Cervical Spine and Related Lower Extremity Radiating Pain

ICD-9-CM code: 724.4 cervical radiculitis

ICF codes: Activities and Participation Domain code: **d4108** Changing a basic body position, other specified - specified as: extending and rotating the head and neck, such as in looking behind oneself to the left or to the right

Body Structure codes: **s76000** Cervical vertebral column

s7309 Structure of the upper extremity, other specified

Body Functions code: **b28010** Pain in head and neck

b2803 Radiating pain in a dermatome

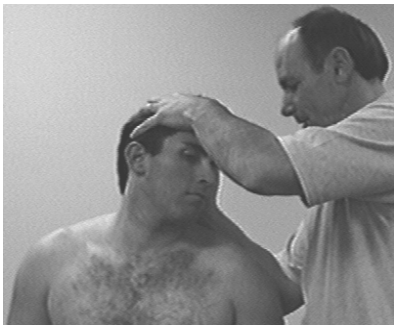
Common Historical Findings:

Shooting, narrow band of pain - usually below the elbow
Paresthesias
Numbness
Weakness

Common Impairment Findings - Related to the Reported Activity Limitation or Participation Restrictions:

May adopt posture to relieve nerve tension
Symptoms reproduced with extension and sidebending toward the involved side (extension quadrant or Spurling's test)
Symptoms reproduced with upper limb nerve tension test
May have sensation deficits and strength deficits in the upper extremity

Physical Examination Procedures:



Cervical Extension, Sidebending and Rotation to the Same Side

Performance Cues:

This cervical "Quadrant" narrows the inter vertebral foramen (as well as approximates the cervical facets)
Assess relation between movement and symptom reproduction

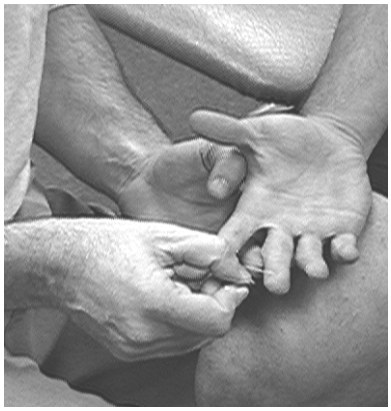
Upper Limb Nerve Tension Test
Median Nerve Stretch Test

Performance Cues:

Determine baseline level of symptoms

Assess change in symptoms as each of the following components of the test are gradually added - take up the slack only to the initial tissue resistance or report of symptomatology:

1. Scapular depression
2. Humeral abduction (not past 90 degrees)
3. Humeral external rotation (not past 90 degrees)
4. Forearm supination
5. Wrist, thumb, and finger extension
6. Elbow extension

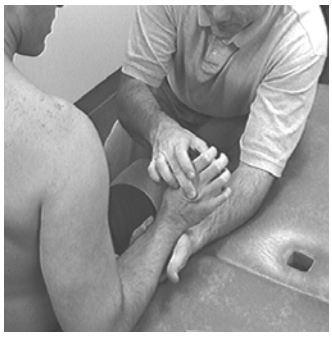


Sensation Tension

Performance Cues:

C5 - Lateral anticubital fossa
C6 - Anterior distal aspect of thumb
C7 - Anterior distal aspect of middle finger
C8 - Anterior distal aspect of little finger
T1 - Medial aspect of arm, just proximal to elbow
Assess light touch and/or sharp-dull, comparing to uninvolved side

C5 - Biceps Brachii MMT



C6 - Extensor Carpi Radialis Longus and Brevis MMT

C7 – Triceps MMT

C8 - Flexor Digitorum Profundus MMT

T1 - Abductor Digiti Minimi and First Dorsal Interosseous MMT

Performance Cues:

Assess motor involvement by using manual muscle tests to determine strength deficits
Compare strength to uninvolved side and with norm for age, gender, and activity level
Manual muscle test norm is ability to move fully against gravity and take moderate-to-maximal resistance without giving or fatiguing

Cervical Spine and Related Upper Extremity Radiating Pain
Description, Etiology, Stages, and Intervention Strategies

The below description is consistent with descriptions of clinical patterns associated with the vernacular term "Cervical Radiculopathy"

Description: Cervical radiculopathy is, by definition, a disease of the cervical spinal nerve root. It is most commonly caused by a cervical disc herniation or other space occupying lesion such as a osteophytic encroachment associated with spondylosis or a tumor. This encroachment from a space occupying lesion can result in nerve root impingement, inflammation, or both. The chief symptom is a narrow band of lancinating pain that radiates to the shoulder girdle and upper extremity. The primary signs are unilateral paresthesias , sensory deficits, diminished muscle stretch reflexes and motor deficits in the shoulder girdle and upper extremity.

