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Medianopathy caused by reversed palmaris longus: A case report

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Abstract
The palmaris longus muscle has one of the most anatomic variations of all muscles in the human body and can variate in both number and form. The reversed palmaris longus can cause pain, wrist swelling and is a rare cause of median nerve compression and less frequently ulnar nerve compression. Therefore it is important to recognize and know of their anatomical variation. We present a case of a 32-year old woman with bilateral wrist pain, right more than left, consisting of pain originating from the flexor retinaculum and then spreading to the volar forearm, tingling in her hand and a cold feeling. X-rays AP and lateral of both wrists shows no abnormalities. Ultrasound of the right wrist reveals a distal muscle belly of the palmaris longus (reversed PL) causing the above-mentioned swelling. Electromyography (EMG) shows normal conduction of the median nerve in the carpal tunnel. MRI studies show a reversed palmaris longus, of which the muscle belly has a close relation to the median nerve. Under suspicion of a dynamic compression of the median nerve we decided to excise the muscle belly of the palmaris longus. At 6 weeks follow-up the complaints were all gone, there was a normal range of motion and the patient could participate in her daily life without complaints.

Keywords: Reversed palmaris longus, medianopathy, palmaris longus, wrist, nerve compression

Introduction
The palmaris longus muscle (PLM) is the most superficial muscle of the upper limb and belongs to the anterior compartment of the forearm. Generally, it originates from the medial epicondyle of the humerus with a slender muscle belly and prolongs into a long tendon into the palmar aponeurosis of the hand, passing above the flexor retinaculum. The PLM is a weak flexor of the wrist and tenses the palmar aponeurosis. It has one of the most anatomic variations of all muscles in the human body [1-4]. It can be absent or have nine other variations: a proximal muscle belly (type I), bifurcation of the distal tendon at two distal positions (type II and III), an elongated muscle belly in the middle of the tendons (type IV), an elongated muscle belly at the middle of the forearm with a bifurcation distally(type V), the reversed palmaris longus (RPL, type VI), a double muscle belly (type VII), a morphology with proximal three tendons (type VIII) and the distal part passing above the palmar aponeurosis where it merged with the flexor carpi ulnaris muscle (type IX) [3]. Usually, anatomical variations of the PL have no clinical concerns. Unfortunately, RPL can cause pain, wrist swelling and is a rare cause of median nerve compression and less frequently ulnar nerve compression. By determining the cause of median nerve compression adequate therapy can be proposed. Besides, the PL is often used as a donor for plastic and reconstructive surgery since its accessory function in wrist flexion. Therefore it is important to recognize their anatomical variation.

Case report
We present a 32-year-old otherwise healthy right hand dominant woman with bilateral wrist pain. Her complaints started 2 years ago, consisting of pain originating from the flexor retinaculum and then spreading to the volar forearm, tingling in her hand and a cold feeling. It is compromising the patient in her daily life. Physical examination of the right arm shows an elastic, livid swelling on the volar side of the distal forearm, proximal to the wrist crease. Dorsal extension is limited to 50 degrees, palmar flexion to 60 degrees and flexion-extension has a painful arc. Radial and ulnar deviation are normal with no pain. Tinel' sign is positive. The left wrist shows no abnormalities at examination. X-rays show no abnormalities. Ultrasound of the right wrist reveals a distal muscle belly of the palmaris longus (RPL) causing the above-mentioned swelling. Electromyography shows normal conduction of the

median nerve in the carpal tunnel. MRI studies show a reversed palmaris longus, of which the muscle belly has a close relation to the median nerve [figure 1]. Because of the same complaints, although less severe, we performed an MRI on the contralateral side. These show no anatomic variation of the palmaris longus in her left arm.

Under suspicion of dynamic compression of the median nerve we decided to excise the muscle belly of the palmaris longus. The patient is positioned in supine position with an arm table. Through a volar distal incision the PL is identified superficially above the retinaculum. An aberrant tendinous slip is detected to the radial side of the palmar aponeurosis (figure 2a). All tendinous attachments are excised using two incisions.

After six weeks follow-up the wound healed uncomplicated. The patient has a full range of motion and no signs of swelling, pain, tingling or a cold feeling in her arm. She had no complaints left in her daily life.

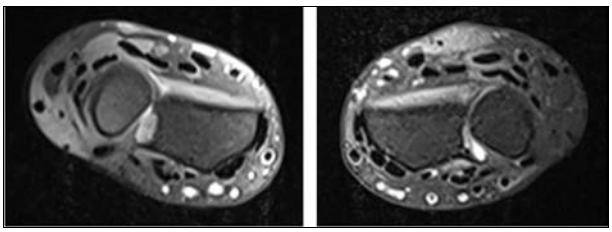

Fig 1: Axial MRI coupes of the forearm. Left is the normal variation of the PL in the patients left arm. The right image is the reversed PL in patient's right arm

Fig 2: 2a) distal side of reversed palmaris longus with aberrant tendinous slip on the radial side. 2b) RPL measures 9.8 cm in length. 2c) RPL measures 1.6 cm in width

Discussion

This case shows the great value of a broad differential diagnosis. It is of importance to perform a full work up, even when encountering common symptoms and especially before performing surgery.

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