

Cubital Tunnel Syndrome: An Overlooked Affliction of the Upper Extremity

Cubital tunnel syndrome is one of several chronic nerve compression syndromes in the upper extremity. Less common than carpal tunnel syndrome, cubital tunnel syndrome can interfere with hand function, activities of daily living, and may even result in permanent nerve deficits.

The cubital tunnel refers to the small window of fibrous tissue through which the ulnar nerve passes as it wraps around the medial side of the elbow. This spot is commonly referred to as the “funny bone”. The nerve is very superficial, and thus is susceptible to external compression from arm positioning and activities of daily living, such as leaning one’s elbow on an armrest or sleeping with the elbows flexed. These positions increase the pressure in the cubital tunnel and lead to neuropathic symptoms that may be either intermittent or constant.

The symptoms of cubital tunnel syndrome are most commonly numbness and tingling in the ring and small finger of the affected side. If nerve compression is present light tapping or percussion over the path of the ulnar nerve at the elbow elicits numbness and tingling in the ring and small fingers (called “Tinel’s sign” at the elbow). More severe symptoms and signs include wasting (or atrophy) of the small intrinsic muscles of the hand and even loss of strength in the muscles that are responsible for fine motor movements. People with severe cubital tunnel syndrome may have difficulty holding heavy objects and weakness of grip.

It is important to seek treatment for compressive neuropathies as longstanding compression can actually lead to structural and molecular changes in the nerve that are irreversible despite surgical release and decompression. When symptoms become persistent, it is possible that the changes in the nerve have already become permanent with irreversible loss of strength and function. Altered motor function is an indicator of severe compression.

Treatment for cubital tunnel syndrome is either nonsurgical (conservative) or surgical. For early, intermittent symptoms, elbow braces at night and some activity modifications may fully alleviate symptoms. Elbow braces that keep the arms in a semi-extended position prevent pressure from building up in the cubital tunnel and decrease the compressive forces across the nerve. Keeping elbows off hard surfaces while driving, writing, keyboarding, or eating also help decrease the likelihood that the nerve will be compressed.

Sometimes, symptoms are too advanced to respond to conservative treatment. Usually this is not only evident from the clinical presentation but it is also strikingly evident on EMG studies and nerve conduction studies that show how rapidly and effectively the peripheral nerves are firing. If a nerve has been chronically compressed, the molecular changes that occur within the cells lead to slower conduction velocities. This “slowing-down” of the nerve is what is apparent on these studies. If severe changes are present,

conservative treatment may not be successful. In these cases, the recommendation is to surgically decompress the nerve and possibly tether it slightly anterior to the bony elbow prominence, called “transposing the nerve”, to an area of the elbow that is less susceptible to compression. The surgical release of the nerve ensures that the sites of compression are removed and the nerve can recover function.

Once nerves have been compressed to the point of more significant levels of injury, they may take quite a while to recover their function. Sometimes this process takes up to a year. Despite being one of the most resilient tissues in the body, nerves are certainly one of the slowest to heal themselves after injury.

In conclusion, cubital tunnel syndrome is a fairly common compression neuropathy of the upper extremity. When promptly recognized, this condition is very responsive to treatment. It is important to be aware of symptoms so that hand function and strength can be recovered and quality of life restored to affected patients.

References:

Green's Operative Hand Surgery, 5th Edition. Ed. DP Green MD, RN Hotchkiss MD, WC Pederson MD, SW Wolfe MD. 5th ed. 997-1001.