

A Fleshy Palmaris Longus Muscle

Ramesh P, Aswin Prakash, Pratibha Gupta

Correspondence to Dr. Ramesh P, Department of Anatomy, Iq City Medical College And Narayana Hrudalaya Hospital, Sovapur, Bijra Road, Jaymua, Durgapur - 713206, Westbengal, India. Email: drramesh.jasmine@gmail.com.

ABSTRACT

The most commonly reported variations of the Palmaris longus muscle are in its presence and the number of bellies. We however report a new variation, in which the muscle was entirely fleshy, instead of the predominantly tendinous muscle. This rare variant can pose a challenge to a surgeon in the exploration of the carpal tunnel, and compress the distal part of the median nerve. Clinicians should be wary of an entirely fleshy palmaris longus muscle.

Key words: Palmaris longus, Median nerve compression syndrome.

INTRODUCTION

The Palmaris longus is a spindle shaped, short belly long tendon muscle and a weak flexor of wrist. It is a small vestigial muscle that is phylogenetically degenerating (Williams et al., 1995). It is usually absent in 15% of the population (Williams P L, 1995; McMinn, 1997; Palastanga et al., 1998) and displays different structural variations including form, attachment, duplication and its ability of having accessory slips and substitute structures and the incidence of its absence (Reimann et al., 1944).

Although the function trivial, it receives the attention of the orthopedics, hand and reconstructive surgeons and cosmetic and plastic surgeons. It is commonly used by

hand surgeons for tendon transfers, second stage of tendon reconstruction, Plastic surgeons also utilize the palmaris longus in restoration of lip and chin defects (Carroll et al., 2000), ptosis correction (Kurihara et al., 1984; Naugle and Faust, 1999), management of facial paralysis (Atiyeh et al., 1998). And is a key landmark

Identification of Palmaris longus is important to clinicians for its tendon to be used as a graft in various surgical procedures and during administration of drug like corticosteroids in carpal tunnel to relieve pain in a case of carpal tunnel syndrome/arthritis (Tallia and Cardone, 2003) and in median nerve wrist block (Salam, 2004).

CASE REPORT

While doing a "study of frequency of structural variations of Palmaris longus muscle in cadavers" in the department of Anatomy, IQ City medical college, Durgapur, we found one formalin fixed specimen of Right sided upper limb had Palmaris longus muscle which was muscular throughout its whole length out of 60 upper limb specimens. This rare variant was originates from medial epicondyle of humerus as a short

tendinous part and it lied in between the flexor carpi radialis and flexor carpi ulnaris muscle and inserted into proximal part of flexor retinaculum as a short tendon. Rest of the whole muscle was present in the form of belly (2.2 cm width). Length of the muscular part was 23.5 cm and width was 2.2 cm. The distal part of median nerve was present infero laterally below the muscular part Palmaris longus towards its insertion .

Measurements were taken using non-elastic thread and stainless steel scale and it was Cross checked by vernier calipers. The Median nerve lay deep to the muscular part of Palmaris longus especially at distal 1/3 of muscular part of Palmaris longus. The

unique feature of the muscle whole length was a belly except near the origin and insertion different from the usually short proximal (1/3) belly and a long distal (2/3) tendon.

