

## POSTERIOR DELTOID ORIGIN SYNDROME

The posterior deltoideus (deltoid) muscle has its origin from the inferior lip of the posterior border of the spine of the scapula. The posterior deltoid's main motor functions include extension and lateral rotation of the arm. If the posterior deltoid's origin becomes inflamed it creates a rather peculiar pain syndrome. The patient is usually unaware of any pain associated with the posterior deltoid origin, but will complain of pain in the lateral-posterior aspect of the upper arm which may extend down the lateral-posterior aspect of the arm and forearm, and sometimes into the thumb and the posterior aspect of the second, third and fourth fingers. In other words, the pain follows the sensory nerve distribution C5-C6, though (patient descriptions of the pain pattern vary a lot within that distribution). Why the sensory distribution of C5 and C6 is affected may be debatable, but it is true that one of the branches of this distribution, the suprascapular nerve, passes in close association with the posterior deltoid insertion.

The suprascapular nerve crosses the posterior triangle to the scapular notch, passing dorsal to the inferior belly of the omohyoideus and the anterior border of the triceps. It then passes through the notch, under the superior transverse ligament, running deep to the supraspinatus, and around the lateral border of the spine of the scapula into the infraspinatus fossa. There it gives two branches to the infraspinatus muscle and filaments to the shoulder joint and scapula. Given that reality, it is not hard to imagine a mass of adhesions developing out of a prolonged inflammation of the posterior deltoid origin sufficient to exert pressure on these passing nerves. In most cases, thick copious adhesion formations are found to be present in and very near the inflamed zone.

Patient descriptions of the pain associated with the *Posterior Deltoid Origin Syndrome* vary a great deal both in terms of the pain pattern described (as mentioned above) and the types of pain described. Some complain of a dull aching pain while others complain of a "throbbing", or even "numbness" within the affected zone or zones. Generally this condition only appears unilaterally, but it is not terribly unusual for it to be present bilaterally.

The *Posterior Deltoid Origin Syndrome* is often found in association with other shoulder pain syndromes including the *bicipital tendonitis*, *anterior of the scaleni*, and *Teres Major Syndromes*. Indeed, it is suspected that the *posterior deltoid syndrome* is a precursor or precipitator of these other shoulder pain syndromes (and perhaps more), possibly affecting capillary circulatory patterns or otherwise producing neuromuscular imbalances in structures associated with those other syndromes, thereby setting them up for injury.

What specific behavior leads to this syndrome we have been unable to determine, but we do know that sleeping on the involved side seems to defeat therapy and prolong it.

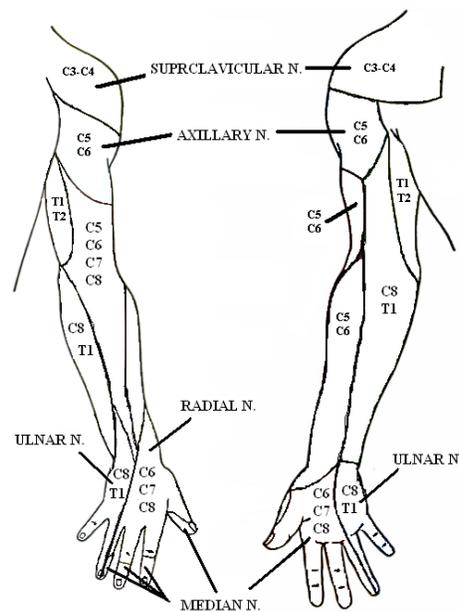
### Treatment

The treatment of the *Posterior Deltoid Origin Syndrome* centers on breaking any adhesions that are present and eliminating any inflammation.

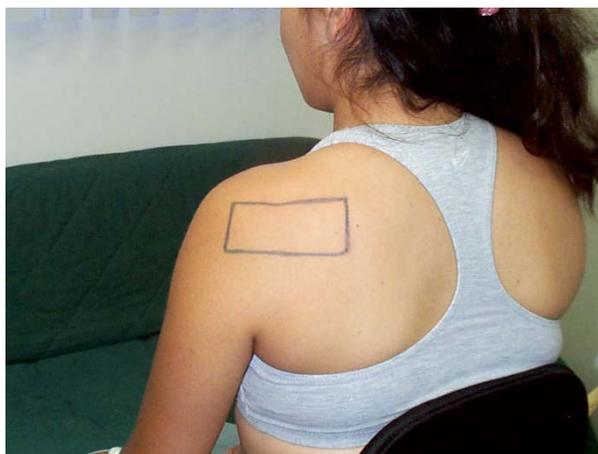
### Application:

- Place a negative electrode over the inflamed zone and a positive over the lower trapezius muscle. Set an electrical stimulation unit to deliver a wide pulsed galvanic current at 7 Hz. Stimulate for 10 minutes.

- Then set the unit to deliver a medium frequency current, with a duty cycle of 10-seconds on and 10-seconds off, and at an amplitude sufficient to produce a near tetanic contraction. Stimulate for 10 minutes.
- Manipulate the soft tissues in and around the posterior deltoid origin, just distal to the scapular spine, to break up any adhesions that are present.
- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm<sup>2</sup>. Ultrasound the inflamed zone, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes
- Vibrate the posterior deltoid origin area with a hand-held vibrator at 60 c/s for two minutes. This seems to be a key element in the patient's recovery.



**The cutaneous sensory distribution of C5 and C6**



**The high skin resistance pattern associated with the Posterior Deltoid Origin Syndrome**

*The following treatment forms have also been effective.*

**Variation:**

- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm<sup>2</sup>. 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 1 MHz pulsed waveform, at 1.5 W/cm<sup>2</sup>. 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, to the origin of the muscle 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 to deliver a 1 MHz pulsed waveform, at 1.8 W/cm<sup>2</sup>. 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** the inflammatories being produced) by the stressed tissues.
- Apply mechanical vibration, delivered at 60 to 120 Hz, to the origin of the muscle 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 response 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.

#### **Post Treatment Suggestions:**

The patient should also be instructed to avoid sleeping on the involved side for at least two weeks.

#### **Trigger Points**

The following trigger point formations may, singly or in combination, imitate or contribute to the pain accompanying a *Posterior Deltoid Origin Syndrome*: Scalenus, Scalenus (minimus), Infraspinatus, Medial teres major, Lateral teres major, Teres minor, Coracobrachialis, Supraspinatus (muscle), Subclavius, Subscapularis, Posterior deltoid, Anterior deltoid, Pectoralis major (clavicular fibers), Medial triceps (lateral fibers), Lateral triceps, Triceps (long head), Distal medial triceps, Anconeus, Biceps brachii, Brachialis, Supinator, Extensor carpi radialis longus, Extensor carpi radialis brevis, Middle finger extensor, Fourth finger extensor, Flexor carpi radialis, Brachioradialis, Pronator teres, Extensor indicis proprius, Flexor digitorum sublimis (humeral head), Flexor pollicis longus, Second dorsal interosseus, Opponens pollicis, adductor pollicis, First dorsal interosseus, Flexor digitorum sublimis (radial head), Flexor pollicis longus, Second dorsal interosseus, Adductor pollicis, and First dorsal interosseus.