

# True Trigger Wrist And Carpal Tunnel Syndrome- A Case Report And Review Of Literature.

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## Abstract:

**Introduction:** Association of triggering of wrist with carpal tunnel syndrome is rare and is mostly due to malformation of the belly of flexor digitorum superficialis. We report a case with ganglion arising from flexor tenosynovium causing trigger wrist and carpal tunnel

**Case Report:** 60 year old female presented with swelling on the volar aspect of wrist with pain and numbness. The thenar muscles were atrophic and she complained of dyesthesia in the volar aspect of the thumb, index and middle fingers. Tinnels and Phalens test were positive. Intra operatively ganglion was 3x1 cm arising from the superficial common flexors. It was excised completely and patient recovered from all her symptoms within 4 months.

**Conclusion:** Abnormal findings on palpation in wrist with triggering and carpal tunnel syndrome should alert the clinician to the possibility of a mass below the transverse carpal ligament, which in our case was a ganglion. Complete excision of the ganglion with carpal ligament release will be needed in these cases

**Key words:** trigger wrist, carpal tunnel syndrome, ganglion

## Introduction

Triggering of the flexor tendons at the wrist joint is an unusual phenomenon, and it has been reported previously to be caused by a disease such as fibroma, lipofibroma, lipoma, anomalous muscle belly of flexor digitorum superficialis and anomalous muscles (1-6)

Space occupying lesions such as ganglion, neurilemmomas, chondromas, and chondrosarcomas have been reported as the cause of carpal tunnel syndrome. Lipomas may cause carpal tunnel syndrome but those rarely originate from the tenosynovium (7-10)

There have been very few cases of trigger wrist and carpal tunnel syndrome reported in the literature.

Only two cases of carpal tunnel syndrome associated with true triggering of wrist caused by malformation of the belly of flexor digitorum superficialis have been reported. (11-12)

We report a patient with ganglion arising from flexor tenosynovium at wrist joint who had triggering of the wrist and carpal tunnel syndrome.

In such condition symptoms are not alleviated by simple release of the transverse carpal ligament, an excision of the

mass is necessary (13, 14)

## Case Report

A 60 yr old female was referred to our outpatient department for swelling over the volar aspect of the left wrist, with pain and parasthesia of fingers and hand. Symptoms started insidiously three months back. Numbness in the median nerve region began concurrently with or slightly before the awareness of the mass.

On physical examination revealed a soft, non tender, cystic, oval mass was palpable at the centre of the wrist which moved when the fingers were moved along the length of the muscle. Contraction of flexor muscle hardens the mass. Overlying skin was free from the mass. The thenar muscles were atrophic and she complained of dyesthesia in the volar aspect of the thumb, index and middle fingers. Tinnels and Phalens test were positive. In preoperative electro-diagnostic studies revealed reduced conduction velocity in left median nerve at the level of wrist joint.

At the time of surgery we approached the volar side of the wrist through an extended carpal tunnel release incision proximally and distally. The transverse carpal ligament was divided. The median nerve was compressed by the mass. There were no focal changes in the median nerve. The ganglion was an oval mass of 3 by 1 cm arising from the superficial common flexors seen. The mass had no evidence of any local haemorrhage and extending across the wrist joint. There was no evidence any anomalous muscle belly or tendon. The ganglion was excised and median nerve neurolysis was performed along the whole extent of

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Fig: 1 Preop swelling at wrist.



Fig: 2 Skin incision.



Fig: 3 Transverse carpal ligament release



Fig: 4 Exposure of the ganglion



Fig: 5 After excision

carpal tunnel.

Post operatively triggering at the wrist was totally absent. The tingling and numbness took 4 weeks to recover and the patients grip strength and sensory recovery by 6 weeks.

The histopathological examination confirmed the features suggestive of ganglion

### Discussion

While carpal tunnel symptoms are common, even in the college age group, triggering at the wrist or carpal tunnel is an unusual symptom. In addition to the tenosynovitis seen in this case, triggering of the wrist at the carpal tunnel can be caused by, muscle anomalies, such as malformation of the flexor digitorum superficialis (11) Tumors, such as giant cell tumor, and ganglion cysts.