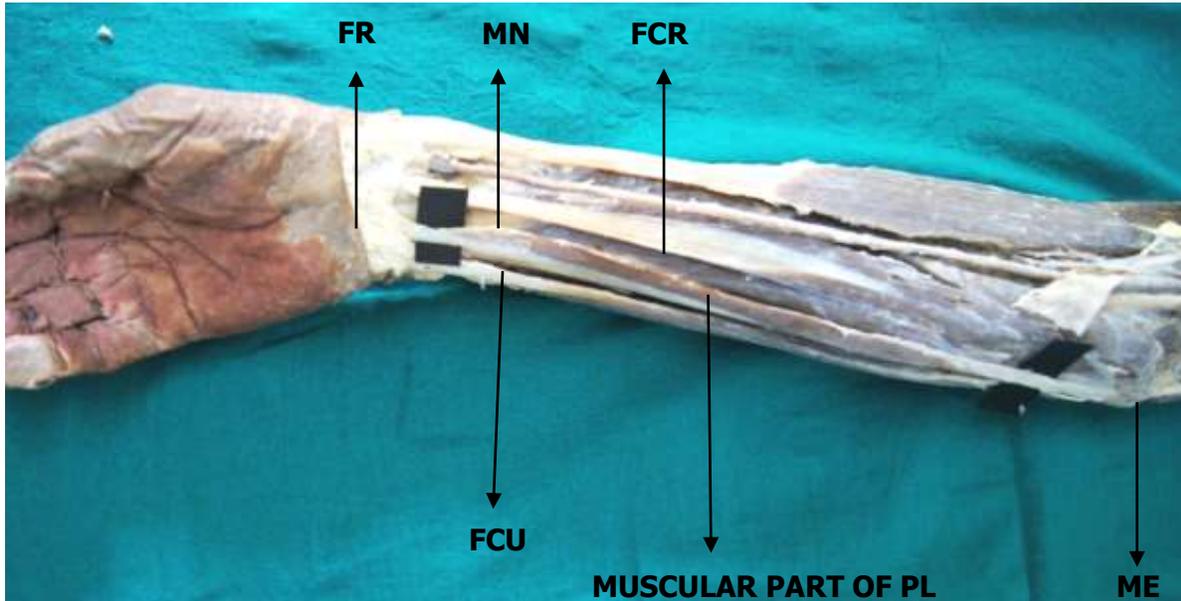


Figure 1: Variant Palmaris longus muscle with specifications (RIGHT SIDE). MN – MEDIAN NERVE; ME – MEDIAL EPICONDYLE; FR – FLEXOR RETINACULAM; PL – PALMARIS LONGUS; FCR – FLEXOR CARPI RADIALIS; FCU – FLEXOR CARPI ULNARIS.

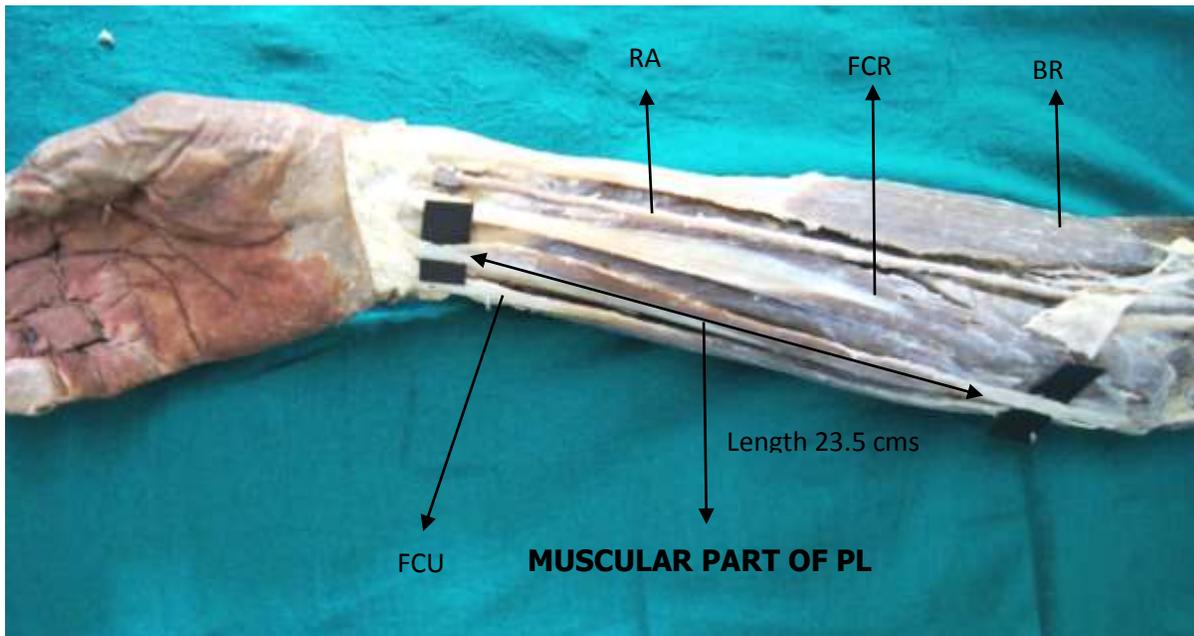


Figure No.2: Variant Palmaris longus muscle with measurement level. FCR – FLEXOR CARPI RADIALIS; FCU – FLEXOR CARPI ULNARIS; RA – RADIAL ARTERY; BR- BRACHIO RADIALIS.