Etiology: Cervical radiculopathy is usually of non-traumatic origin and occurs spontaneously in the majority of cases. In younger adults the most common cause of this disorder is disc herniation, whereas cervical spondylosis is a more frequent cause in older patients. Peak incidence of cervical radiculopathy is in the fourth or fifth decade of life.

Acute Stage / Severe Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: **b28010.3** SEVERE pain in head and neck; and **b2803.3** SEVERE radiating pain in a dermatome

- Posture or positioning to relieve tension on the related nerve (e.g., cervical flexion or sidebending, elevated scapula, arm supported or held with wrist resting on head)
- Positive Shoulder Abduction Test relieves symptions (i.e., the patient elevates arm overhead and places hand on head to bring on a relief of symptoms)
- Decreased cervical rotation (cervical rotation < 60°)
- Positive Spurling's Test (i.e., cervical extension/sidebending/rotation toward the involved side with compression reproduces radicular symptoms)
- Positive Manual Traction Test (i.e., axial manual traction to cervical spine relieves symptoms)
- Peripheralization or centralization of symptoms with repeated movements
- Positive Upper Limb Tension Test (i.e, tension or stretch of the involved nerve root and its associated nerve reproduces the radicular symptoms)
- Positive neurological signs (i.e., diminished sensation to the skin served by the involved nerve root and motor weakness of the muscles served by the involved nerve root and diminished deep tendon reflexes associated with specific nerve roots)

Sub Acute Stage / Moderate Condition: Physical Examinations Findings (Key Impairments)
ICF Body Functions codes: **b28010.2** MODERATE pain in head and neck; and **b2803.2** MODERATE radiating pain in a dermatome

- As above – the severity of the radicular signs may resolve as the inflammation around the involved nerve root diminishes
- Now (when less acute) assess upper quarter postural alignment, muscle balance (i.e., muscle flexibility and strength deficits), and pertinent ergonomic factors contributing to the patient's symptoms/functional limitations

Settled Stage / Mild Condition: Physical Examinations Findings (Key Impairments)
ICF Body Functions codes: **b28010.1** MILD pain in head and neck; and **b2803.1** MILD radiating pain in a dermatome

As above with the following differences:

- Radicular symptoms are reproduced only with end-range sustained positions of the cervical spine or sustained tension positions of the involved nerve root and it associated upper extremity nerve

Clinical Examination for Cervical Radiculopathy (Wainer)

- If three of the four following tests are positive the probability of the condition increases to 65%.
- If all four of the following tests are positive the probability of the condition increases to 90%.
- If ULTTA is negative, the probability of the condition is 3%, essentially Cervical Radiculopathy can be ruled out.

1. ULTTA (Upper Limb Tension Test A)

2. Involved cervical rotation less than 60°

Intervention Approaches / Strategies

Acute Stage / Severe Condition

Goals: Improve neurological status
Reduce radicular pain

- Re-injury Prevention Instruction
  Limit movements or activities that aggravates the symptoms. For example, use of 1) a soft cervical collar, or 2) slight cervical flexion, sidebending opposite of radiculopathy and retraction positions and motions increase neural foraminal size – may be used to reduce further forminal aggravation during the inflammatory stage.

- Therapeutic Exercises
  Nerve mobility execises in painfree ranges

- Manual Therapy
  Manual cervical traction
  Soft tissue mobilization to the myofascial restrictions in the areas of upper extremity nerve entrapments associated the involved nerve root

- Neuromuscular Reeducation
  Facilitate cervical positions that optimally open the involved foramin – typically by promoting neutral positions of the thoracic cage, scapular, neck and head positions during daily activities.

Sub Acute Stage / Moderate Condition:

Goal: Prevent recurrence

- Approaches/ Strategies listed above

- Therapeutic Exercises
  Stretching exercises to address the patient's specific muscle flexibility deficits
  Strengthening exercises to address the patient's specific muscle strength deficits

Settled Stage / Mild Condition:

Goal: Progress activity tolerance

- Approaches / Strategies listed above

- Therapeutic Exercises
  Maximize muscle performance of the relevant trunk, scapulae, shoulder girdle and neck muscles required to perform the desired occupational or recreational activities

- Ergonomic Instruction
  Add job/sport specific training

Intervention for High Performance/High Demand Functioning in Workers or Athletes:

Goal: Return to desired occupational or leisure time activities

- Approaches / Strategies listed above

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