Triggering at the wrist with finger movements is more common than with wrist movements (15).

Trigger wrist has also been seen in rheumatoid hands with flexor tendon synovitis and rheumatoid nodules.

An activity with repetitive flexion/extension of the wrist or fingers, such as drumming, can sometimes implicated as the cause for cyst formation, tenosynovitis and triggering.

Some pathologies at the carpal tunnel level may also cause triggering by locking the flexor tendons under the flexor retinaculum during movement of the flexor tendons. This

pathology in the wrist is defined as “trigger wrist” by some authors. However, according to Giannikas et al., this definition is controversial. (16)

No consensus has been reached as it is still debated whether triggering due to wrist movements or triggering of the finger should be defined as “trigger wrist” when the pathology is in the wrist. According to Desai et al., the term “trigger wrist” should be used only when a triggering due to wrist movements is present. (17)

Lemon and Engber (18) and Koob and Steffens (19) reported “true” trigger wrist cases and stated that the term is generally misused to mean the triggering of the fingers at the wrist level. As the triggering is not initiated by wrist but finger movements, a more accurate definition would be “trigger finger at the wrist”.

Our cases were of trigger fingers not wrists, although the triggering was due to pathology at the wrist level.

Lemon and Engber (18) reported an example of “true” trigger wrist. Triggering developed due to the displacement of the nodule at the extensor carpi radialis longus tendon into the second dorsal compartment by wrist movements and was treated with excision of the nodule.

Inglis et al (9) reported that only 2 of 101 cases of carpal tunnel syndrome were caused by the masses, one was lipoma arising from synovial tissue.

Kremchek and Kremchek (10) reported a case of carpal tunnel syndrome caused by a lipoma arising from the synovial tissue around flexor tendon with no triggering at wrist.

On the other hand trigger wrist caused by tumors have been reported in only 7 cases including one case in which the finger snapping was caused by the tendon masses at the wrist (1-6)

Clinical presentations of carpal tunnel syndrome due to the pressure effect of a mass on the median nerve have been reported in different cases in literature. In some of these cases, the presentation has developed acutely while others have developed gradually.

A case of calcifying aponeurotic fibroma in the carpal tunnel causing an acute presentation has been reported in literature by Kim et al. (20).

There have been cases of lipomas that developed in the palm, carpal tunnel and forearm that have caused carpal tunnel syndrome and trigger wrist (14, 21, and 22). Again, acute carpal tunnel syndrome has been reported in a few cases in literature where a diffuse giant cell tumour stemming from the tendon sheath was the cause (23, 24).

Moreover, in cases of masses, fibromatosis, nodular fasciitis, neurofibroma, leiomyoma, desmoid tumour, pigmented villonodular synovitis, scar tissues, schwannoma and fibrous histiocytoma are diagnoses to be kept in mind (13, 25, and 26). Nowadays, basically clinical signs and nerve conduction studies are used in the diagnosis of carpal tunnel syndrome. Some authors suggest that an ultrasonography of the wrist should be done routinely on patients thought to have carpal tunnel syndrome. When a mass is identified, CT and MRI evaluation will provide clear details regarding the distribution of the lesion. This information is especially used in planning for surgical treatment. In this way, by ensuring an adequate excision, recurrences could be prevented (27).

In our case, the ganglion, which arose from the superficial flexor tenosynovium, existed at the immediate proximal edge of the transverse carpal ligament leading to trigger movement at the wrist and not fingers. Surgical excision of the ganglion and carpal tunnel release with neurolysis lead to complete recovery of the median nerve neuropathy and no triggering at wrist post-op. Abnormal findings on palpation in wrist with triggering and carpal tunnel syndrome should alert the clinician to the possibility of a mass below the transverse carpal ligament, which in our case was a ganglion.

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