



Not All Hand Pain is Carpal Tunnel Syndrome!

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Carpal Tunnel Syndrome is the most commonly diagnosed nerve entrapment in our society, reportedly affecting as many as 10% of the adult population. However, it may be one of the most commonly miss-diagnosed nerve entrapments as well. It occurs when the Median nerve (which originates from several nerves in the neck) is impinged as it passes through the carpal tunnel (which is located at the wrist). Characteristically this causes pain, numbness or tingling, and possibly weakness in certain areas of the hand. Inflammation in the tunnel, which may be due to repetitive motion injuries, certain trauma, or retention of water as in pregnancy, diabetes, or during a woman's menstrual cycle, is often the cause. The syndrome has received much publicity over the last decade, which has led to an increase in its diagnosis and treatment. Unfortunately some confusion still exists over what is, or more importantly, what is not Carpal Tunnel Syndrome. This has prompted many sufferers to question; Is this hand pain truly Carpal Tunnel Syndrome?

Many people in our society have come to assume that symptoms in the hand or wrist, especially in someone who performs repetitive tasks (like typing at a keyboard) are caused by Carpal Tunnel Syndrome, or CTS. Not only the general public, but doctors who diagnose the disorder, and even researchers who study it don't seem to agree on the exact signs and symptoms. This has led one researcher to describe CTS as a "garbage diagnosis", indicating that that CTS has become a catch-all for anyone suffering from irritation in the wrist, hand or forearm. Unfortunately, improperly diagnosing someone as having CTS may lead to the wrong treatment, which may

make a separate condition worse.

Symptoms of Carpal Tunnel Syndrome

The first step in proper diagnosis of CTS begins with recognizing the true symptoms of the disorder. The median nerve is one of many in the body that gets its origin from the neck and travels down into the arm and hand. This nerve courses down the arm and enters the carpal tunnel at the wrist. After passing through the tunnel, the median nerve travels to the thumb and first 2 ½ fingers, as well as the palm on that side. Symptoms from median nerve impingement typically include pain, numbness, tingling, and/or weakness into this area of the hand. The pain is also characteristically worse at night.

The median nerve can be thought of as a motor highway, whose traffic travels from the brain and spinal cord down to these areas of the hand, and returns along the same path. If a major accident occurs in the tunnel of this highway, traffic from the brain cannot get past the accident to get to the hand, and returning traffic from the hand cannot get past the accident back to the brain. Thus outgoing traffic (muscle control) is stopped, and incoming traffic (sensation of touch, pressure, vibration) is stopped as well. The brain, like the Department of Transportation recognizes the problem and sends out an alert (which causes pain).

Other possible causes of hand pain

What if the alert from the brain is not due to CTS, but something else? It is important to know what other conditions can mimic the disorder. The first

distinguishing factor is the location of symptoms. Symptoms outside the distribution of the median nerve should always raise a red flag. Timing of symptoms can be important as well, but examination and diagnostic tests are usually needed to be certain of the cause.

The source of non-CTS problems can occur in several locations, including the forearm and neck, or possibly a combination of multiple locations. For example, muscles in the forearm have been found to impinge the median nerve before it enters the carpal tunnel, causing the same symptoms as in CTS. Trigger points in certain forearm muscles will cause referred pain into the hand as well. Continuing with the traffic analogy, a problem in the forearm is like an accident before the tunnel, but it still affects the same highway, and therefore causes similar symptoms. The presence of pain, tenderness, or muscle spasm of one or more muscles in the forearm is a good indicator that one does not have CTS.

A second location where non-CTS problems can occur is in the neck. Very widely published, is the associated pain, numbness and tingling, and weakness into the hand that results from irritation or impingement of spinal nerves as they exit the neck. Several medical, chiropractic, and orthopedic reference texts have long indicated that impingement here may cause neck pain, as well as symptoms into the shoulder, arm, hand, and fingers. Since traffic is stopped long before the carpal tunnel, travelers are unable to get to earlier exits as well, resulting in symptoms in areas in addition to those in CTS.

Third, and even more confusing, is a condition in which patients have an

injury in both their neck, and their carpal tunnel. This condition is called Double Crush Syndrome. Double Crush Syndrome (DCS) was first described in 1973 when researchers found that 81 out of 115 patients studied with CTS had associated neck problems as well. Researchers proposed that a nerve may be “pinched” in two areas, and it is the combination of the two which causes symptoms. For example, consider that a hypothetical nerve requires 10 units of pressure to cause pain and symptoms. DCS describes a situation in which someone may have 5 units of pressure in their neck, and 5 units of pressure in their carpal tunnel. While neither one by itself would cause symptoms, the combination of the two give rise to pain, numbness, and weakness.

