Carpal Tunnel Syndrome Associated with a Palmaris Profundus Tendon: A Case Report

Andréa B. Lese, MD*; Kristin M. Loker, MSN, NP-C*; Moheb S. Moneim, MD*

**UNM Department of Orthopaedics & Rehabilitation**

**Abstract**

Carpal tunnel syndrome (CTS) is often found in adults and may be associated with rare anatomical abnormalities in the hand, such as the presence of a palmaris profundus tendon. Although the muscle was originally thought to be a variant of the palmaris longus muscle, some case studies have described both structures during operative treatment with open carpal tunnel release. We present a case of a 51-year-old woman who underwent open carpal tunnel release to treat CTS of the right hand. Preoperatively, results of electrodiagnostic tests and clinical examinations, respectively, were normal and equivocal. Intraoperatively, a palmaris profundus tendon was found compressing the median nerve and the patient had a palmaris longus tendon in the wrist. At 6-week follow-up, no recurrence of symptoms was reported. Abnormal nerve structures, although rarely encountered, should be considered in diagnosing CTS of the hand. Resection of the palmaris profundus tendon may help avoid possible recurrence of symptoms.

**Introduction**

Carpal tunnel syndrome (CTS) is the most common cause of nerve entrapment in adults. The diagnosis, initially based on the evaluation of symptoms and results of physical examination, can be confirmed by positive findings from electrodiagnostic studies. A thick transverse carpal ligament, fibrosis around the median nerve, and persistent median artery are the most common findings encountered during operative treatment with open carpal tunnel release. Other factors may result in compression of the median nerve within the carpal tunnel, including anatomical variations of the nerve and other tendinous structures, synovitis, lipomas, and the presence of a lumbal muscular.

The presence of a palmaris profundus muscle is one such variant. It is very rare and was first described in 1908 as a “musculus palmaris profundus” by Frohse and Fränkel. The incidence is currently unknown, but a cadaveric study on upper-extremity specimens reported this abnormality in 1 of 530 arms. It has been found to arise from the radial volar forearm, common flexor mass, flexor pollicis longus muscle, and palmar fascia. The tendon enters the carpal tunnel superficial to the median nerve to insert on the deep aspect of the palmar aponeurosis. We describe a patient in whom a palmaris profundus tendon was encountered during open carpal tunnel release, and the tendon was considered to be the cause of median nerve compression. The patient recovered uneventfully.

**Case Report**

A 51-year-old, right-handed woman presented to our clinic with numbness in both hands, which had been ongoing for the past several years. She was generally healthy with multiple well-controlled chronic medical conditions, including Hashimoto thyroiditis and possible Sjögren syndrome. No signs of atrophy of the thenar muscles were noted, and the results of Phalen’s, thumb compression, and Tinel tests were equivocal.

Nerve conduction studies on the right hand were done in October 2013 and January 2014 at two different institutions. In October 2013, she had motor and sensory latencies of 3.5 ms and 3.1 ms, respectively, and in January 2014, motor and sensory latencies were, respectively, 4.0 ms and 2.6 ms. Results of both electromyography studies were interpreted as indicating mild CTS. Additionally, the findings from a neurosurgical evaluation in October 2013 indicated no abnormalities of the cervical spine.

Because the symptoms persisted, the patient underwent open carpal tunnel release for treatment of CTS after adequate counseling. Upon release of the transverse carpal ligament and examination of the nerve, a palmaris profundus tendon was found and appeared to overlie the median nerve and recurrent motor branch (Figure 1). The tendon was carefully released from the median nerve and excised. No attempt was made to follow the tendon into the forearm.

Postoperatively, the patient was given a soft dressing and instructed to use her hand for light activities. At 2-week follow-up, she reported complete resolution of her numbness and tingling. At 6 weeks postoperatively, the patient noted some weakness in the thumb and index fingers during jaw-pinch exercises but resolution of symptoms. She was released from follow-up on an as-needed basis.

**Discussion**

A PubMed search using terms such as “carpal tunnel syndrome” and “palmaris profundus” revealed seven reports on palmaris profundus tendon in patients aged 19 years to 70 years, with most patients being women. Diagnoses were typically made based on clinical symptoms and results of physical examination. In five of these case reports, the findings from electrodiagnostic studies were positive. Additionally, two reports described the presence of palmaris profundus tendon.

Good treatment outcomes after resecting the palmaris profundus tendon have been reported. Jones noted that, in a patient with recurring symptoms, a palmaris profundus tendon was found during reoperation and resected. Postoperatively, the patient had complete relief of symptoms. A study by McClelland and Means reported the presence of a bifid median nerve, persistent median artery, and palmaris profundus tendon attaching proximally to the deep surface of the transverse carpal ligament.

Reports have also noted abnormal proximal take off of a lumbal muscular and synovitis. Some studies have mentioned the absence of palmaris longus muscles if the palmaris profundus is present, and most report abnormal findings from electrodiagnostic studies or clinical examinations. However, in our case, a palmaris longus tendon was located and negative results from clinical examinations and electrodiagnostic studies were observed. We advise careful evaluation in detecting any abnormalities within the carpal tunnel. If a palmaris profundus tendon is found, it should be resected to avoid recurrence of symptoms.

**References**