

Clinical Assessment

Is it Carpal Tunnel Syndrome or Median-Nerve Compression?

by Whitney Lowe

A relatively recent study of the effectiveness of a particular massage protocol in the treatment of carpal tunnel syndrome provides important confirmation on treating this condition with soft-tissue therapy.¹ First, it reiterates that carpal tunnel syndrome can be treated with massage. More importantly, the study demonstrates that massage along the entire length of the median-nerve route is more effective than a massage treatment focused either on the wrist or in one area.

The reason for this success is often the median nerve is entrapped in more than one location of the nerve's route. In some cases, what are believed to be symptoms of carpal tunnel syndrome are in fact symptoms of nerve compression in another location of the median-nerve pathway.

Particularly in cases that resist improvement, it would be beneficial to begin to address the arm, upper chest and cervical areas as a whole.

Median-nerve compression

Soft-tissue therapy is perhaps one of the best strategies for median-nerve compression when the condition derives from soft-tissue compression of the nerve. Clinical massage therapists routinely note their work's ability to reduce symptoms and encourage health with carpal tunnel syndrome.

Median-nerve compression is the result of physical impingement by another structure, so clients and health care providers must address the causes of the impingement; for example, poor ergonomics at the workplace, postural distortions or repetitive activities.

It is this combination of fundamental changes in the client's behavior or physical status, such as rest from offending activities or removal of a physical obstruction, and treatments that address the particular dysfunction in the soft tissues that most reliably result in full recovery.



Compression locations

Because the nerve can be impinged anywhere along its route and still produce symptoms in the hand, this condition benefits from a thorough assessment. Definitive results may be elusive, but, like a puzzle, the more pieces of information one has, the more accurate the picture one can obtain.

Admittedly, this can be difficult. Sometimes, physical assessment is not enough. Continued testing—principally, nerve-conduction testing or MRIs—by the client's other health care providers may be necessary when results do not follow intervention.

The following locations of median-nerve entrapment should be considered when faced with neurological symptoms in the distal upper extremity:

- The intervertebral discs or physical anomalies, such as bone spurs or tumors, can be the source of the nerve's impingement at the C5-T1 nerve roots. The brachial plexus—the combination of nerve trunks coming out of the cervical region—includes fibers from multiple nerve roots that eventually branch into all the major nerves of the upper extremity.

Consequently, pressure on portions of the brachial plexus can produce neurological symptoms in multiple regions of the upper extremity, not just in the area confined to one particular nerve.

- Although thoracic outlet syndrome usually involves the ulnar nerve, the median nerve can also be compressed in this region. Compression occurs between the anterior and middle scalene muscles, under the pectoralis minor muscle, or between the first rib and clavicle. (See Figure 1.)

Thoracic outlet syndrome can produce symptoms very similar to carpal tunnel syndrome. There have been cases in which carpal tunnel syndrome surgeries have been performed, only to find later, after symptoms fail to improve, the problem is not in the wrist but in the thoracic outlet region.

- At the elbow, the median nerve runs under the bicipital aponeurosis, also called lacertus fibrosis. (See Figure 2.) Bicipital aponeurosis is a minor attachment of the biceps brachii to the ulna.

This can be a nerve-compression site, although it is not easy to confirm with physical examination. If palpatory pressure directly over the area greatly exaggerates symptoms, this may indicate an issue here.

- Another site that results in median-nerve compression symptoms that can be mistaken for carpal tunnel syndrome is where the nerve travels between the two heads of the pronator teres muscle.

If symptoms occur in the forearm as well as the hand, it is likely at least some of the compression is coming from the pronator teres and not just the carpal tunnel, although both may be involved.

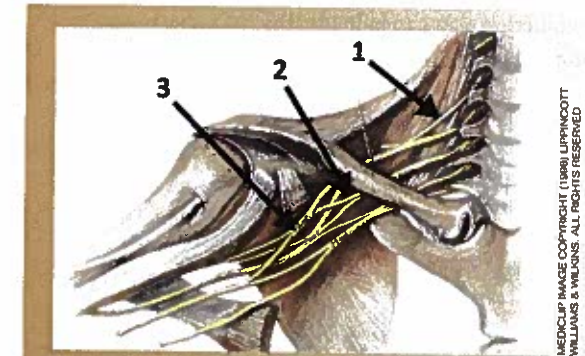


Figure 1: Potential median-nerve entrapment in the thoracic outlet region: 1) between the scalene muscles; 2) between the clavicle and first rib; and 3) under the pectoralis minor muscle.

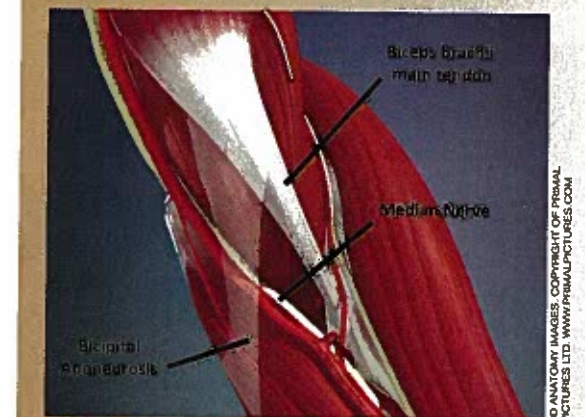


Figure 2: Median-nerve entrapment by the bicipital aponeurosis (lacertus fibrosis).



Figure 3: Regions of cutaneous innervation of the hand.