Diagnosis

Symptoms are important in the diagnosis of CTS, but are not conclusive proof of the disorder. One sign which differentiates CTS from others is the increased incidence of pain at night. Studies have shown that approximately 84% of CTS patients have increased symptoms at night, as opposed to only 10% of neck problem patients. Regardless of symptoms, a proper examination should always be performed.

To be certain the problem is CTS, more intrusive tests are often utilized. These tests include Nerve Conduction Velocity tests (NCV) and Electrophysiological tests (EMG). These tests measure the speed of nerve conduction or the loss of nerve supply to certain muscles. If a physician orders one of these tests and determines that the speed of the median nerve is slowed at the wrist, or that the muscles supplied by the median nerve have been damaged, the diagnosis of CTS may be made. However, despite the conclusivity of the NCV and EMG tests, studies have shown that as many as 28% of those diagnosed with CTS had normal studies. The studies are less reliable for other conditions, and those with neck or forearm problems, or someone with DCS may or may not have positive results.

X-rays of the wrist are not usu-

ally helpful in diagnosing CTS, but x-rays of the neck may show signs of degeneration or other problems which would make CTS less likely. More sophisticated imaging studies, such as an MRI may be helpful but are rarely used.

Carpal Tunnel Syndrome Treatment

After consultation, examination, and testing has confirmed a diagnosis of CTS, what can be done? Doctors will typically start conservatively and may recommend a hand brace or splint, ultrasound, Vitamin B6 or nutritional supplementation, trigger point therapy, mobilization, or Chiropractic treatment. If no relief is noted within a reasonable time, prescription medication such as corticosteroids, diuretics, or NSAIDs may be prescribed. The third step is often steroid injection, followed lastly by surgery.

If someone develops severe CTS, surgery may be the only helpful option. However, surgery is not a cure-all, and many undergoing surgery continue to have ongoing symptoms. Most clinicians will exhaust all other measures before exploring the option of surgery, especially if any doubt exists as to the definitive cause of symptoms. Carpal Tunnel surgery will not help if the problem is located elsewhere.

Non-Carpal Tunnel treatment

If CTS is not the cause of symptoms, what can be done? Just as carpal tunnel surgery will not help a problem in the forearm, treating the forearm will not help if the problem is coming from the neck.

If symptoms into the hand are due to pressure on the median nerve in the forearm, or referred pain from the forearm, this area must be addressed if correction is desired. Treatment typically involves reducing spasm of the involved muscles, including myofascial release or other chiropractic soft tissue techniques, or possibly physical therapy. Trigger point therapy has also been proven to reduce symptoms into the hand from this area.

Radicular symptoms arising from the neck may result from disc herniations, arthritis, or specific structural problems or misalignments in the bones of the spine (vertebrae). These problems will typically require a conservative course of chiropractic care with a referral for physical therapy if needed. If correction is not attained within a reasonable time period, a more intensive course of medication, steroid injection, and finally surgery may be required. Chiropractic treatment, including specific spinal adjustments and/or neck traction, is utilized to reduce the impingement or irritation of nerves as they exit the spine, thereby reducing symptoms.

Lastly, if a definitive diagnosis of Double Crush Syndrome is determined, treatment may involve one or more physicians. DCS means the nerve is “pinched” more than one area, therefore treatment of one or both of these areas may be necessary.

Conclusion

Is it possible that the most commonly diagnosed nerve entrapment is the most commonly over diagnosed nerve entrapment? While it is likely the vast majority of Carpal Tunnel Syndrome sufferers truly have the disorder, it is very possible that many do not, and they may be suffering unnecessarily. Hand pain alone does not warrant a Carpal Tunnel Syndrome diagnosis. Furthermore, in-depth examination and studies are needed to make a definitive diagnosis. Symptoms outside the distribution of the median nerve often indicate problems other than, or at least in conjunction with CTS. When this is the case, treatment must be directed at correcting the cause, not simply alleviating the symptoms. Additionally, surgery may be needed, but should be reserved as a last option, and only when all other conservative measures have been exhausted. When nerves are like highways, we should know where the accident is before we try to re-route traffic, and sending an ambulance to the wrong exit will often allow the injured to get worse.