



QUESTION | WHEN IS SURGERY INDICATED FOR GUYON'S CANAL ULNAR NERVE COMPRESSION?

ANSWER | Guyon's canal is immediately adjacent to the carpal tunnel on the volar part of the wrist and contains the ulnar nerve and ulnar artery. Compression of the ulnar nerve within Guyon's canal is much less common than compression within the cubital tunnel, and both of these conditions are even much less common than compression of the median nerve within the carpal tunnel. Compression of the ulnar nerve within Guyon's canal and within the cubital tunnel can lead to similar symptoms, but there are clinical signs that can be used to differentiate between the two.

Compression of the ulnar nerve within Guyon's canal leads to sensory changes in the distribution of the ulnar nerve on the volar aspects of the ulnar 1.5 digits of the hand. Because the ulnar nerve divides into volar and dorsal branches prior to entering Guyon's canal, compression of the nerve within the canal will spare sensation on the dorsal aspect of these ulnar 1.5 digits.

On the other hand, compression of the ulnar nerve in the cubital tunnel at the elbow occurs at a site proximal to the division of the ulnar nerve into its volar and dorsal branches, and therefore will cause sensory changes on both the volar and dorsal aspects of the ulnar 1.5 digits of the hand.

Tapping along the ulnar nerve via Tinels testing may also show irritation to the ulnar nerve at the level of the wrist in the case of compression within Guyon's canal, as opposed to irritation at the level of the elbow in the case of cubital tunnel syndrome.

Severe compression at both levels would lead to weakness and wasting of the intrinsic muscles of the hand innervated by the ulnar nerve, whereas compression at the elbow will also involve the ulnar nerve-innervated muscles in the forearm (FCU; FDP to the ring and little fingers).

Therefore, by paying attention to the above differences during a careful examination, it is possible to determine the level of the compression of the ulnar nerve.

If compression of the ulnar nerve at the level of Guyon's canal is clinically suspected, then imaging studies to look for the cause should be performed. It is important to exclude a space occupying lesion – such as a ganglion from one of the nearby intercarpal joints – with an MRI scan. A basic x-ray will also give information about potential osteoarthritis in the area, which leads to surrounding soft tissue oedema which may compress the ulnar nerve. A nerve conduction study may be used to confirm the diagnosis.

The treatment is then directed based on the severity and cause of the nerve compression.

If the cause is not reversible, then nonoperative management with splints and injections are unlikely to give long lasting results. However, if the cause is reversible (eg. short-term oedema due to recent trauma; direct trauma due to a fall onto this area) then splints and injections are useful to treat the symptoms until the cause has resolved.

Sometimes, a steroid injection into Guyon's canal, to the adjacent ganglion and to the cause of the nearby ganglion may help resolve symptoms, since resolving the ganglion may remove the cause of compression of the ulnar nerve.

Ultimately, surgery may be indicated if the patient fails nonoperative management, or if the cause is one which is likely to be irreversible without surgery. Likewise, surgery is also indicated in the situation of motor weakness or wasting due to ulnar nerve compression because this indicates a more severe compression. Weakness and wasting can be irreversible even after decompression of the nerve, with more severe weakness and wasting leading to a worse long-term outcome. Therefore, if motor problems are detected during clinical examination, my recommendation is to proceed to surgery earlier rather than later so as not to leave the nerve compressed for a prolonged period of time in case nonoperative management fails to work.

It is important to note that compression of the ulnar nerve within Guyon's canal is fairly uncommon. It can be easy to overlook this and it is therefore important to take a careful history as to the symptoms and to make a careful examination to determine the involved nerve so that appropriate treatment can be initiated.

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