

# Anomalous Palmaris Longus Tendon Causing Carpal Tunnel Syndrome

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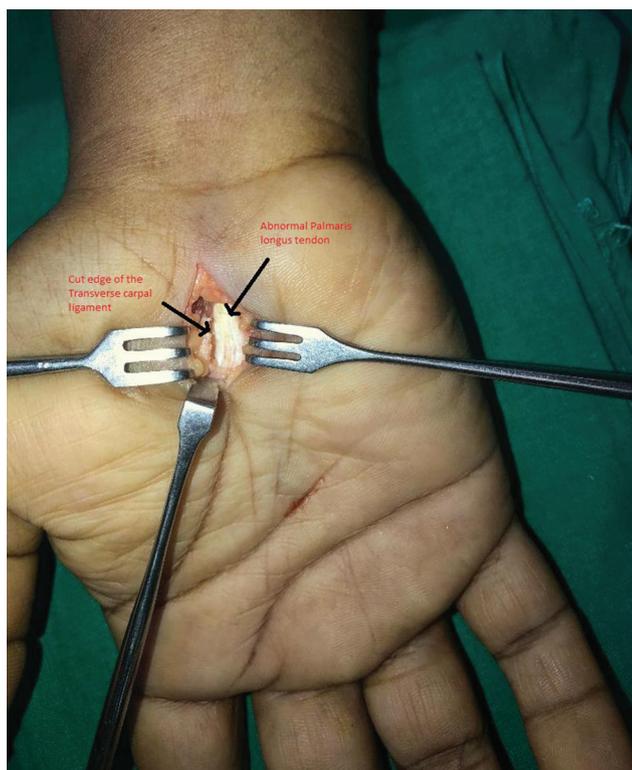
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A 50-year-old right-handed male presented with characteristic symptoms of carpal tunnel syndrome in the right hand. In the operating room, a 2.5-cm incision was performed on the palm along the radial border of the ring finger. The subcutaneous tissue was dissected to the level of the palmar fascia, and the fascia was then incised. The distal holdfast fibers<sup>1</sup> were encountered next, which were divided over the roof of the carpal tunnel. This exposed the transverse carpal ligament, which was then incised. The carpal tunnel was entered, and to our surprise, the palmaris longus (PL) tendon was identified within the tunnel (►Fig. 1), continuing

on to the palmar aponeurosis distally but from within the tunnel. Also, the median nerve appeared to be compressed significantly. The tendon was released from the ulnar side attachments to the palmar aponeurosis, thus impairing its ability to compress and making it a part of the radial leaf of the roof of the tunnel. Median nerve epineurotomy was performed. The carpal tunnel release was continued proximally in the distal deep fascia of the forearm. After verifying adequate release of the median nerve both proximally and distally, the incision was closed.

PL is one of the most variable muscles in the human body. It is a slender fusiform muscle arising from the medial epicondyle as a part of the common flexor tendon and also from the adjacent intermuscular septa and the antebrachial fascia. The tendinous structure normally passes anterior to the flexor retinaculum and then distally continues with the palmar aponeurosis<sup>2</sup> (►Fig. 2). This topographic relationship of the tendon with the median nerve makes its anatomical variations a common cause of median nerve entrapment. Several anatomical variations of the PL muscle have been studied in the past.<sup>3</sup> The variations could be in the form of complete absence, insertion site variation, multiple muscle bellies, different location of the muscle belly, and so on.<sup>4</sup>

The variation highlighted in our case report is the abnormal passage of tendon through the carpal tunnel. As per the proposed classification by Georgiev,<sup>5</sup> the variation was type III variation. In our case, the tendon instead of lying anterior to the roof of the carpal tunnel, traveled through the carpal tunnel lying superomedial to the nerve (►Fig. 3). It therefore could be a contributory factor for causing the median nerve compression. This partial displacement of the tendon in the anteroposterior plane from the palmar aponeurosis and transverse carpal ligament could be explained by histological and developmental studies on the independent origin of the two structures and their different origin.<sup>6</sup> The reported variation is of importance as a lack of awareness can lead to accidental damage to the median nerve during harvest of the PL tendon.



