Neck pain is one of the most common complaints in the general population and the fourth-leading cause of disability after low back pain, depression, and arthralgia. Depending on symptom duration, neck pain can be acute, sub-acute, or chronic. The most common causes of neck pain are posture-related issues, cervical radiculopathy, myelopathy, degenerative diseases, and trauma. Careful physical and clinical evaluation can be helpful in uncovering the cause. Treatment of neck pain is usually conservative. Patients who do not respond to medical therapy may benefit from surgical intervention.

Definition

Neck pain is defined as an uncomfortable feeling in the neck, a symptom that is often neglected despite its physical, mental, and even economic impact. It is one of the leading causes of DALY (disability-adjusted life year) loss or disability after other orthopedic causes such as lower back pain and arthralgia. More than 50% of the general population experience some kind of neck pain in their lifetime, with a mean prevalence rate of 1 episode of neck pain approximately 40% per year.
Classification of Acute Neck Pain

There are a number of ways to classify neck pain, depending on chronicity (acute vs. chronic) or etiology (postural vs. neuropathic). Since the duration of neck pain is the single most important predictor of outcome, classification according to duration is the most accepted classification in clinical practice.

Neck pain can be classified as:

- **Acute**: If symptoms persist for less than 6 weeks.
- **Sub-acute**: If symptoms persist for 3 months or less.
- **Chronic**: If symptoms persist for more than 3 months.

Patients with chronic neck pain may also present with superimposed acute or subacute neck pain.

Epidemiology of Acute Neck Pain

Acute neck pain is more common in women than in men, and in adults than children. There is a positive correlation between age and the incidence of neck pain. Increased body mass index and obesity are also associated with neck pain.

Several other risk factors include occupation, sedentary lifestyle, previous history of trauma to the neck, smoking, depression, genetic predisposition (Turner and Down syndromes), concomitant lower back pain, or rheumatic diseases.

Causes of Acute Neck Pain

The most common causes of neck pain include the following:

- **Mechanical degeneration of the vertebrae or ligaments**: this is more common in the elderly.
- **Posture**: occupation-related inappropriate posture and repetitive motion are two important causes of neck pain in young adults.
- **Whiplash injuries**: a major cause of acute neck pain in a quarter of patients with road traffic accidents.
- **Acute injuries**: such as falls.
- **Cervical canal stenosis**: mostly caused by degenerative disease leading to obliteration of neural foramina.
- **Cervical radiculopathy**: generally involves the 7th and 8th cervical vertebrae/disc, causing pain in the neck and shoulder region.
- **Thoracic outlet syndrome**: due to mechanical compression of brachial plexus.
- **Rheumatoid arthritis**: involving the cervical region, osteomyelitis, malignancies, and fibromyalgia.

Clinical Features of Acute Neck Pain

In most cases of neck pain, the pain is restricted to the posterior region of the neck. Radiation to the anterior side of the neck or the shoulder is dependent on the cause. Pain can also radiate to the forearm, arm, or occiput. Generally, pain intensifies with any passive or active movement and decreases with rest. The different characteristics of the pain can help narrow down the differential diagnosis.
The table below outlines important clues from the patient history that can help the practitioner uncover the most likely cause of neck pain in the patient.

<table>
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<tr>
<th>Etiology</th>
<th>Clues from the history</th>
<th>Associated symptoms</th>
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<tbody>
<tr>
<td>Fractured vertebrae, ligament tear or spinal cord injury</td>
<td>Road traffic accident, whiplash injury, or fall from height</td>
<td>Loss of consciousness, a low score on Glasgow coma scale, cognitive derangement, brain injuries like a subdural or an epidural hematoma, headaches, neurologic signs and symptoms</td>
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<tr>
<td>Atlantoaxial subluxation</td>
<td>Rheumatoid arthritis or congenital conditions like Down syndrome</td>
<td>Gait abnormalities, fatigability, restricted neck movement, high-grade spasticity, torticollis, clumsiness, sensory deficits, upper motor neuron signs</td>
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Physical Examination of Acute Neck Pain

Inspection

Careful inspection of the patient’s posture while in the standing position can reveal important findings such as cervical lordosis, kyphosis, scoliosis, head-forward posture, and torticollis.

Palpation

Palpation of important areas such as the cervical spine, joint facets, sternocleidomastoid muscle, and scalene muscle may give important clues to the most likely diagnosis.
The range of motion

Since there is a restriction of movement in patients with neck pain, careful evaluation of a range of motion, mostly extension, and flexion, should be undertaken. Lateral bending and even rotatory movement to assess the symmetry of motion can reveal a pathological condition. Sometimes, however, motion tests can aggravate the pain.

Neurological examination

A complete and thorough neurological examination is a must for all cases of neck pain. Muscle power, reflexes, and measuring sensory factors such as touch, pain, and temperature can also give clues to dermatomal involvement.

The two most important causes of neck pain are cervical radiculopathy and cervical myelopathy. These two conditions can be differentiated from each other by different tests.

