

SUBCLAVIAN SYNDROME

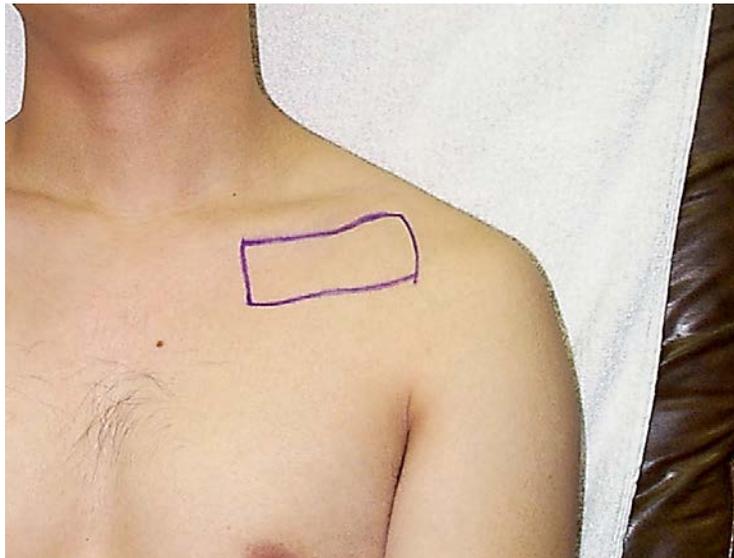
All the vascular and nervous elements that are affected in the *cervical dorsal outlet syndrome* may be affected by pressure exerted on them by the clavicle, first rib and involved muscles, with very similar results. Traditional literature has divided this latter syndrome into two distinct versions, the *costoclavicular and hyperabduction syndromes*.

In the *costoclavicular syndrome*, compression is produced between the clavicle and the first rib by variables that include the position of the shoulder, the shape of the clavicle and the first rib, and the neuromuscular control of the shoulder. A narrowing of the space through which the vascular and nervous elements must pass may be produced by abduction of the upper extremity, backward retraction of the shoulder, or a hypertrophic subclavius muscle. It may also be caused by weakness of the suspensory muscles of the shoulder (which allows the clavicle to rest on the first rib), and elevation of the first rib with deep inspiration.

In the *hyperabduction syndrome*, the entrapment occurs beneath the pectoralis minor, between the clavicle and first rib, or both, in association with abduction and external rotation of the shoulder. Symptoms generally occur after or during repetitive activities, and include venous engorgement at the level of the compression below the clavicle, as well as neurological symptoms that may involve the entire brachial plexus. Here, these syndromes are combined and called the *Subclavian Syndrome*.

The patient generally complains of many symptoms associated with the *cervical dorsal outlet syndrome*, including intermittent pain, numbness, weakness, or combinations of the three. A DSR survey may be utilized to establish a typical pattern of relatively high skin resistance. Soft tissue manipulation may be used to confirm the presence of a mass of adhesions lying just distal of the clavicle. The zone of high skin resistance illustrated below is indicative of a full-blown syndrome, but in many cases the zone may be limited to the lateral third, the medial third, or the central third of the pattern.

Generally, associated adhesion formations are thick, copious and lie within the inflamed zone. In some cases they may be more spread out and lie outside but in close proximity to the zone.



The high skin resistance pattern generally associated with the Subclavian Syndrome

Treatment

The treatment of the *subclavian syndrome* centers around breaking any adhesions that are present and eliminating any inflammation.

Application:

- Place a negative electrode over the inflamed zone and a positive over the lower trapezius or lateral triceps muscles. Preset an electrical stimulation unit to deliver a visible contraction, at 7 Hz. Stimulate for 10 minutes. Then, preset the unit to deliver a medium frequency current, with a duty cycle of 10-seconds on and 10-seconds off, sufficient to produce near tetanic contractions of the involved muscles. Stimulate for 10 minutes.
- Manipulate the soft tissues in the subclavian area to break any adhesions that are present.
- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.5 W/cm². Ultrasound the inflamed zone, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes.

