Clinical Evaluation of Upper and Mid Back Pain

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ABSTRACT
Evaluation of any painful condition requires a thorough clinical examination, so as the upper back pain. Although upper back pain is not as common as low backache, its prevalence is high enough to categorize it under occupational health problems. Evaluation of upper back pain is very important as it can be due to serious conditions involving the visceral organs like myocardium, pancreas, esophagus or it can also be the first symptom of serious disorders in the spine like infection or tumor. In this article, we have tried to summarize the systematic examination of the upper back.

Keywords: Clinical examination, Evaluation, Upper back pain.

INTRODUCTION
Upper back (thoracic back) pain is a very common occupational health problem. Upper back pain (or thoracic spine pain) is the pain experienced in the area of the upper back or middle back between T1 and T12 vertebrae across the posterior aspect of the trunk. Upper back pain is not extensively studied as neck pain or low backache, and hence the epidemiological data are scarce. Prevalence data ranged from 4.0 to 72.0% (at any one time), 0.5 to 51.4% (7-day), 1.4 to 34.8% (1-month), 4.8 to 7.0% (3-month), 3.5 to 34.8% (1-year) and 15.6 to 19.5% (lifetime). Upper back pain is more prevalent in children and adolescents especially females. But, the studies conducted on Finnish population and Danish population showed a much lesser prevalence of the upper and mid back pain compared to low back pain and neck pain. The radiating nature of the pain (either to leg, arm or chest for low back pain, neck pain and mid back pain respectively) was less for mid back pain as compared to low back or neck pain (one year prevalence is only 5 vs 22% for low back pain and 16% for neck pain). Associated disability was less with upper back pain compared to low back pain and neck pain.

RED FLAGS
Red flags indicate serious underlying pathology which should not be missed. Its presence warrants us for further detailed investigations. Red flags of upper back pain include as follows:

- Recent violent trauma.
- Trivial trauma or even just strenuous lifting, in people with osteoporosis.
- Age at onset less than 20 or over 50 years (new onset back pain).
- History of malignancy, infection, immunosuppression or long-term use of corticosteroids.
- Constitutional symptoms, e.g. fever, chills and unexplained weight loss.
- Pain that is:
  - Severe and progressing in nature, unchanged despite treatment for 2 to 4 weeks.
  - Nocturnal pain.

HISTORY
It is the responsibility of the pain physician to not only relieve the patient’s pain but also to address the associated disability. History taking is a very important part in clinical evaluation that cannot be overemphasized. Proper and careful history is important to know the type of pain, to identify potential pain generator (musculoskeletal or visceral) and to decide whether the underlying pathology is life threatening (serious spinal disorder, myocardial ischemia, pancreatitis, etc.) or non-serious condition.

History of trauma: History of a violent trauma will cause fracture of vertebrae and ribs and usually will be associated with neurologic defects. In diseases like osteoporosis, sudden pain may result from a minor injury due to pathological fracture.

Site of pain: Pain in the mid line (axial) is mostly from the disk, vertebral body or from the interspinous ligament. Infectious lesions and tumors of the vertebral body will cause pain in the midline. Paramedian pain is usually caused by facet joints, costotransverse and costovertebral joints, rib fractures and muscle strains.

Referred pain: Pain of the upper back may be a referred pain from the musculoskeletal and abdominal visceral...
structures. Both nonmusculoskeletal visceral pain and spinal somatic referred pain can be diffused and aching in nature. Both can cause autonomic symptoms, such as sweating, nausea and tachycardia. However, pain of musculoskeletal origin is more likely to be aggravated by movement of the affected part. Nonmusculoskeletal pain of visceral origin is more likely to be colicky in nature and not related to the movement. There may also be associated features of fever, malaise, loss of appetite or urinary symptoms.

Pain of musculoskeletal origin: The interscapular pain, above the level of T6 is usually a referred pain from cervical spine.\textsuperscript{11} Facet joint pain shows an overlapping segmental, referral patterns along the ipsilateral spinal region and the pain is referred inferiorly from the level of the joint.\textsuperscript{12} Myofascial pain syndrome involving trapezius muscle is also a common kind of referred pain in upper back. Cervical radiculopathy can also cause pain in the scapular region.\textsuperscript{13}

Pain referred from visceral structures:\textsuperscript{8} Pain from the thoracic and abdominal viscera can be referred to the upper back. Pain from the viscera are usually dull, poorly localized and may be associated with autonomic symptoms. Heart receives its innervations from C8-T4 segments, and hence pain arising from heart can be referred to these dermatomes in the back as well. Pain of the dissecting aortic aneurysm is also referred to the upper back on the left side between the scapula and the spine.

Pain due to esophageal disorders are referred to upper back in the intersceral region (T4–T6 dermatomes). Similarly, pain from stomach and duodenum (T6–L1) can be referred (rare) to the lower thoracic part of the back. Referred pain in the back (T8 region) from a pancreatic lesion, neck examination should be done first in patients with this complaint. Similarly, proper examination of neck and shoulder can reveal the pathology of the upper thoracic spine. For example, T1 root compression by lung tumor, suprascapular neuritis are detected only by neck and shoulder examination although they are thoracic in origin. If the pain is below T6, one can proceed directly to the thoracic spine examination.

Pain in the interscapular region is usually referred from the lower three cervical segments. In such cases, the patient will have hardly any pain in the neck but show two important features as follow:

- A cervical point which is a constant painful, tender point in the paraspinal area at T5-6 level.
- A cellulalgic zone adjacent to the cervical tender point, which can be identified and demonstrated by pinch-roll test. The zone spreads laterally for up to 6 to 8 cm. The skin and subcutaneous tissue are thickened and tender.

The facet joint pain of T5-6, T6-7 can be confused for the cervical point. But in case of facet joint pain, the cellulalgic band is located much lower, at T9-10 level and not adjacent to the tender point.

Tenderness if any should be elicited by deep palpation over the pain area. This is best done with the patient lying prone on the examination table.

 Movements: Patient is asked to do flexion, extension, lateral flexion and rotation movements in standing position. Pain during these movements and restriction of any movements should be noted.

Next, the passive and resisted lateral rotations are assessed in sitting position. In muscular pain, resisted movements are more painful. In disk lesions, passive rotations are more painful.\textsuperscript{8}

Costovertebral expansion test:\textsuperscript{14} Costovertebral joint movements are usually determined by measuring the chest expansion. Chest expansion is measured with a tape at the level of fourth intercostal space both during maximum inspiration and expiration. The normal difference between inspiration and expiration is 3 to 7 cm.

If the patient has pain during flexion, the patient is returned to neutral, and then asked to take deep breath and hold it. While holding the breath, patient flexes the spine until the pain is felt. At this point, patient stops flexing and exhales. If further flexion can be accomplished after exhalation, the problem is more likely to be the ribs than the thoracic spine.

Detailed neurological examination should be conducted if there is any history of sensory motor deficits.

REFERENCES


