

Conservative Management of Cervical Radiculopathy

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Cervical discopathy may be divided into three subclasses: acute, subacute, and chronic. An acute cervical radiculopathy is associated with a tear of the annulus fibrosus with subsequent prolapse of the nucleus pulposus. The force required to produce rupture and prolapse of the nucleus pulposus is most often associated with severe trauma of a magnitude that may also produce fracture/dislocations or possible end-plate disruptions. A subgroup of patients within the acute group centers around individuals with long-standing spondylotic changes in their cervical spines. Often there is a history of trauma to the cervical region which may be minor. The acute symptoms presented by these patients may be due to a new cervical disc herniation or an exacerbation of a known protrusion.

Subacute radiculopathies tend to occur in patients with long-standing radiographic evidence of cervical spondylosis. These patients have no persistent symptoms except pain in the cervical region that is of an intermittent nature. The condition may be exacerbated or initiated by overuse type activities and may proceed to develop into a radiculopathy involving one or more cervical nerve roots.

The typical patient suffering from a chronic cervical radiculopathy is the middle-aged or elderly patient who complains of neck and/or arm pain, especially after heavy labor or atypical activities. Their symptoms may develop insidiously or may linger after an acute or subacute episode.

Type of Lesions

Disc herniation in the cervical region may manifest itself in one of three basic presentations. The intraforaminal lesion is the most common of the three types of lesions associated with cervical radiculopathy. The intraforaminal lesion produces pain in the neck and shoulder which radiates in a dermatomal trajectory. Ventrolateral lesions produce a greater degree of motor symptoms than sensory symptoms. These patients demonstrate weakness, loss of muscle tone, and possible atrophy. Central lesions constitute the third type of disc herniation and are the most serious form of herniation due to possible involvement with the spinal cord and the subsequent production of a myelopathy as well as the radiculopathy at that level in the cervical spine. It is important to note that a central lesion may not produce root symptoms.

Features of Cervical Radiculopathy

The pain associated with disc injury in the cervical spine may begin within minutes to a few hours following trauma to a nerve root or may have a delayed onset and manifest itself within the next few days. Typically, the pain is of a severe aching or shooting quality and has a radicular distribution corresponding to the involved nerve root. Pain may also radiate widely over the anterior, posterior, and axillary regions of the chest. The cervical radiculopathy patient is usually more comfortable in the supine position with the head and neck slightly flexed. The patient may also demonstrate a "shoulder abduction relief sign" in which the involved arm may be abducted and placed on top of the head in order to obtain relief. This rest position relieves tension on the

brachial plexus and is thought to relieve pressure on epidural veins, thereby reversing mild symptom producing conduction blocks. Sensory symptoms appear with greater frequency than do motor symptoms, with the most common symptoms being paresthesias, hyperesthesias, and/or hyperalgesia. Reflex and motor changes are less often noted initially.

Level of involvement versus frequency:

First - C5/C6

Second - C6/C7

Third - C4/C5

Fourth - C4/C4

Fifth - C7/T1

Motor deficits associated with cervical radiculopathy are as follows: Triceps (37%), biceps (28%), deltoids (1.9%), and grip muscles (0.6%). In a previous article, the grip dynamometer was highlighted as an inadequate means of assessing upper extremity motor function with respect to cervical radiculopathy due to the low frequency of involvement (0.6%) of the grip muscles tested by this procedure. Cervical compression testing should be done with the thought in mind that the position in which exacerbation of symptoms is produced generally gives one an indication of the relative severity of the underlying pathology. Cervical compression testing producing radicular symptoms with the head and neck in the neutral position reflects an underlying lesion that is of a severe nature. In contrast, symptoms produced in the extremes of rotation, extension, and compression tend to reflect a milder pathology. The relative severity of the radiculopathy may also be indicated by the motor, sensory, and reflex findings, with more positive findings noted in the more severe conditions.

Conservative Management

A conservative approach to the management of cervical radiculopathy should include many, if not all of the following elements. Spinal manipulation may be employed with the provision that the technique employed is of a decompressive nature. In these cases, distractive forms of manipulation may prove valuable. Intermittent axial traction should be employed as well as home traction. Cervical collars are useful because they afford the patient the ability to place the cervical region at rest while going about everyday tasks. In the acute stages, bed rest may become necessary. Patient activities should be modified so that exacerbating situations are reduced or eliminated. The patient should be questioned about the type of pillow used. Should the patient's pillow be inadequate, appropriate changes should be made. Nutritional recommendations may be made as well. Lastly, NSAIDS may be used in the acute stages of the radiculopathy to help the patient control the pain. Effective conservative management of cervical radiculopathy depends on the clinician's ability to cover as many of the above mentioned areas as possible through an efficient treatment plan.

References

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