Case Report

A RARE INSERTION OF PALMARIS LONGUS MUSCLE INTO THE PHALANX ANNULUS.

Dr Mohan G¹

¹Associate Professor Dept of RachanaShareera, SJGAMC&H Koppal

ABSTRACT
The palmaris longus is a slender fusiform muscle of forearm. Muscle exhibits significant anatomical variance compared with other muscles of the upper extremity. The most frequent variation is usually the complete absence of muscle one or both sides (Machado and Dildo 1967; Stack 1973) but a number of other variations exist. The usual variations of this muscle include reversed, duplicated, bifid, or hypertrophied palmaris longus muscles. Many authors have reported the variations in case reports and described them using their own terms. In this case report, we had found an interesting rare variation of palmaris longus (bilaterally!) that motivated us to publish this article. This work also aims to consolidate the current knowledge regarding the anatomic variations of the palmaris longus muscle and its clinical relevance.

Keywords: Palmaris longus, Phalanx Annulus


INTRODUCTION
The palmaris longus is a slender fusiform muscle of forearm. Muscle exhibits significant anatomical variance compared with other muscles of the upper extremity. The most frequent variation is usually the complete absence of muscle one or both sides (Machado and Dildo 1967; Stack 1973) but a number of other variations exist. The usual variations of this muscle include reversed, duplicated, bifid, or hypertrophied palmaris longus muscles. Many authors have reported the variations in case reports and described them using their own terms. In this case report, we had found an interesting rare variation of palmaris longus (bilaterally!) that

Access the article online

WWW.Avishkara.in
DOI:
https://doi.org/10.5680/Avishkara.2022.1209
motivated us to publish this article. This work also aims to consolidate the current knowledge regarding the anatomic variations of the palmaris longus muscle and its clinical relevance.

**CASE REPORT**

Routine dissection of the bilateral upper extremities of a 70-year-old (approximately) Asian male cadaver, performed in the Department of Anatomy at the S J G Ayurvedic medical college, Koppal, revealed a rare variation in the anatomy of the palmaris longus (PL) muscle. On dissection and examination, it was discovered that the PL of both upper extremities of this cadaver was so long that it was getting inserted into the ring finger with the proximal portion being likely fleshy. Few fibres contributed and accompanied the palmaris aponeurosis and flexor retinaculum, the rest long fibres were passing cleanly lateral to the median nerve to the annulus phalanx.

Examination of this muscle showed no signs of atrophy or hypertrophy, nor there was any changes with the accompanying structures like flexor carpi radialis, median nerve etc. the cadaver’s medical history, occupation and handedness were unknown.

The following picture depicts the long tendon passing probably into the middle phalanx of the fourth digit.

![Figure 1: Tendon of PL lifted to show its path distally towards ring finger.](image)

**NORMAL ANATOMY OF THE PALMARIS LONGUS**

Palmaris longus muscle is a slender, fusiform muscle medial to the flexor carpi radialis which arises from medial epicondyle of the humerus by the common tendon, intermuscular septa between it and adjacent muscles and from the ante brachial fascia. It ends in a long slender tendon which passes in front on the flexor retinaculum to be attached to the outer surface of its distal half and the central part of the palmar aponeurosis frequently sending a slip to the thenar muscles. Just proximal to the wrist the median nerve lies deep to the tendon, and projects little beyond its lateral edge.

Muscle being supplied by median nerve acts as a flexor at wrist and is a tensor of palmar fascia.

**DISCUSSION**

The standard anatomical origin of the PL is that it springs from medial epicondyle by the common tendon, from adjacent intermuscular septa and deep fascia, shared by other superficial flexors such as the flexor digitorum superficialis – located beneath the PL – and the flexor carpi radialis and flexor carpi ulnaris – between which the PL is located. The standard anatomical insertion is to the palmar aponeurosis, volar (palmar surface) to the flexor retinaculum. Although the palmar aponeurosis joins the PL tendon, the two are distinct in their perspectives.

As in this case stated above, the long tendon is inserting into the fourth digit (perhaps to the middle phalanx) must have acted as weak flexor of that finger during deceased life. However, the powerful...
flexors of the fingers and wrist are flexor digitorum superficialis and flexor digitorum profundus. Normal (in spite of variation) would only act as a weak flexor of wrist. This variant in our case might have assisted the aforesaid prime flexors in flexing the ring finger and wrist as a reinforcer. Interesting thing that I require to mention about this muscle is regarding its morphology.

It usually will have a fascinating long tendon. But here in this case it had yet more augmented length!, perhaps surgeons could have had a chance to use for multiple grafting procedures if the subject was alive as the popular use of this palmaris longus muscle is for the tendon grafts for the wrist due to the length and diameter its (PL) tendon has. Best part in the grafting is, it can be used without producing any functional deformities.

When a tendon is ruptured in the wrist, the PL tendon may be removed from the flexor retinaculum and grafted to replace the damaged tendon. The tendons most commonly replaced or supplemented by the PL tendon when damaged are the long flexors of the fingers and the flexor pollicis long tendon.

The palmaris longus muscle itself a weak flexor, and provides no substantial flexing force that would inhibit its action in wrist when its tendon is cut or moved elsewhere. If the palmaris longus muscle is not available for harvesting in an individual, the anatomically analogous muscle plantaris in the leg may be taken instead. Using patient’s own tendon is advantageous as it won’t irritate or trigger his complementary system for adverse reactions.

Hoping this variant of palmaris longus can change the perspective of its action as not only the flexor wrist but also the digit.

The other variations of Palmaris longus can be classified as

a. Complete agenesis  
b. Variation in location and form of its fleshy part  
c. Aberrancy of attachment at its origin or insertion.  
d. Duplication or triplication  
e. Accessory slips etc.

The following picture was taken from senior colleague (working at Shri Shri college of Ayurveda, Blore) depicts the palmaris longus tendon having two slips.

Fig 2. Depicting the two slips of tendon (duplicated)
REFERENCES