

An anomalous abductor digiti minime-muscle - A case report

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SUMMARY

The accessory fasciculi of the hypothenar muscles have been implicated in vascular and nerve compression. During a routine dissection of an adult male cadaver we observed an accessory belly of the abductor digiti minimi muscle. The accessory belly was found to take its origin from the deep forearm fascia, and traversed Guyon's canal superficial to the ulnar nerve and vessels to reach the hypothenar eminence. Its course through Guyon's canal could be a cause for ulnar tunnel syndrome. The ulnar nerve trunk innervated the muscle.

Key words: Muscle – Cadaver – Guyon's canal – Ulnar nerve – Ulnar tunnel syndrome

INTRODUCTION

The abductor digiti minimi, flexor digiti minimi brevis and opponens digiti minimi muscles form the hypothenar eminence and all are supplied by the ulnar nerve. They arise from the flexor retinaculum, the pisiform bone, and the hook of the hamate bone. The abductor and flexor brevis, partly fused, are inserted together into the anteromedial surface of the base of the proximal phalanx of the little finger. The opponens is inserted along the antero medial surface of the metacarpal of the little finger (Romanes, 2003). The presence of accessory origins of

abductor digiti minimi has been reported (Shepard et al., 1991; Luethke and Dellon, 1992; Soldado-Carrera et al., 2000; Al-Qattan, 2004; Sañudo et al., 1993).

After descending in the forearm between the flexor digitorum profundus and flexor carpi ulnaris muscles, the ulnar nerve pierces the deep fascia and enters the wrist through Guyon's canal. The walls of this canal consist of the pisiform medially and the hook of the hamate laterally; the floor is formed by the flexor retinaculum, and the roof is formed by the palmar carpal ligament and the palmaris brevis muscle. The Guyon tunnel houses the ulnar nerve, the ulnar artery, and the ulnar vein. In the distal canal, the ulnar nerve bifurcates into a superficial sensory branch and a deep motor branch, which supplies the hypothenar muscles and then passes across the palm, distributing to other intrinsic hand muscles. The ulnar nerve may be compressed in Guyon's canal by the presence of an anomalous muscle of the hypothenar eminence (Luethke and Dellon, 1992).

CASE REPORT

During the dissection classes in the Department of Anatomy at Melaka Manipal Medical College, a 45-year-old male cadaver showed an accessory belly of the abductor digiti minimi muscle crossing the ulnar nerve and ulnar vessels (Fig. 1).

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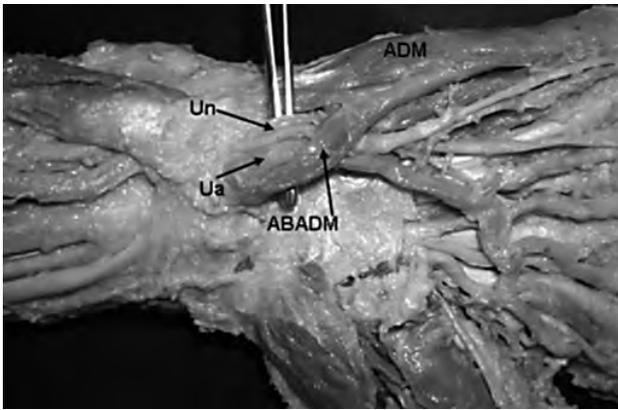


Fig. 1.- Accessory belly of the abductor digiti minimi crossing the ulnar nerve and ulnar vessels. ABADM: accessory belly of the abductor digiti minimi; ADM: abductor digiti minimi; Un: ulnar nerve; Ua: ulnar artery.

DISCUSSION

There was an accessory belly of the abductor digiti minimi muscle that originates from the deep forearm fascia, traversed Guyon's canal superficial to the ulnar nerve and vessels, and inserted into the lateral side of the abductor digiti minimi. The nerve supply arose from the ulnar nerve. We consider this variation as an unusual persistence of an undifferentiated group of mesenchymal cells. The accessory belly of the abductor digiti minimi muscle may compress the ulnar nerve when grasping objects with the hand leading to sensory or motor abnormalities of the ulnar nerve. Compressive neuropathies of the ulnar nerve in the canal of Guyon are less common, but they can also result in significant disabilities. Compression can occur in 1 of 3 zones. Zone 1 is in the most proximal portion of the canal, where the nerve is a single structure consisting of motor and sensory fascicles, while zone 2 and 3 are distal where the ulnar nerve has divided into motor and sensory branches. The clinical picture correlates with the zone in which compression occurs (Posner, 2000). This knowledge can assist surgeons in the diagnosis and treatment of conditions associated with the ulnar aspect of the hand. The crossing of an

accessory belly of the abductor digiti minimi muscle over the ulnar nerve and compressing it should remind physicians that not every instance of numbness and tingling in the hand represents carpal tunnel syndrome. Careful clinical examination may not only localize compression of the ulnar nerve at wrist level but also may reveal its etiology. A diagnosis of ulnar artery thrombosis should be considered when a patient reports symptoms of ulnar neuropathy, ischemia in the hand, or a mass in the hypothenar area. A history of repetitive blunt trauma to the hypothenar area is particularly suggestive of this. Ulnar artery thrombosis is possibly associated with an anomalous muscle in Guyon's canal (Pribyl and Moneim, 1994).

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