

Thoracic Outlet Syndrome Information

Neurogenic TOS

Neurogenic TOS is the most common occurring - it comprises about 95% of the total number of thoracic outlet syndromes. It is most common in young women in their 20-40's but can affect anyone.

Symptoms

The most common symptom is pain in the hand, shoulder and neck. As symptoms progress patients can develop numbness in the hand which is usually worse in the 4th and 5th fingers (ulnar nerve distribution). The worst cases involve the development of weakness and muscle wasting in the hand. Symptoms are usually made worse with arm elevation and abduction - the 'hands up' position.

Causes

Neurogenic TOS is usually caused by hyperextension injuries (whiplash) or repetitive strain type injuries (typing/painting etc). These injuries cause scarring of the muscles at the base of the neck (scalene muscles) which then compress the large nerves that run down the arm as they exit the neck.

Rarely patients may have an extra rib (cervical rib) or anomalous anatomy of the 1st rib which can also compress the nerves.

Venous TOS

Venous TOS is the next most common variant (2-3%) and it occurs usually in young people and primarily affects their dominant arm.

Symptoms

The symptoms of venous TOS relate to damage to the large vein that travels under the collar bone (sub-clavian vein). Most commonly patients will experience dramatic swelling and pain of the affected arm, and it will commonly turn blue. These symptoms may fade over the preceding days but will be made worse when using the arm. Other veins across the shoulder and chest may become more prominent, this is all due to clotting of the subclavian vein. In the worst cases the clot can travel to the lung and cause breathing difficulties (rare).

Causes

Venous TOS is usually caused by repeated injury to the vein where it is squashed between the collar bone and the 1st rib. This is aggravated by repeated overhead arm motion such as free-style or butterfly swimming, throwing, painting and some gym activities. With repeated compression the inside lining of the vein (endothelium) gets injured and when this happens the body's response is for the blood flowing past it to clot and block off the vein. When this happens the ability for the blood to flow out of the arm is dramatically reduced and that is why it swells and is painful.

Arterial TOS

Arterial TOS is rare and usually affects young people.

Symptoms

Symptoms from arterial TOS can vary widely. The most common symptom is pain and early fatigue in the affected arm when compared with the other side. This is often associated with a colour change in the hand, in particular the hand can turn white when elevated. Sometimes the artery can be damaged badly and start to expand (aneurysm), and this can be associated with small bits of clot travelling down the arm into the hand. The main sign of this is small areas where the skin dies off at the tips of the fingers.

Causes

Most commonly arterial TOS is caused by an extra rib that compresses the artery. Sometimes it can also be caused by a bony anomaly of the 1st rib or the collar bone, and very rarely by some fibrous bands that develop in the area. Repeated damage to the artery can cause it to narrow or become aneurysmal and send small fragments of clot down the arm.