DISCUSSION

Previous studies on variations of Palmaris longus muscle showed agenesis of Palmaris longus, double Palmaris longus muscle, reverse Palmaris longus muscle (Schlafly et al., 1987 and Schuurman, 1998), short tendon and long belly Palmaris longus muscle but here the variation was whole length of the muscle had a muscular part only. median nerve was present infero-laterally near the insertion part of this variant muscle. This type of rare variations can compress the distal part of median nerve leading to median nerve compression syndrome (Schlafly et al., 1987). So clinicians should be aware of these type of variations before going to manage a case of median nerve compression syndrome and before injecting corticosteroids during the treatment of arthritis of the metacarpals (Tallia, 2003 and Salam, 2004). Surgeons should also be aware of these variant before going to give incision in the wrist region as surgeons and clinicians access the landmarks for giving incision and injection point based on the

prominent tendon (distal part) of Palmaris longus muscle. In 2012, Natsis et. al., reported this kind of rare variation. Prevalence of these types of variations is still not clear. So further prevalence study in living peoples and MRI muscular study may be helpful for surgeons and clinicians (Schuurman, 2000). Early detection of Palmaris longus variations through MRI imaging would be more helpful for preoperative planning for various procedures like tendon transfer, management of carpal tunnel syndrome and median nerve compression syndrome.

Through this rare case report we have come to know the importance of the Palmaris longus muscle. So prevalence study of different regions of the world in present situation is needful and cadaveric and MRI muscular study of front of forearm may be proved to detect the prevalence of variations of Palmaris longus muscle.

REFERENCES

1. Atiyeh B A, Hashim H A, Hamdan A M, Kayle D I, Mousharafieh R S. 1998. Lower reconstruction and restoration of oral competence with dynamic palmaris longus vascularized sling. *Arch Otolaryngol Head Neck Surg*, 124: 1390-2.
2. Carroll C M, Pathak I, Irish J, Neligan P C. 2000. Reconstruction of total lower lip and chin defects using the composite radial forearm-palmaris longus tendon free flap. *Arch Facial Plast Surg*, 2(1): 53-56.
3. Kurihara K, Kojima T, Marumo E. 1984. Frontalis suspension for blepharoptosis using palmaris longus tendon. *Ann Plast Surg*.13(4): 274-8.
4. McMinn R M H. 1997. Last's Anatomy regional and applied. 9th edn. Churchill Livingstone. 89-90.
5. Natsis K, Didagelos M, Manoli SM, Vlasis K, Papathanasiou E, Sofidis G, Nerantzidou X X. 2012. "Fleshy palmaris longus muscle-a cadaveric finding and its clinical significance: a case report." *Hippokratia* 16: 378.
6. Naugle T C Jr, Faust D C. 1999. Autogenous palmaris longus tendon as frontalis suspension material for ptosis correction in children. *Am. J. Ophthalmol*, 127: 488-9.
7. Palastanga N, Field D, Soamer R. 1998. Anatomy and human movement structure and function. 3'd edn. Butterworth Heinemann. 108-109.
8. Reimann A F, Daseler E H, Anson B J & Beaton L E. 1944. The palmaris longus muscle and tendon. A study of 1600 extremities. *Anat. Rec.* 89: 495-505.

9. Salam G A. 2004. Regional anesthesia for office procedures: Part II, Extremity and inguinal area surgeries. *Am Fam Physician*, 69: 896.
10. Schlafly B, Lister G. 1987. Median nerve compression secondary to bifid reversed palmaris longus. *J Hand Surg Am*. 12: 371-373.
11. Schuurman A H, Depuydt K H, Kon M. 1998. Reversed palmaris longus muscle causing effort-related median nerve compression. *J HandSurg Br*. 23: 117-119.
12. Schuurman A H, van Gils A P. 2000. Reversed palmaris longus muscle on MRI: report of four cases. *EurRadiol*. 10(8): 1242-1244.
13. Tallia A F, Cardone D A. 2003. Diagnostic and therapeutic injection of the wrist and hand region. *Am Fam Physician*. 67: 745-50.
14. Williams P L, Bannister L H, Anson B J, Berry M M, Collins P, Dussek J E. 1995. The muscular system. *Gray's Anatomy*. 38th Edn. Churchill Livingstone, London 846.