

# Compression of Ulnar Nerve by Ganglionic Cyst in Guyon's Canal: A Case Report.

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## ABSTRACT

Ulnar nerve compression at Guyon's canal is rare and very few cases have been reported in literature. It can be missed due to its rarity. Symptoms vary from pain and paresthesia to wasting and significant loss of muscle strength, with significant deformities of the hand. The diagnosis is made by detailed history and examination, electromyography, nerve conduction velocity test, ultrasound and magnetic resonance imaging. Early decompression of nerve is treatment of choice. Here we are presenting a case of compression of ulnar nerve in Guyon's canal due to ganglionic cyst.

**Keywords:** Guyon's canal, ulnar nerve, Ganglion cyst.

## INTRODUCTION

The ulnar nerve can be compressed during its pathway in cubital tunnel, arcade of Struthers and Guyon's canal. Compression of ulnar nerve at Guyon's canal is considered rare in the literature and that too by ganglion cyst is even rare.

Various causes of compression at Guyon's canal are tumour such as lipomas, ganglions, trauma, thrombosis of the ulnar artery, pisiform instability, and pisotriquetral arthritis.

The increased pressure inside the canal causes a decrease in the conduction velocity of nerve stimuli, thereby generating pain, sudden sensory loss and muscle strength hence understanding the possible cause and performing proper examination is important.

Case presented here is of compression of ulnar nerve in Guyon's canal due to ganglion cyst.

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## CASE REPORT

56-year-old right-handed male presented with pain in the hypothenar region with loss of strength in left hand that had started insidiously and paresthesia in medial two fingers for 6 months.

On examination there was diffuse pain with worsening upon mobilization of the left little finger. There was wasting of hypothenar muscle, and clawing of the fourth and fifth fingers. Extension of 4<sup>th</sup> and 5<sup>th</sup> finger was painful. There was no history of trauma. Upon palpation, there was diminished sensitivity along the little finger and the ulnar face of the ring finger. Distal pulses were palpable. In the neurological examination Tinel sign along the path of the ulnar nerve was positive, which started at the wrist and went towards the fourth and fifth fingers.

X-ray of hand, cervical spine, Electromyography, nerve conduction velocity, MRI of cervical canal and ultrasonography was performed.

The radiographic examination was normal. Electromyography and nerve conduction velocity showed motor, axonal and distal neuropathy of the left ulnar nerve. MRI finding were suggestive of compression of ulnar nerve in Guyon's canal.

Surgical exploration of Guyon's canal was done from volar-ulnar region of the left wrist and hand under axillary block [Figure 1].

Cyst was seen compressing the ulnar nerve [Figure 2].

Resection of cyst was done, with the release of ulnar nerve. Skin suturing was done. Compressive dressing was done. Intravenous antibiotics were given as per protocol. Sutures were removed on 14<sup>th</sup> day. Skin condition was good.

Physiotherapy was started. The patient had good recovery with no specific problems during two postoperative weeks. He regained normal strength

and function and had no pain. The biopsy confirmed the diagnosis of ganglion cyst.



**Figure 1:** clinical photograph showing surgical exploration of Guyon's canal from volar-ulnar region of the left wrist and hand.



**Figure 2:** Intraoperative photograph showing cyst compressing the ulnar nerve.

The patient had full pain relief and improved sensitivity, as well as progressive improvement of the hypotrophy of the musculature and increased muscle strength over 6 weeks.

## DISCUSSION

The Guyon's canal was described by the French urologist Guyon in 1861<sup>[1]</sup> as an oblique semi-rigid canal with a bone floor and fibrous roof.

Ulnar nerve entrapment at the wrist is a rare condition as it is only 5% as high as the incidence of ulnar nerve entrapment at the elbow.<sup>[2]</sup>

Boundary of Guyon's canal include pisiform bone proximally and medially and hamate bone laterally and distally. The floor of canal is formed by the transverse carpal ligament and roof by the volar carpal ligament. At the distal end of the floor is the pisohamate hiatus, which is superiorly bounded by a concave musculotendinous arch and below by the pisohamate ligament.<sup>[3]</sup>

Within Guyon's canal lie the ulnar artery and nerve. Compression at Guyon's canal is divided into three types: compression with sensory and motor deficit (type I); compression of the deep branch alone, with motor functional changes alone (type II); and compression of the surface branch alone, with sensory deficit without motor impairment (type III).<sup>[4]</sup>

The clinical condition varies according to the time elapsed since the start of the symptoms, the magnitude and level of the compression.

Symptoms vary from pain and paresthesia to wasting and significant loss of muscle strength, with significant deformities of the hand that are often irreversible.

The diagnosis is done by detailed history and clinical examination, appropriate complementary examinations, Electromyography, nerve conduction velocity test, Ultrasound and magnetic resonance imaging. Early diagnosis for the compressive syndrome is important for enabling a better postoperative prognosis.

The treatment is usually surgical, with decompression of the nerve inside the canal by means of a volar access and careful exploration.<sup>[5]</sup>

## CONCLUSION

Ganglion cysts in the hand occur most frequently during the second through fourth decades of life, and affect women more often than men. Patients often present with a history of an asymptomatic mass that has been present for a period of months or years. Ulnar nerve compression by a ganglion cyst in Guyon's canal with a sudden decrease in hand strength is extremely rare. However in such clinical setting, clinicians should consider a ganglion cyst in Guyon's canal as the possible underlying cause of compression. Early decompression with removal of the ganglion is an important for complete recovery.

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