

# Guyon's canal syndrome resulting from an ulnar artery aneurysm : a case report

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## **Guyon's canal syndrome resulting from an ulnar artery aneurysm : a case report**

### **INTRODUCTION :**

The Guyon's canal syndrome is a relatively rare entity . this disorder is due to the ulnar nerve compression when it passes through this canal at The wrist which is an uncommon site for the ulnar nerve compression .

Clinical examination is crucial for Guyon's canal syndrome diagnosis , however it can be misleading due to the variations of clinical presentations especially when the sensory symptoms are absent or atypical.

Moreover Vascular lesions are not the usual cause of the compression of the ulnar nerve at the Guyon's canal but should be kept in mind as a possible etiology particularly when no obvious cause was identified.

The authors experienced a rare case of Guyon's canal syndrome caused by an aneurysm of the ulnar artery in a 20 years old male.

### **CASE HISTORY :**

We report the case of a male 20 years old, previously healthy presented with numbness and pain along the little left finger.

He complained about difficulty in holding objects and reported a wrist trauma 2 months earlier.

On examination ,there was a pulsatile mass on the ulnar border of the wrist (figure 1) , a remarkable atrophy of the palmar and dorsal interosseous (figure 2) , abductor digiti minimi ,and abductor pollicis muscle.

Wartenberg and Tinel signs were positive in the left hand and Froment test was also positive.

Prolonged distal sensory latency of 2.56 ms (compared to 3.4 ms in the right hand) was showed in the conduction of velocity studies of the left ulnar nerve ,also a decreased sensory velocity , a lowered conduction velocity of the motor nerve at the wrist and reduced amplitude of the interosseous muscle.

These electrodiagnostic studies suggest compression of the ulnar nerve at the wrist.

Magnetic resonance imaging was not performed however doppler ultrasound showed an aneurysm of the ulnar artery compressing the ulnar nerve at the Guyon's canal.

### **METHODS :**

The decompression surgery was carried out under general anesthesia ,a pulsatile structure was found coming from the ulnar artery and constricting the ulnar nerve (figure 3) .

The aneurysm was carefully removed and the ulnar artery was ligatured after a favorable allen test.(figure 4).

## CONCLUSION AND RESULTS :

The postoperative course was uneventful and the patient's symptoms immediately improved was pain free.

After three months the patient was pain free , progressively gaining his hand function and very satisfied with the procedure.

## DISCUSSION

The elbow is the most common site for ulnar nerve compression and the fibro osseous tunnel known as the Guyon's canal remain a rare site of this compression (1,2).

Many etiologies have been described in the literature , and have been involved in the ulnar nerve compression in the Guyon's canal.

These conditions can be divided into seven groups (3)

1-tumors such as lipomas , ganglion cysts ..

2-adjacent vascular enlargement ( ulnar artery aneurysm..)

3-repetitive trauma

4-metabolic diseases

5-wrist degeneration

6-variation of the Guyon's canal structure

7-idiopathic conditions

The ganglion cyst remains the most frequent causative agent of the ulnar nerve's compression at the Guyon's canal.

Inside This canal the ulnar nerve is a mixed nerve which divides into deep motor branch and a superficial sensory branch. Therefore , based on the affected areas , McClain classified ulnar lesions into 3 zones (4):

Zone 1: The proximal part of the ulnar nerve inside the Guyon's canal: proximal to the motor/sensory bifurcation, causing both motor and sensory symptoms.

Zone 2: it is the most commonly affected region , distal to the bifurcation and affecting only deep motor branches, causing motor deficits and muscle atrophy.

Zone 3: Distal to the bifurcation and affecting the superficial sensory fibers only, causing sensory symptoms.

Treatment's options of Guyon' canal syndrome depend on the gravity of the symptoms, duration of the symptoms (acute, sub-acute or chronic), previous treatments given, and underlying etiology.

Non operative treatment is opted for patients with mild or moderate symptoms with a duration less than three months , also patients should be instructed to avoid activities that apply pressure on the wrist, such as bicycling or lifting weights , and to limit mechanical overload resulting from repetitive movements or static postures such as prolonged extension of the wrist.

We should highlight that non steroidal anti inflammatory drugs and corticosteroid injections are not beneficial for the treatment of Guyon's canal syndrome (5,6).

On the other hand , patients with severe symptoms that lasted more than three months may need surgical treatment also mechanical compression of the guyon's canal is an indication for surgical release (7) which is the case for our patient whose ulnar nerve was pressured by the aneurysm of the ulnar artery causing severe symptoms in a very rare and unusual clinical presentation.

Despite that many surgical approaches are described such as ulnar hypothenar approach, Brunner approach , carpal tunnel incision, and the ulnar hypothenar approach ,There are no consensus on the best surgical approach for the Guyon's canal release (6).

The crucial aim of any surgical procedure is to to meticulously remove any potentially compressive structure to guarantee a successful recovery.

Finally ,few reports of guyon's canal syndrome due to an aneurysm of the ulnar artery have been described, our clinical case highlight the importance of an adequate surgical treatment in order to assure a good and a quick recovery of the hand function.

## CONCLUSION :

Guyon' canal syndrome is less common than either carpal tunnel syndrome or cubital tunnel syndrome and many causative agents have been described .

Vascular lesions are not the usual cause of compressing the ulnar nerve at the wrist but should be considered as another possible etiology requiring an adequate treatment for a better outcome.

## DECLARATIONS :

The authors confirm that they have no conflicts of interest associated with this publication.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Parental Consent for Minor :

Written informed consent was obtained from the patient for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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