Thoracic Outlet Syndrome



What is thoracic outlet syndrome?

Thoracic outlet syndrome (TOS) is the general term used to describe a condition caused when the nerves and blood vessels below your neck (between the collarbone and the first rib) are compressed. Types of thoracic outlet syndrome include:

- Neurogenic (neurological) thoracic outlet syndrome – occurs when the brachial plexus is compressed. The brachial plexus is a group of nerves that come from the spinal cord and control muscle movements and sensation in the shoulder, arm, and hand.
- Vascular thoracic outlet syndrome – occurs when one or more of the blood vessels (veins or arteries) under the collarbone are compressed.
- Nonspecific-type thoracic outlet syndrome – people with this syndrome have chronic pain in the area of the thoracic outlet that worsens with activity, but a specific cause of the pain cannot be determined.

What are the occupational factors of thoracic outlet syndrome?

Work activities involving prolonged restricted postures such as carrying heavy shoulder loads, pulling shoulders back and down, or reaching above shoulder level can cause the inflammation and swelling of tendons and muscles in the shoulders and upper arms. When swollen or inflamed, they can compress the nerves and blood vessels between the neck and shoulders. Weak shoulder muscles, long necks and sloped shoulders, poor posture and obesity may contribute to thoracic outlet syndrome. Repetitive injuries from sports related activities can also be a cause of this syndrome. Examples of occupations that are at risk of this syndrome can include dental hygienists, typing on a computer, working on an assembly line, or lifting items above your head.

What are general causes for thoracic outlet syndrome?

The cause of the compression can vary, but include:

- Poor posture – drooping shoulders or holding the head in a forward position.
- Trauma – Trauma, such as from a car accident.
- Anatomical defects – how your body is formed at birth may include an extra rib located above the first rib or an abnormally tight fibrous band that

connects the spine to the rib.
- Pressure on joints – obesity and carrying oversized bag or backpack can put undue amount of stress on joints.
- Pregnancy – as joints loosen during pregnancy, signs of thoracic outlet syndrome can appear.

Slightly more women than men may develop this syndrome. It is more common in young adults, between 20 and 40 years old.

What are the symptoms of thoracic outlet syndrome?

Depending on which structures are compressed, symptoms can vary. When nerves are compressed, symptoms of neurological thoracic outlet syndrome can include:

- Numbness or tingling in the arms or fingers
- Muscle wasting in the fleshy base of the thumb
- Pain or aches in neck, shoulder, or hand
- Weakness in your hand grip strength

Signs and symptoms of vascular thoracic outlet syndrome can include:

- Numbness or tingling in fingers
- Discoloration of hand (bluish color)
- Blood clot in veins or arteries in the upper area of the body
- Throbbing lump near the collarbone
- Cold fingers, hands or arms
- Arm pain and swelling
- Weak or no pulse in the affected arm

How is thoracic outlet syndrome recognized?

The diagnosis is made by medical history and physical examination. Special laboratory tests can confirm the diagnosis.

How is thoracic outlet syndrome treated?

The initial treatment of patients with thoracic outlet syndrome consists primarily of a carefully planned program of exercise therapy. Avoidance of work activities suspected of causing the condition may be necessary. Physicians may prescribe anti-inflammatory drugs to reduce the pain and inflammation. In some cases surgery may be necessary if symptoms persist for a long time.

How can we prevent thoracic outlet syndrome?

The prevention of thoracic outlet syndrome should focus on the design or redesign of the workplace so that workers will avoid carrying heavy weights, reaching overhead, and lifting with the arms above shoulder level. Routine conditioning to strengthen muscles and improve posture can reduce pressure on nerves and blood vessels.,

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