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Raman Kant Aggarwal
Director Upper limb and Sports Medicine, Institute of Musculoskeletal disorders and Orthopaedics, Medanta, Gurgaon, Haryana, India

Vipul Gupta
Associate Consultant, Upper limb and Sports Medicine, Institute of Musculoskeletal Disorders and Orthopaedics, Medanta, Gurgaon, Haryana, India

Mohd Irfan Banday
Fellow Upper limb and Sports Medicine, Institute of Musculo-skeletal disorders and Orthopaedics, Medanta, Gurgaon, Haryana, India

Ramkinkar Jha
Senior Consultant, Institute of Musculoskeletal Disorders and Orthopaedics, Medanta, Gurgaon, Haryana, India

Corresponding Author:
Raman Kant Aggarwal
Director Upper limb and Sports Medicine, Institute of Musculoskeletal disorders and Orthopaedics, Medanta, Gurgaon, Haryana, India

Trigger wrist: A case report

Raman Kant Aggarwal, Vipul Gupta, Mohd Irfan Banday and Ramkinkar Jha

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Abstract
Trigger wrist is a rare disorder affecting the wrist and should not be confused with trigger finger. A detailed preoperative evaluation includes a good Clinico-radiological evaluation and tests for median nerve compression. Surgical release of transverse carpal ligament along with excision of the offending mass relieves the symptoms.
This report is a case of triggering at the wrist along with median nerve compression in a 28 years old female. After detailed pre-operative evaluation surgical treatment was done and the patient got relieved of the condition.

Keywords: Trigger wrist, trigger finger, hand trigger disorders

Introduction
Trigger wrist is a rare entity affecting the wrist and can be confused with trigger finger which is a common occurrence in the hand. Marti (1960) was first to describe a snapping wrist [1]. Very few cases of trigger wrist have been reported and certain conditions like anomalous muscle belly of flexor digitorum superficialis or a tumour or rheumatoid nodule within the carpal tunnel have been implicated as the aetiologies of this rare condition. This report is a case of benign fibroblastic reaction presenting as triggering at the wrist with median nerve compression.

Patient presentation
This case study presents a 28 years old, right hand dominant female patient who reported to the Out Patient Department of our hospital with complaints of pain and clicking over left wrist and decreased sensation over middle finger over a period of six months. She had difficulty in straightening the fingers after making a fist. On examination, an elongated palpable non tender firm mass was present over volar aspect of distal forearm extending proximally 3 cm from volar wrist crease. On flexing the middle finger, ring finger as well as wrist a nodule appeared in the distal forearm but on extension disappeared with a click (video 1). Tinel's and Phalen's sign were negative for Median nerve compression.

Preoperative evaluation: A detailed Clinico-radiological and neurological evaluation was done which included the X-rays, Ultrasonography, Colour Doppler, EMG and NCV studies. X-rays were essentially normal. USG showed a nodular hypo-echoic mass between Flexor Digitorum Superficialis and Flexor Digitorum Profundus tendons of middle finger, extending between index and middle finger tendons. There was increase in vascularity on Colour Doppler suggesting a possibility of giant cell tumour of tendon sheath. NCV demonstrated no compression of median nerve at wrist.

Surgical technique
The surgery was performed with the patient in supine position under general anaesthesia and tourniquet control. After preparing and draping, a volar incision through the flexor carpi radialis tendon sheath was made (fig 1). Exploration was done which revealed a longitudinal mass attached to the volar aspect of tendon sheath of flexor digitorum superficialis of middle

finger (fig 2). The mass was seen to disappear beneath the transverse carpal ligament on extension of the fingers (video 2). Mass was excised en-block carefully while protecting the tendon during excision. The wrist was examined for any triggering or residual tissue. Complete haemostasis was achieved and wound was closed in layers and volar splint was applied. On gross examination it was a linear greyish white soft tissue mass (fig 3). The removed en-block mass was sent for histo-pathological examination.

Postoperative management: The volar splint was removed on third day and sutures were removed at 2 weeks and full range of motion exercises were started. The patient was then followed up at 6 weeks, 3 months, and 6 months. At every visit patient was evaluated for pain, triggering, sensory-motor symptoms and any recurrence.

Gross examination: On gross examination it was a linear greyish white soft tissue mass.

Histopathological findings: The microscopic sections showed fibroblastic proliferation with scattered mild lymphocytic infiltrate and numerous vessels some with thick walls and some with prominent endothelial lining highlighted by CD 31 stain. Few macrophages were present which were CD68 positive, but no giant cells were seen. The features favoured a histo-pathological diagnosis of benign fibroblastic reaction.

Result

The sensation of hypoesthesia over the middle finger improved within 6 weeks. At 6 weeks the patient had no hypoesthesia. At 6 months of follow up, the patient was symptom free and there was no recurrence.

