs
- [Headaches](#), especially in the back of the head
- Less common symptoms are:
- [Loss of balance](#)
- Loss of control over the bladder or bowels (if there is pressure on the spinal cord)

Exams and Tests

An exam may show that you have trouble moving your head toward your shoulder and rotating your head.

Your health care provider may ask you to bend your head forward and to the sides while putting slight downward pressure on the top of your head. Increased pain or numbness during this test is usually a sign that there is pressure on a nerve in your spine.

Weakness or loss of feeling can be signs of damage to certain nerve roots or to the spinal cord. Reflexes are often reduced.

DIAGNOSTIC TESTS

A spine or [neck x-ray](#) may be done to look for arthritis or other changes in your spine.

[MRI of the neck](#) is done when you have:

- Severe neck or arm pain that does not get better with treatment
- Weakness or numbness in your arms or hands

[EMG](#) and [nerve conduction velocity](#) test may be done to examine nerve root function.

Aims of Cervical Spondylosis Treatment

- To relieve pain
- To provide support to the neck
- To restore the neck movements in full range
- To re-educate the patient for posture correction
- To strengthen the cervical muscles
- To analyse the basic precipitating causes of the patient's problem and aim at alleviating those causative factors.

Treatment

Even if your neck pain does not go away completely, or it gets more painful at times, learning to take care of your neck and back at home and prevent repeat episodes of your pain can help you avoid surgery.

The physical therapist will help you reduce your pain using stretches.

Medication

Acetaminophen: Mild pain is often relieved with acetaminophen. Non-steroidal anti-inflammatory drugs (NSAIDs) Often prescribed with acetaminophen, drugs like ibuprofen (Advil, Genpril, Ibu, Midol, Motrin, Nuprin) and naproxen (Aleve, Anaprox) are considered first-line medicines for neck pain. Muscle relaxants. Medications such as cyclobenzaprine or carisoprodol can also be used in the case of painful muscle spasms.

Heat Modalities: Heat is an effective means of reducing and relieving pain in cervical spondylosis. Ultrasound therapy is useful to relieve muscle spasm. One can use moist heat at home to relieve pain and spasm. TENS or IFT can be used for pain relief.

Strengthening Exercises of deep neck flexors recommended to gain stability, deload the spine and relieve the pain. Isometric neck exercises are taught to the patient as home exercise programme.

Stretching Exercises of Neck muscle – Levatore scapulae, trapezius, etc neck side flexors should be given to improve lower cervical side flexion ROM. Muscle energy technique (MET), PNF (hold and relax technique), slow and sustain stretching are used. Sustained compression, Cyriax's DTFM, myofascial release techniques are used in case of myofascial pain syndrome.

Shockwave therapy & ultrasound can be used in case of Trigger points.

Manual Therapy & Traction

Oscillatory traction is considered to be effective in mobilizing the stiff neck & Continuous traction is used to relieve nerve root pressure.

Maitland's rhythmic mobilization of the lower cervical spine helps to restore the mobility, correct the posture, relieve the pain. **Mullign's** mobilization with movements help to correct the positional fault, relive the pain, restore mobility & correct the posture. **Cyriax** recommends cervical traction for the cervical disc lesion and manipulation for the management of cervical spondylosis. **Mennel** also recommends rotatory manipulation away from the pain full side to relive the pain and restore the joint mobility. **McKenzie's** repeated neck retraction and extension is useful for the management of disc lesion. Self exercise programme and mobilization techniques are recommended for the neck pain by McKenzie.



Cyriax's Rotatory manipulation



McKenzie Neck retraction exercise



Maitland's rhythmic oscillatory transverse mobilization technique.

Support: Support for the neck are of great importance to keep the neck steady and to relieve the pain. A firm neck collar is very beneficial especially during activities or during travelling. While patient is resting or sitting, the collar should be removed but then also the neck should be supported by pillows or head rest.

Postural Awareness: The ideal posture is straight neck with chin tucked in and back straight with no compensatory actions or any trick movements. While sitting a high backed chair is provided to the patient with head, neck and shoulder supported; a small

pillow in the lumbar spine, feet properly supported and arms resting on a pillow over the lap or on the arms of the chair.

While sleeping, side lying is the most preferred position, supine lying is also advised. A single pillow under head for head support is allowed. A Butterfly pillow is the best support for a patient of cervical osteoarthritis, as it is flattened in the middle where the head rests and the elevated ends support the head on the sides.

Surgery: may be necessary for a patient suffering from cervical osteoarthritis if he/she has severe pain that does not improve from other conservative treatments. It should be the last resort as there is always a risk factor involved. Surgery is done to relieve the pressure on the nerves or spinal cord. E.g. [Foraminotomy](#), [Laminectomy](#), [Spinal fusion](#)

Outlook (Prognosis)

Most patients with cervical spondylosis will have some long-term symptoms. These symptoms will often get worse and then improve. However, symptoms should improve with treatment and do not need surgery.

Many people with this problem are able to maintain active lives. However, some patients will have to live with chronic pain.

Possible Complications

- Inability to hold in feces ([fecal incontinence](#)) or urine ([urinary incontinence](#))
- Loss of muscle function or feeling
- Permanent disability (occasionally)
- Poor balance

