

## Case Report

# Athlete with Compression of Thenar Motor Branch and Thumb Digital Branch of Median Nerve: Case Report

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## Introduction

Entrapment neuropathy of the upper extremity nerves have been reported in association with biking; namely ulnar nerve entrapment at wrist; Guyon canal syndrome commonly occurs and referred to as cyclist palsy or handle bar palsy. Also median nerve entrapment at wrist; carpal tunnel syndrome can occur as well.

## Case Description

A 36 year old right handed analyst man without significant past medical history, complained of numbness of left thumb x 1year, intermittent without nocturnal exacerbation. This was associated with atrophy of his left thumb muscles. He is still able to hold objects without difficulty. He also has neck pain x 6 months without irradiation to the arms. No muscle weakness or change in bowel or bladder function. His MRI for left wrist and hand was normal. He uses kettle bell for muscle strengthening regularly for several years. He also practicing shooting gun and riding a mountain bike without gloves for 2hours once a week for about 10 miles for 3-4y.

Setting: Outpatient

## Methods

Patient was subjected to all of the followings; detailed neurological examination; including Tinel's sign, Phalen tests and Spurling tests bilaterally, median motor conduction studies with recording from abductor pollicis brevis bilaterally, median motor conduction studies with recording from second lumbrical bilaterally, ulnar motor conduction studies, F wave for both median and ulnar nerves Sensory nerve conduction studies of upper and lower limbs bilaterally including left median sensory nerve conduction to Digit I, II, III. The patient also had needle Electromyography (EMG) of left flexor carpi radialis, left first dorsal interosseous. Left abductor pollicis brevis and left 2<sup>nd</sup> lumbrical muscles. In addition, ultrasound and MRI for the left wrist was carried out.

## Results

Diminished sensation only at tip of left thumb. Atrophy and weakness of left thenar muscles. Spurling's, tinel and Phalen tests were negative bilaterally. Electrodiagnostic studies revealed unobtainable Sensory Nerve Action Potential I (SNAP) of left median to thumb only. Intact all SNAP of other upper limb and lower limb nerves including left median to digit II&III. Motor Conduction Study (MCS) of left median nerve to abductor pollicis brevis showed marked prolonged distal latency. MCS of left median nerve to second lumbrical was normal MCS of both ulnar, right median nerve and left peroneal nerve were normal. All F waves were within normal limits. Needle EMG for left flexor carpi radialis, first dorsal interosseous, and 2<sup>nd</sup> lumbrical showed normal study. Left abductor pollicis brevis showed distant motor units only, without abnormal rest potential. Ultrasound of left wrist did not reveal any abnormality.

## Discussion

Electrodiagnosis suggested a lesion of left thenar motor branch as well as a digital sensory branch to thumb. Patient's athletic performance could be the reason of compression. No evidence of carpal tunnel syndrome. In the previous literature the reported type of nerve injury that is related to cycling is ulnar nerve entrapment at wrist; Guyon canal syndrome that is usually called cyclist palsy and or handlebar palsy as well as carpal tunnel syndrome [1-4]. This patient was practicing a combination of athletic activities; gun shooting, cycling and kettlebell for muscle strengthening. May be the combination of these activities resulted on the pathology but unlikely to be the cycling alone as all the previous literature report cyclist palsy is the commonest to occur.

## Conclusion

Compression of thenar motor branch and thumb digital branch of median nerve.

## References

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