

# Management of Adhesions of the Scapulothoracic Interface -- Scapulocostal Syndrome

R. Vincent Davis, DC, PT, DNBPM

The scapulothoracic interface anatomically constitutes only a potential space between the anterior surface of the scapula and the posterior aspect of the respective costal margins. This potential space is occupied primarily by myofascial components. Upper extremity motion commonly involves the movement of the scapula on the posterior thoracic cage, and to minimize the coefficient of friction resulting from such motion, the interface is lubricated by a serous fluid.

Following trauma to the soft tissue components of the scapulocostal interface, traumatic edema is formed. Irrespective of where it occurs in the body tissues, the presence of inflammatory edema is the antecedent to adhesion formation. This is a well-recognized clinicopathological process. If allowed to progress, such adhesions formation will inevitably result in loss of motion of the scapula on the respective thoracic cage. Such loss of motion then complements pathological progression of this lesion to one of complete adhesive myofascitis of the scapulothoracic interface. This is, of course, an exquisitely painful clinicopathology.

Michele and Eisenberg call attention to fatigue associated with habitually faulty posture which exerts tension on the deep cervical fascia and respective musculature. This results in dull, aching pain in the posterior cervical region with pain radiating to the occiput, medial border of the respective scapula, and down the arm and forearm on the ulnar aspect of the hand. This pain complex may also radiate along the vertebral border of the scapula to the region of the fourth and fifth ribs posteriorly. Exquisite tenderness is a common clinical finding near the insertion of the levator muscles into the vertebral border of the scapula with a sensation of stiffness in the region of the shoulder girdle.

The differential diagnosis should rule out the cervicobrachial syndromes and generalized disorders such as polymyositis and fibromyositis. Diagnostic evaluation should include, but not be limited to, performance of the Apley test, the scapular wing test, the passive and active motion tests to rule out muscle weakness and intra-articular causes of reduced range of motion (ROM). If the respective scapula and thoracic cage move in unison rather than one upon the other, this constitutes a prominent clinical feature of this syndrome. The subscapularis, latissimus dorsi, teres major, rhomboid minor and major, serratus anterior, supraspinatus, and trapezius are all muscles implicated in the clinical features of this lesion.

Although treatment of the lesion involves some controversy, this author recommends the following therapeutic regimen. Apply interferential current employing the Davis procedure ("DC", November 15, 1988) placing the electrodes approximately one inch peripheral to the respective scapula. The object of this electrode placement is to ensure that the resulting interference pattern is located within the potential space of the scapulothoracic interface, as much as possible. For best clinical results, the IFC device should deliver a rectangular waveform with an average 25 microsecond pulse width and a beat frequency of approximately 120 Hz. In my experience, these electrical parameters will allow for the clinical application of as much as 60 to 70 ma of IFC to be applied.

The major percentage of patients treated in this manner experienced an anesthetic effect from the IFC application.

It is possible to enhance this clinical process by pre-empting this IFC application with shortwave diathermy. SWD should result in an increase in the passive congestion in this area which should increase the hydration of these tissues with electrolytes. NMSC is, of course, an electrolyte mediated tissue stimulus.

The patient should be placed in a loose sling following treatment to reduce their tendency to use these components without arresting such motion. Correction of faulty posture by exercise and improved postural habits should be included in this regimen. Treatment may be administered every other day for several weeks, if necessary.

Failure of this regimen to restore painless scapulocostal motion will probably require consultation with an orthopedic surgeon for possible reduction of existing adhesions under anesthesia.

### *References*

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*R. Vincent Davis, D.C., BSPT, DNBPME  
Independence, Missouri*

JULY 1992