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a core concepts musculoskeletal group newsletter



Missed upper thoracic syndrome

Musculoskeletal problems stemming from the upper thoracic spine are often missed or misdiagnosed as cervical in nature, by both physiotherapists and medical professionals alike. This leads to partial or non resolution of the client's symptoms, leaving the health professional confounded and client helpless and frustrated. This article discusses how this may happen and looks at the diagnosis and management of a client who had both cervical and thoracic problems, but presented like a cervical disc lesion.

Missed and misdiagnosis of the upper thoracic spine problems are not uncommon, since both subjective and objective assessments of the cervical spine can have similar signs and symptoms to that of the upper thoracic. This is because, the lower cervical and upper thoracic are very closely linked with regards to cervical movements, particularly, cervical flexion and extension. The upper thoracic spine can also refer symptoms to the arm and forearm. Another reason for further confusion is a condition called the T4 syndrome.

Patients with T4 syndrome experience unilateral or bilateral paresthesia in all digits of the hands, glove-like numbness of the hand and forearm, weakness, hand clumsiness, upper extremity coldness, a sense of fullness, tightness and deep aching pain. Other complaints include back pain and stiffness and frequent headaches

(Mellick et al 2006). The differential diagnosis for cervical spine dysfunction is that cervical disc may present with neck and arm symptoms and limited cervical range of motion. Also cervical symptoms usually follow a dermatomal distribution (DeFranca and Levine, 1995).

The pathophysiologic mechanisms responsible for the signs and symptoms of T4 syndrome are unclear. It is thought that they are caused by noxious stimuli that mediate nociceptive information to the spinal cord neurons in the dorsal horn and the spinal medulla. Involvement of the autonomic nervous system has also been suggested (DeFranca and Levine, 1995). Symptoms arise from the autonomic nervous system is thought to be due to the close proximity of the sympathetic trunk to the thoracic spine at this level. It is almost with certainty that with T4 syndrome the intervertebral joint around T4 will be hypomobile. Mellick et al (2006) found complete relieve of symptoms following an injection of a mixture of bupivavaine HCL and methylprednisolone acetate into the lateral aspect of the T4 spinous process. Although mobilization of the T4 vertebra alleviates the symptoms (DeFranca and Levine, 1995), it is unlikely that the joint be the causative factor, but rather the proximity of the sympathetic chain to a dysfunctional thoracic joint may predispose the ganglion to mechanical pressure (Menck et al,2000).

The following is a case study of a client who had both a cervical disc prolapsed

and a T4 syndrome concurrently.

Mr C presented to Core Concepts with complaints of sharp shooting pain in his (L) posterior lateral arm, which is aggravated by sneezing, coughing and slouching. Mr C also complained of numbness in the tips of the 1st and 2nd phalanges.

Onset of numbness was insidious, which occurred 3-4 months prior to presentation at the clinic.

Mr C consulted and had treatment from a Chinese physician trained in traditional chinese medicine for a few months which did not result in any significant changes. Mr C reported that he developed the sharp shooting pain into his posterior lateral arm after a manipulation was performed on his neck by the Chinese physician.

On assessment, Mr C had good upright posture but with a reduced thoracic kyphosis.

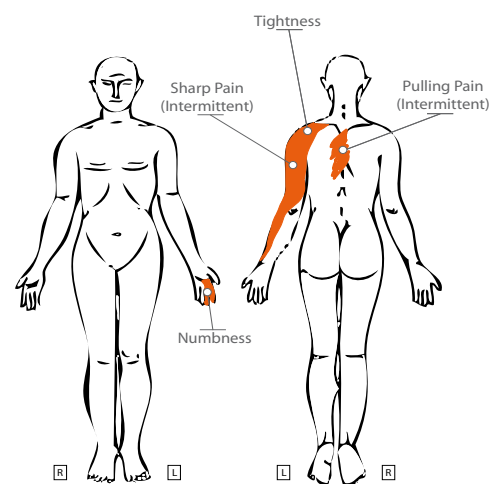


Figure 1: Body Chart

Active range of motion (ROM) of his cervical spine:

- Left rotation: 1/2ROM. Pain reproduced locally in his neck and shooting pain into his left posterior lateral arm.
- Right rotation: 3/4ROM. Shooting pain reproduced into his left posterior lateral arm.
- Extension and Flexion: 1/2 ROM. Pain was reproduced in the cervical spine and left posterior lateral arm.
- Mr C had a constant numbness in his fingers that was not altered with the active range of motion.
- The pain that was reproduced was similar to that of his complaints

Neural dynamics:

Increased neural tension in the left median and radial nerves when compared to the right.

Palpation of cervical joints:

- Joint hypomobility in C6, C7 when palpated centrally and right C6/7 facet joint
- Poor mobility at right C6/7 facet joint during left cervical rotation
- Joint mobilization resulted in nil reproduction or relief of symptoms

Active range of motion of his thoracic spine:

- Flexion: Minimal ROM. Reproduced significant shooting down the left arm.
- Extension: Minimal intervertebral movement at T4 region
- Right rotation: Reduced ROM. Immediate reduction of pain that was previously reproduced by thoracic flexion
- Left rotation: Minimal intervertebral movement, reduced ROM, pain shooting down arm
- Combined movement left rotation + extension: Reproduced the most significant shooting pain down left arm
- Combined movement left rotation + flexion: Reduction of pain

- Combined right rotation and flexion: Felt most comfortable with immediate reduction of pain

Palpation of thoracic joints:

- Joint hypomobility was present at T3, T4 and T5. Palpation right T3, T4, T5 reproduced pain into left posterior lateral arm. Light palpation of left T3, T4, T5 reproduced deep sharp pain in joints with shooting sensation down left arm.

Treatment:

Treatment sessions 1-2: Treatment was focused on the cervical spine, with the provisional diagnosis of C6/7 nerve impingement with secondary to cervical disc lesion and scarring. Hence treatment was focused on cervical opening techniques with manual traction and ROM exercises. Improvements were seen with the range of motion of the cervical spine but not with the pain and numbness.

Treatment session 3: As no significant symptomatic improvement was seen with cervical treatment, an assessment in the thoracic spine was performed. Findings are mentioned above. Mobilisation was done to T3/T4/T5 in a flexion position with the aim to increase mobility into joint opening. Mobilisation was also done to facilitate right rotation and right extension at T3/4/5. No treatment was performed for the cervical spine.

Treatment session 4: Mr C reported 50% reduction in pain but still complained of sharp pain on sneezing. Slouching (thoracic flexion) was still painful but the pain intensity is reduced and reproduction of pain is delayed. Treatment performed this session continued with similar aims of the previous session. Hence mobilization of T3/T4/T5 was performed. No treatment was performed on cervical spine.

Treatment session 5 and 6: Mr C felt much better with only about 10-20% of symptoms left. Mr C is managing his pain when sneezing by positioning

his Thoracic spine into right rotation and extension. Mr C's numbness is also better with numbness present only in the index finger.

Summary:

In the above case, Mr C presented with symptoms indicative of cervical as a primary source of symptoms, as shown by the reduction in range of motion in the cervical spine and positive neural tension tests. However, on further assessment and treatment of the thoracic spine it is revealed that Mr C also had dysfunctions in the thoracic as shown by the reduced range of motion in the thoracic spine and the significant improvements with treatments to the area. When treating the cervical conditions, we should also consider the thoracic spine as a possible contribution to the pathology.

References:

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