<table>
<thead>
<tr>
<th>Cervical radiculopathy</th>
<th>Cervical myelopathy</th>
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<tr>
<td>1. Spurling test</td>
<td>1. 1. Lehmert sign</td>
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<td>2. Hoffmann sign</td>
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<tr>
<td>2. Shoulder abduction</td>
<td>3. Babinski sign</td>
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<td>test</td>
<td>4. Clonus</td>
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<tr>
<td>3. Neck distraction</td>
<td>5. Upper limb tension test</td>
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<td>test</td>
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</table>

Rotation and lateral flexion of the neck causes pain on the affected side.

Abduction of the arm of the affected side causes radicular pain.

Holding the occiput and the chin when the examiner put axial traction to lift it then there is relief from the radicular pain.

Forceful expiration with mouth and nose closed causes pain relief.

Passive flexion of the neck produces sharp electric sensation down the arm and spine.

Flexion and adduction of index finger and thumb produce a sudden movement of distal phalanx of the middle and fourth finger.

Stimulation of the sole of the foot in a continuous manner produces dorsiflexion of fingers of the foot and, in extensive disease, it may produce dorsiflexion and abduction of other toes.

Sudden dorsiflexion at wrist or ankle joint produces more than two repetitive movements at the specific joint.

Pain is accentuated by certain movements like shoulder abduction, depression of scapula, extension of the wrist, external rotation of arm, etc.

Another condition that poses a diagnostic dilemma for the physician is thoracic outlet syndrome, as it is commonly mistaken for cervical radiculopathy. Thoracic outlet syndrome usually affects one side of the body. Women are more prone to be affected and patients older than 40 years of age. Most patients have a history of trauma or repetitive stress.

Imaging modalities and, sometimes, the Doppler imaging technique can also help evaluate pain that is vascular in origin but has limited use in evaluating neurogenic pain.

Several tests can be used to differentiate between cervical radiculopathy and thoracic outlet syndrome (see table below). There are also specific tests for thoracic outlet syndrome, including the Adson test and elevated-arm stress test.
Investigations of Acute Neck Pain

Clinical examination of the neck is not enough to diagnose the definitive cause of acute neck pain because of the overlap in clinical manifestations between different diseases. Diagnostic imaging tests are considered a cornerstone in the diagnosis and management of a patient with neck pain.

X-ray

Radiography of the cervical spine can assist in determining the area of degenerative disease. Anteroposterior view and lateral views can be used to delineate the lesion. Traumatic fracture and congenital malformations can be ruled out through the odontoid view. Cervical canal stenosis or neural foramina obliteration and arthritic changes are best viewed in oblique view. In degenerative diseases, the most common findings are a loss of disc space and osteophytes.

Computed Tomography (CT) scan of the cervical region

A CT scan is the most important mode of investigation in bony abnormalities and fractures as it can delineate the bony structure of the neck, revealing different types of neck diseases as tuberculosis infection or neoplastic metastasis to the cervical vertebrae.

Magnetic Resonance Imaging (MRI)

Magnetic Resonance Imaging (MRI) is the best method to assess the cervical spine, as soft tissue such as the spinal cord, nerve roots, and disc can be visualized. MRI is the most important diagnostic modality for patients with motor neuron disease, cervical radiculopathy, or myelopathy.

Treatment of Acute Neck Pain
Treatment of specific conditions

While conservative therapy aims to minimize neck pain, specific treatment is usually indicated if the etiology of the pain can be determined.

Conservative therapy

Most cases of neck pain are treated with conservative therapy. Muscle-strengthening exercises have been found to provide some relief from the symptoms of neck pain. This therapy is most helpful in patients with neck pain originating from mechanical causes such as strain. Physical therapy, in addition to home exercise and the use of a hard cervical collar, can alleviate pain in most patients.

Alternative medicinal approaches such as spinal manipulation, chiropractic movement, or manipulation can also provide short-term relief from symptoms. Conservative management should not be offered to patients with trauma, malignancies, systemic infection, neurological findings, or systemic inflammation, however.

Pharmacological therapy

- Non-steroidal anti-inflammatory drugs are commonly used.
- Opioids can be used in severe cases of neck pain (Note that opioids can cause dependence.).
- Muscle relaxants (cyclobenzaprine in an oral dose of 5—10 mg 3 times daily) may be useful in certain cases.
- Acute pain or radicular symptoms can be treated by different neuropathic medications such as gabapentin in a dose ranging from 300—1200 mg 3 times a day.
- A short course of oral steroids such as prednisolone can be considered for pain caused by an inflammatory condition.
- An injectable steroid can be used in cervical foramen or around facet joints.

Surgical therapy

- The decision to use surgery mostly depends on the condition or etiology; however, it is considered to be the last resort.
- More than 80% of patients receive some kind of benefit from the surgical approach, but a careful evaluation of the risk-to-benefit ratio must be done before choosing this approach.

References