The following treatment forms have also been effective.

Variation:

- Preset the ultrasound unit a 3 (or 3.3) MHz pulsed waveform, at 1.8 W/cm². Ultrasound the inflamed zone, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This procedure is designed to soften the adhesions that may be present.
- Manipulate the tissues in and around the inflamed zone to eliminate any adhesions that may be present.
- Twenty minutes after the first ultrasound, preset the ultrasound unit to deliver a 3 (or 3.3) MHz, pulsed waveform, at 1.5 W/cm². Ultrasound the inflamed zone utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This is performed to “cool off” the manipulated zone by effectively halting the production of prostaglandins by the stressed tissues.
- Apply mechanical vibration, delivered at 60 to 120 Hz, over the inflamed zone, for two minutes. Apply the vibration at a relatively high but tolerably comfortable level for the patient. This is performed to increase capillary circulation in the involved tissues.

Variation:

- Preset the ultrasound unit a 3 (or 3.3) MHz pulsed waveform, at 1.8 W/cm². Ultrasound the inflamed zone, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This procedure is designed to soften the adhesions that may be present.
- Manipulate the tissues in and around the inflamed zone to eliminate any adhesions that may be present.
- Apply cold laser (with or without simultaneous electrical stimulation provided by the laser applicator) to the inflamed zone for approximately 6 minutes. This is performed to “cool off” the manipulated zone by effectively halting the production of prostaglandins (or facilitating enzyme destruction of **all** inflammatories being produced) by the stressed tissues.

- Apply mechanical vibration, delivered at 60 to 120 Hz over the inflamed zone, for two minutes. Apply the vibration at a relatively high but tolerably comfortable level for the patient. This is performed to increase capillary circulation in the involved tissues.

Treatment is generally rapid, with cessation of symptoms almost as soon as the inflamed zone is relieved of adhesions. Continued relief depends on complete and continued lack of inflammation. It should be noted that in very chronic conditions, even after the inflammation has been eliminated, the tissues might continue to produce adhesions for a short period. It may be necessary to have the patient come in for a follow-up visit to check not only for inflammation, but also for any adhesions that have been newly formed. If the inflammation has been eliminated, generally only one follow-up visit is required to break up any adhesions that are present, though the patient is instructed to return for evaluation if any of the symptoms return. It should also be noted that the area manipulated might be sore to the touch for two or three days following manipulation. This soreness is unrelated to the original syndrome and will not foster a return of the symptomology.

Post Treatment Suggestions:

The patient should be encouraged to engage in exercises that strengthen the upper back muscles, especially the scapular adductors. These may include bench presses, push ups, chin ups, “dips” on parallel bars, weight rowing, and pull-downs. The patient should also avoid the “rounded shoulder” position.

Trigger Points

The following trigger point formations may, singly or in combination, imitate or contribute to the pain accompanying a *Subclavian Syndrome*: Scalenus, Scalenus (minimus), Infraspinatus, Medial teres major, Lateral teres major, Coracobrachialis, Supraspinatus (muscle), Supraspinatus (tendon), Latissimus dorsi (upper portion), Serratus posterior superior, Subclavius, Subscapularis, Posterior deltoid, Anterior deltoid, Pectoralis major, Pectoralis major (clavicular fibers), Pectoralis major (sternal portion), Pectoralis minor, Sternalis, Medial triceps (deep fibers), Medial triceps (lateral fibers), Lateral triceps, Triceps (long head), Biceps brachii, Brachialis, Supinator, Extensor carpi radialis longus, Extensor carpi radialis brevis, Extensor carpi ulnaris, Middle finger extensor, Fourth finger extensor, Palmaris longus, Flexor carpi radialis, Flexor carpi ulnaris, Brachioradialis, Pronator teres, Extensor indicis proprius, Flexor digitorum sublimis (humeral head), Abductor digiti quinti, and First dorsal interosseus.