

# Neuropathy of the palmar cutaneous nerve in association with palpable swellings at the wrist: A report of two cases

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## Citation

A Lomax, K Cheng, G Sianos. *Neuropathy of the palmar cutaneous nerve in association with palpable swellings at the wrist: A report of two cases*. The Internet Journal of Hand Surgery. 2007 Volume 2 Number 1.

## Abstract

We report 2 cases of neuropathy of the palmar cutaneous branch of the median nerve presenting with sensory disturbance in the hands in addition to a tender, palpable lesion in the palmar aspect of the wrist. The cause of the swelling resulting in the neuropathy was found to be a non-traumatic neuroma of the palmar cutaneous nerve in one case, and palmar cutaneous nerve entrapment from a volar wrist ganglion in the other. We have found no previous case reports of neuropathy caused by non traumatic neuroma of the palmar cutaneous nerve.

## CASE 1

A 45-year-old right hand dominant female presented complaining of pain and altered sensation in her right palm and wrist with no associated pain or sensory disturbance in the fingers. The patient had pain at night and complained of clumsiness and difficulty with precise tasks. There was no history of previous trauma or surgery to the hand or wrist.

Clinical examination revealed a positive Tinel's and Phalen's Test with pinpoint tenderness at the base of the thenar eminence immediately distal to the distal wrist crease. Examination here revealed an extremely tender, smooth, spherical swelling of approximately 5mm diameter.

X-ray demonstrated early stage carpometacarpal joint arthritis of the right thumb but nothing else of note. Nerve conduction studies of the median nerve were normal. Ultrasound scan revealed an ovoid, hypoechoic lesion measuring 2mm x 3mm lying directly below the point of maximum tenderness and superficial to the flexor retinaculum. Ultrasound appearances in conjunction with the clinical picture raised suspicion of a neuroma arising from the palmar cutaneous branch of the median nerve.

Surgical exploration revealed a neuroma arising directly from the palmar cutaneous nerve. This was excised and the stump buried. Histopathology confirmed the diagnosis of a neuroma.

The patient had good relief of symptoms with no complications at 12 months and was discharged.

## CASE 2

A 55-year-old right hand dominant female presented with a two month history of generalised left wrist and thumb pain. The patient also complained of numbness and paraesthesia affecting the thumb and radial aspect of the index finger at night.

Examination revealed a tender wrist swelling at the base of the palm, suggestive of a ganglion. Tinel's and Phalen's test were positive.

X-ray revealed early radio-scaphoid osteoarthritis. Nerve conduction studies of the median nerve were normal. The ganglion was aspirated in the clinic. At two week review there was only mild improvement in symptoms and a decision to proceed to surgery was made. Exploratory surgery revealed compression of the PCB between fascia and a ganglion at the level of the radio-scaphoid joint. The ganglion was excised, decompressing the palmar cutaneous nerve. Histopathology confirmed the diagnosis of a ganglion.

Follow up to 12 months demonstrated no complications and continued relief of symptoms.

## DISCUSSION

The anatomical course of the palmar cutaneous nerve is described in detail by Taleisnik<sup>1</sup> after cadaveric studies. The palmar cutaneous branch of the median nerve originates from the radio-palmar aspect of the median nerve approximately 5 cm proximal to the wrist crease.

The palmar cutaneous nerve remains bound to the main body of the median nerve for 16-25mm before separating and crossing the space between the median nerve and the flexor carpi radialis tendon. There, the nerve attaches to the under surface of the antebrachial fascia, running under the ulnar margin of the flexor carpi radialis tendon. The nerve then enters a 9-16mm long tunnel of its own within the transverse carpal ligament, immediately medial to the tunnel of the flexor carpi radialis tendon.

At the distal end, or within the tunnel, the palmar cutaneous nerve divides into usually one radial branch supplying the thenar area, and one or more ulnar branches toward the thenar crease, supplying the mid palm. The precise zone of sensation in the palm is difficult to define, due to the extensive overlap of sensory supply from the main median nerve.

To our knowledge, there are only a small number of documented cases of entrapment of the palmar cutaneous nerve producing neuropathic symptoms in association with a palpable volar wrist mass<sup>2,3,4</sup>. In all these cases the cause was found at surgical exploration to be a ganglion arising from the wrist, similar to case 2 in our report. To our knowledge there have been no previously reported cases of neuropathy resulting from primary non-traumatic neuroma

of the palmar cutaneous nerve.

Our cases illustrate the importance of a detailed history and examination, in addition to appropriate use of further investigations in a patient with symptoms of compression neuropathy at the wrist. It is important to differentiate compression of the palmar cutaneous nerve from compression neuropathy of the median nerve, and also to consider neuroma of the nerve in addition to extrinsic compression from a volar wrist ganglion, to ensure appropriate surgical treatment is given.

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