

## Inverted Palmaris Longus Accessory Muscle: A Case Report

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### Abstract

We present a case of accessory palmaris longus where muscle belly was distal to the tendon and not causing the median nerve compression. This was an incidental finding during the investigation of a wrist pain.

**Keywords:** Palmaris longus; Tendon; Nerve compression; Wrist pain

### Introduction

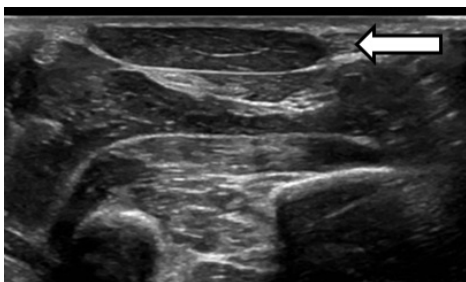
Palmaris longus is an important muscle in the forearm which is a very handy option for many tendon reconstructions and tendon transfers for hand surgeons. The palmaris longus muscle arises from the medial epicondyle of the humerus and inserts into the palmar fascia. It usually consists of a short muscle proximally and a long tendon distally, although in some cases this arrangement is inverted. The palmaris longus may also be entirely muscular, duplicated, digastric, or absent altogether [1].

### Case Report

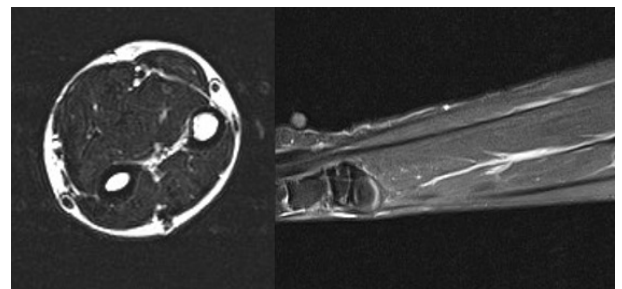
We present a case of a 40-year-old Hungarian man presented to the emergency department complaining of pain in his left wrist. Five weeks previously he had noticed a swelling over the volar aspect of his wrist. He did not have any sign or symptoms of compressive neuropathy of either median or ulnar nerve compression. An ultrasound scan indicated that this swelling represents normal muscle tissue lying superficial to the flexor retinaculum, and further MR imaging confirmed the presence of an inverted palmaris longus accessory muscle (Figures 1 and 2).

### Discussion

An accessory palmaris longus is an extremely rare variant, arising from the subcutaneous fascia of the forearm and inserting into the superficial palmar aponeurosis. There are reports of this variation causing pain and median nerve compression, and symptomatic cases have been successfully treated with surgical excision of the accessory structure [2]. Previous observation indicated that mutation within imprinted gene GNAS, coding for a stimulatory G protein subunit, leads to fibrous dysplasia (FD). As nonhealing fracture associated with FD may cause severe pain as well as imminent nerve compression, investigation the mutation of GNAS might reveal the potential mechanisms associated with some cases of nerve compression. Additionally, as imprinted genes are controlled directly by imprinted DNA methylation and DNA methyltransferases (DNMTs) and some histone methyltransferases



**Figure 1:** Ultrasound image: Showing normal muscle tissue superficial to flexor retinaculum.



**Figure 2:** MRI images: Showing a superficial muscular structure, with a more proximal long tendon inserting into the superficial fascia of the forearm.

(e.g. G9a and GLP) are the enzymes that required for the establishment and maintenance of genomic imprinting, aberrant expression of these enzymes may also cause the abnormal activation of GNAS. Thus, study the levels of these epigenetic modifiers might create a novel direction for understanding the molecular basis of nerve compression. In this case the accessory structure was noted to be inverted, with the muscular section distal to the long tendon and possibly this explains why there was no pressure on either the median or the ulnar nerve. With this anatomical variation, this palmaris longus can still be used as a tendon graft. However, its mere presence did not explain the pain patient was experiencing as that was the reason he visited accident and emergency department. His pain gradually subsided and has finally been discharged. We do not think this anatomical variant of Palmaris longus was a cause of pain in this case.

### Conclusion

The presence of an accessory palmaris longus in the wrist is a benign anatomical variation. There have been reports of accessory palmaris longus muscles causing pain and symptoms of nerve compression treated by excision. They may have a function in any future tendon grafting/transfer surgery. Whilst surgery may be useful when there are symptoms of nerve compression, in general no operative management is needed, and detailed imaging is largely academic.

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