Discussion

Triggering at wrist is a rare phenomenon as compared to trigger finger. In both entities, triggering is induced by movement of finger. In trigger finger it happens at level of A1 pulley. In trigger wrist, triggering occurs at level of transverse carpal ligament. T. Marti was first to report a trigger wrist in 1960 [1]. Many case reports [1-19] have been reported since then. Suematsu *et al.* [14] reported a case of GCT tendon sheath and also gave a classification for same based on aetiology. Type A includes growth of flexor tendon or flexor tendon sheath entering and leaving carpal tunnel. Growth may be of various aetiologies i.e. ganglion [2, 16, 17], lipoma [11, 17], fibroma [14, 17, 19], angioma [10, 14], giant cell tumour of tendon sheath [6, 14], calcification of tendon sheath [5], leiomyoma [12, 15], local amyloidosis of tendon sheath [17]. Type B includes anomalous belly of lumbrical muscle or superficialis tendon [4, 8, 14, 17, 19]. Type C includes combination of both [14, 17]. Qattan *et al.* [16] added two more subgroups to the classification: Type D includes partial flexor or extensor injury of tendon at wrist [9, 13] and Type E includes mechanical cause like avascular necrosis of capitate leading to capito-lunate instability resulting in snapping wrist [3]. Despite being reported by many authors trigger wrist is still a rare entity in comparison to trigger finger [19]. A careful examination and evaluation is important to avoid unnecessary release of A1 pulley. In both, trigger finger and trigger wrist, triggering is caused by finger movement but site of triggering is different, making it necessary to carefully examine so that unnecessary embarrassment and legal implications are avoided. Trigger finger has no association with median nerve. Trigger wrist on contrary is accompanied with median nerve symptoms in most of cases [4, 5, 6, 7, 8, 9, 11, 17]. Suematsu *et al.* [14] reported median nerve symptom in 16 out of 18 patients. Park *et al.* [17] reported median nerve symptoms in all patients. Although Tinnel and phalen sign may be negative [5, 14], nerve conduction studies and EMG may be helpful in establishing median nerve compression, however, EMG may be normal despite symptoms [17]. In our case also, there was hypoesthesia in the middle finger but NCV and EMG studies were normal. USG and MRI are helpful in complete assessment of space occupying lesion in carpal tunnel. Treatment of trigger wrist is always surgical. Removal of growth or abnormal belly along with carpal tunnel release results in relief of triggering and median nerve symptoms.

trigger video pre op.mov

Video 1: Preoperative video of the patient showing triggering of the wrist

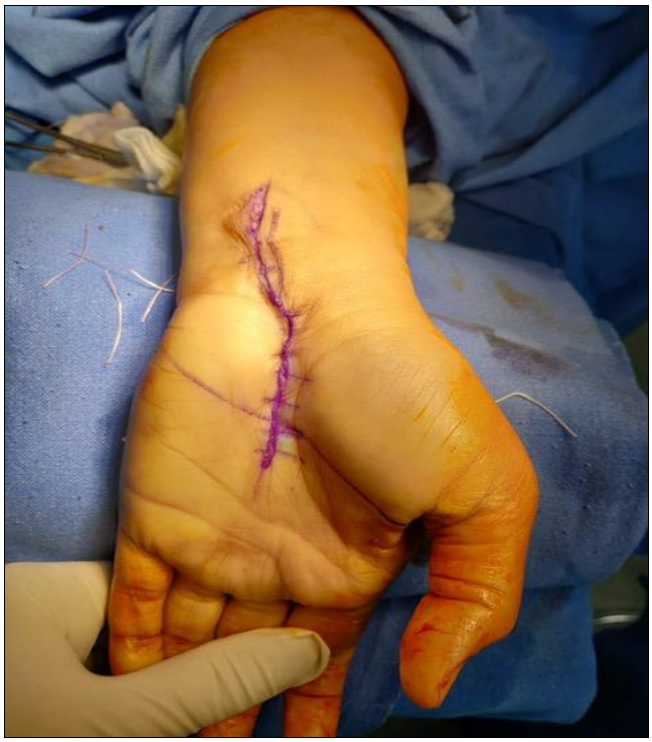

Fig 1: Planned incision

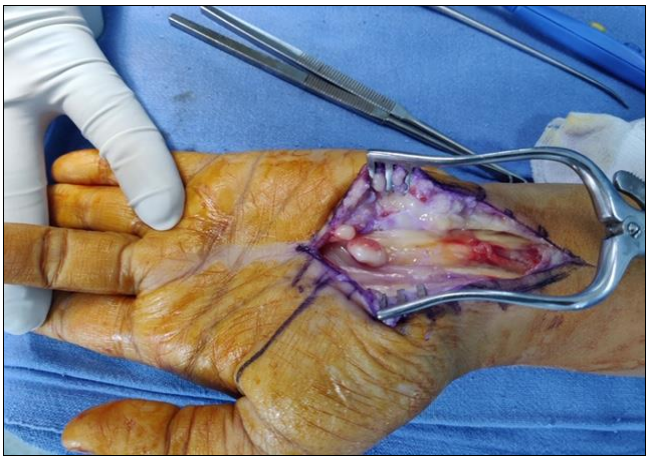

Fig 2: Intra-operative picture

trigger video intra op.mov

Video 2: Intra-operative video of the mass

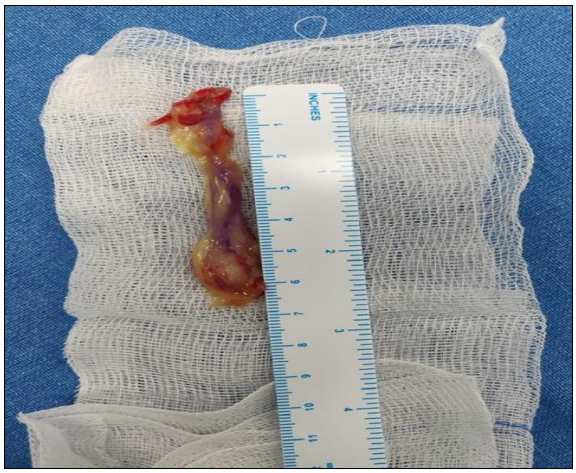

Fig 3: Excised mass

Conclusion

Trigger wrist is a rare phenomenon. Any triggering along with median nerve symptom should be carefully evaluated to find cause of triggering and differentiating it from trigger finger. Surgical release of transverse carpal ligament along with excision of the offending mass/anomaly relieves the symptoms.

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