HERNIATED CERVICAL DISC

I. Background

A herniated cervical disc is a condition in which there is a protrusion of the intervertebral disc past the posterior longitudinal ligament. Herniations occur most commonly through a posterolateral defect, but may also occur in the midline. The resulting compression of a spinal nerve root may result in cervical radiculopathy, a condition with an annual incidence of approximately 8 per 1000 persons and a prevalence of 3.5 per thousand persons, with a peak incidence between 50-54 years of age. Cervical disc herniations cause radiculopathy most frequently at the C6 and C7 levels; multiple etiologies including mechanical compression, nerve root hypoxia and/or release of inflammatory mediators in the vicinity of the nerve root have been implicated. Patients will often experience pain, paresthesias, numbness and/or upper extremity weakness. Infrequently, a disc herniation may cause compression of the cervical spinal cord with associated myelopathy manifested as motor dysfunction in the lower extremities and bowel and/or bladder symptoms.

II. Diagnostic Criteria

A. Historical and Physical Examination Findings

Neck pain is often the first symptom of cervical disc herniation with radiculopathy, and may be associated with interscapular or upper extremity pain. Paresthesias and/or numbness may also develop. Pain is often described as sharp, shooting, or burning with radiation along the anatomic course of the nerve from proximal to distal. The onset may be sudden or insidious. Cervical range of motion is often limited, and neck motion may cause an exacerbation of pain.

The neurological examination may be normal if the compressed nerve is functional, or there may be objective evidence of nerve dysfunction including atrophy, weakness, sensory dysfunction and/or altered reflex depending upon the anatomic nerve root affected.

B. Diagnostic Testing and Examination

If the symptoms and/or signs of a cervical disc herniation noted above manifest themselves and/or persist beyond four weeks, referral to a specialist physician (neurologist, neurological surgeon, orthopedic surgeon, physiatrist) is indicated.

Diagnostic Tests:
- Laboratory Studies
- Imaging Studies
- Electrodiagnostic Testing

Laboratory Studies

Laboratory studies include *white blood cell count, ESR, and C-reactive protein* can be increased with spinal infection or cancer, but do not have sufficient sensitivity or specificity to direct further testing.

Imaging Studies

Magnetic Resonance Imaging is a non-invasive means of evaluating the status of the cervical spine and its components. MRI is appropriate in the presence of objectives and/or progressive neurologic deficits. Indications include:

1. Symptoms or signs of myelopathy
2. Diagnostic suspicion of tumor or infection
3. Presence of progressive neurologic deficit

For most of patients, it is appropriate to limit the use of MRI to those individuals who remain symptomatic after 30 days of non-surgical management. Gadolinium contrast may be used in cases where previous surgery was performed in order to differentiate between epidural fibrosis and a recurrent disc herniation.

Conventional radiographs of the cervical spine are often obtained but are of limited value in detecting a cervical disc herniation, infection, or neoplasm.

Computer tomography (CT) can be useful in assessing the extent of bone spurs, canal encroachment, and/or ossification of the posterior longitudinal ligament.

Myelography has largely been supplanted by MRI, but in combination with CT (i.e., CT-myelography) may be useful in selected cases.

Electrodiagnostic studies

Needle electromyography and nerve conduction studies can help distinguish between cervical radiculopathy and other causes of neck pain. Involvement of muscles within the affected myotome can occur as soon as three weeks post-injury.

C. Inappropriate diagnostic tests and examinations

1. Myeloscopy
2. Thermography
3. Spinoscopy

III. Management

A. Non-surgical treatment

The main objectives of treatment are to relieve pain, improve neurologic function and prevent recurrence. None of the commonly recommended non-surgical therapies have been tested in a randomized, controlled trial, and recommendations derive largely from case series and/or anecdotal experience. Patient preference should be taken into account in the decision-making process.

Treatment options include:

1. Physical rehabilitation procedures including modalities, traction and exercise.
2. Cervical collar or pillow
3. Home cervical traction preceded by the application of moist heat
4. Medications
   - Analgesics (narcotic and/or non-narcotic)
   - muscle relaxants
   - NSAIDS
   - Steroids
5. Limited period of bed rest
6. Epidural steroid injections in selected cases

B. Surgical Management

Surgical intervention may be recommended when all of the following are present:

1. Definite cervical root compression on diagnostic imaging studies
2. Concordance symptoms and signs of cervical root-related dysfunction, pain, or both
3. Persistence of pain despite non-surgical treatment for a minimum of six weeks, or
4. The presence of a progressive, functionally important motor deficit, or
5. Cervical cord compression with clinical evidence of moderate to severe myelopathy

Discharge from the hospital should be obtained within 72 hours after most cervical spine procedures, unless complicated by wound infection, thrombophlebitis, spinal fluid leak or other significant morbidity. Post-operatively, rehabilitation procedures will be initiated in many cases and can be completed within 12 weeks of initiation of therapy.

The estimated duration of care for non-surgical patients is up to 6 weeks, and for surgical patients is at a point of maximum improvement, not to exceed 12 months after surgery.

PROTOCOL HISTORY:
Passed: 9/01/1992
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