Dynamic Chiropractic

Management of Carpal Tunnel Syndrome -- A Conservative Regimen

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The most common site of compression of the median nerve is at the wrist under the transverse carpal ligament. Here it is accompanied by the flexor tendons of the fingers. This is the site of the carpal tunnel which is extremely limited in space and will barely accommodate the structures occupying it. The act of grasping an object, especially with the wrist in flexion, results in the flexor tendons being displaced forward resulting in compression of the median nerve by the unyielding ligament. With repetition of the act of wrist flexion, the median nerve is repeatedly traumatized at the point where it passes under the ligament. A neuroma may form just proximal to the carpal tunnel. No local etiology for nerve compression is commonly detectable in carpal tunnel syndrome.

This syndrome occurs more often in women with a ratio of 5:1 with the common age of onset at about 40 years. The extremity of dominant use is usually involved, and when bilateral, the extremity of dominant use is commonly involved first and is more severely involved.

Clinically, median nerve compression at the transverse carpal ligament results in slight paresthesias for several months prior to onset of the acute symptoms. After several months, acute symptoms present as paroxysms of pain, numbness, and paresthesias in the median nerve distribution.

The history commonly reveals that the patient awakens in the night, during sleep, with pain which is described as burning, aching, pricking, pins and needles sensations, or by a sense of tightness in one or both hands. These sensations may radiate along the inner aspect of the forearm and could be felt proximally as high as the shoulder. Included is the complaint of the inability to use the wrist with swelling of the fingers. There may be positive Tinnel's sign and Phalen's test in the affected wrist(s). The tourniquet test usually confirms the presence of transient ischemia which requires inflating the cuff above the systolic pressure just proximal to the site of the lesion, at about 220 mm Hg. If positive, ischemic sensory loss in the median nerve distribution usually occurs in about 10 minutes following cuff inflation. This test confirms the presence of ischemia as the etiology of this syndrome.

Electromyographic diagnosis is recommended prior to treatment, and especially prior to neurosurgical referral, if such is necessary.

Conservative care involves resting the wrist in a cock-up splint, both day and night. If, for any reason, the patient cannot or does not comply with this resting procedure, the lesion will usually progress, unimpeded. Pulsed cortisone (0.5%)/lidocaine ointment (2.5%) phonophoresis may be administered directly over the lesion using .50 W/cm2 output for 10 minutes, no less often than every other day. Pain may be reduced with interferential current application with careful attention to electrode placement using a beat frequency of 100 Hz, or higher, to stimulate the parasympathetic system and minimize ischemia. IFC may be applied daily if effective in reducing the pain intensity. Also, currently on the market is a device called the Carpal-Lock (CMO Corp., Box 147, Barberton, Ohio) which has

proven very helpful as the splint of choice with my patients following its use.

The presence of motor impairment constitutes a clinical basis for surgical referral for decompression.

Figure #1 Transverse carpal ligaments: These ligaments bridge the arch of the carpal rows and form a tunnel. The proximal band extends from the tubercle of the navicular bone to the pisiform and the distal band from the tubercle of the trapezius to the hook of the hamate.

Figure #2: Contents of the carpal tunnel. The tunnel contains the deep and superficial long finger flexor tendons, the tendons of the long flexor muscles of the thumb, and the ulnar flexor muscle of the wrist and the median nerve.

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