**Fig. 1** Clinical picture showing the presence of the palmaris longus tendon within the carpal tunnel.

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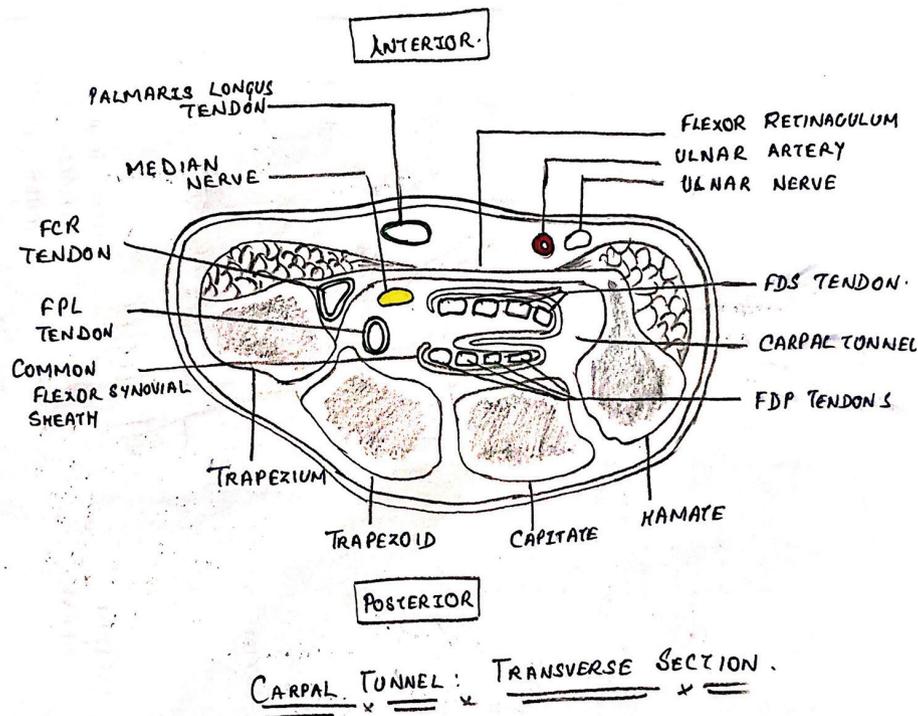


Fig. 2 Line diagram of the transverse section of a normal carpal tunnel depicting the relationship of the palmaris longus tendon to the median nerve FCR, flexor carpi radialis; FDP, flexor digitorum profundus; FDS, flexor digitorum superficialis; FPL, flexor pollicis longus.

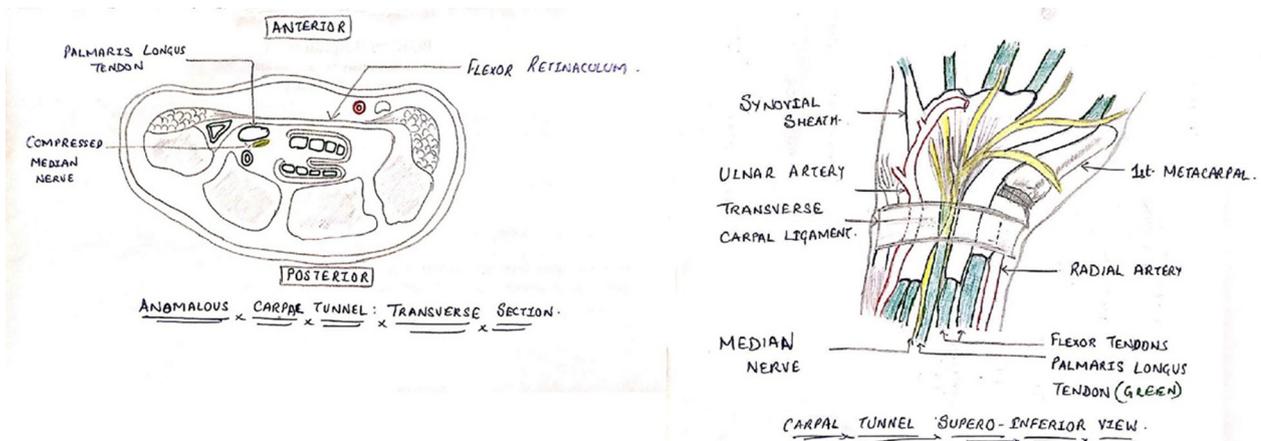


Fig. 3 Line diagrams of the transverse and superoinferior views of the abnormal location of the palmaris longus tendon within the carpal tunnel.

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**Conflict of Interest**

None.

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