Case Report

LONG ACCESSORY FLEXOR DIGITORUM LONGUS MUSCLE
(accessory flexor muscle)

Mürvet Tuncel, M.D.* / Mustafa Aytekin, M.D.**
K. Mine Erbil, M.D.* / Hamdi Çelik, M.D.*

* *Department of Anatomy, Faculty of Medicine, Hacettepe University, Ankara, Turkey*
** *Department of Anatomy, Faculty of Medicine, Mersin University, Mersin, Turkey*

ABSTRACT

A case of an uncommon muscular structure related to the flexor digitorum longus muscle is reported. This muscular structure originated from the medial border of the tibia below the origin of the flexor digitorum longus muscle. It was a small muscle with a long slender tendon which inserted into the common tendon of the flexor digitorum longus muscle on its lateral side. Accessory muscles of the calf region would be of clinical importance in tarsal tunnel syndrome.

Key Words: Tarsal tunnel, Accessory, Flexor digitorum longus muscle

INTRODUCTION

While dissecting the calf region, a long accessory flexor digitorum longus muscle was observed on the right side of a female cadaver. It had a long slender tendon which inserted into the lateral border of the common tendon of the flexor digitorum longus muscle. Accessory muscles of this region can cause some clinical problems. The tarsal tunnel syndrome is the most important one (1, 2). The anomalies of the accessory muscles can be ethiological and the detection by MRI may give clinicians the chance to avoid unnecessary and invasive methods for diagnosis and treatment (3).

CASE REPORT

The calf region of a female cadaver was dissected. The flexor digitorum longus muscle was in its normal position and course (4). In addition to this, there was an anomalous long accessory muscle which originated from the medial border of the tibia just below the origin of the flexor digitorum longus muscle. The tendon of the accessory muscle extended under the flexor retinaculum, then passed lateral to the flexor digitorum longus muscle and crossed posteriorly. It descended and inserted into the lateral border of common tendon of the flexor digitorum longus muscle (Fig. 1). The flexor accessorius muscle (quadratus plantae) was rudimantary in the right (same side) extremity. The lateral head was absent and the medial head was found as a thin muscular slip (Figs. 2, 3).

(Accepted 25 May, 2001)

Marmara Medical Journal 2001;14(3):179-181

Correspondance to: Mürvet Tuncel, M.D. - Department of Anatomy, Faculty of Medicine, Hacettepe University, 06100, Ankara, Turkey
e.mail address: mtuncel@hacettepe.edu.tr

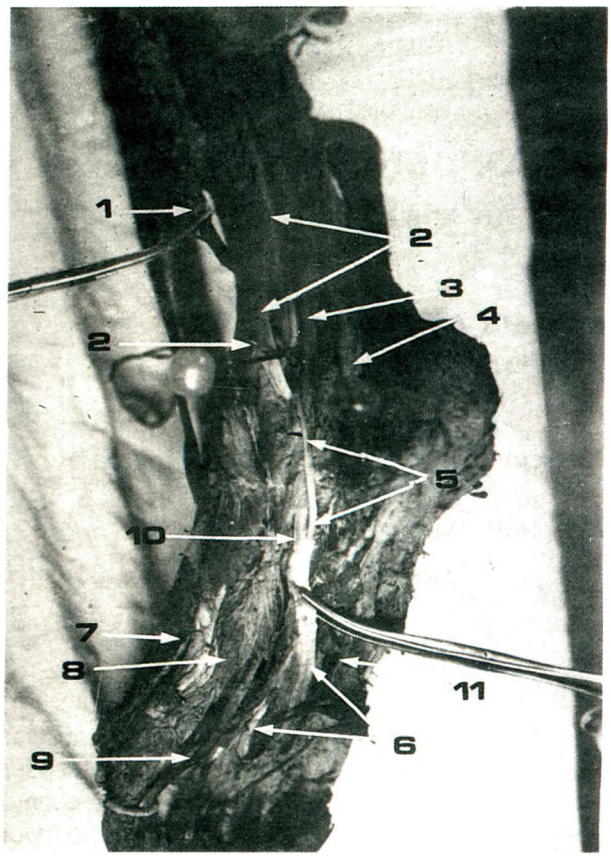

Fig. 1:
Anomalous long accessory muscle originating from the medial border of the tibia.

1- Accessory flexor digitorum longus muscle
2- Flexor digitorum longus muscle
3- Tibialis posterior muscle
4- Flexor hallucis longus muscle
5- Tendon of the accessory flexor digitorum longus muscle
6- Tendon of the flexor digitorum longus muscle
7- Abductor hallucis muscle
8- Flexor hallucis brevis muscle
9- Tendon of the flexor hallucis longus muscle
10- Tendons of the flexor digitorum longus muscle
11- Flexor accessorius muscle (quadratus plantae muscle)

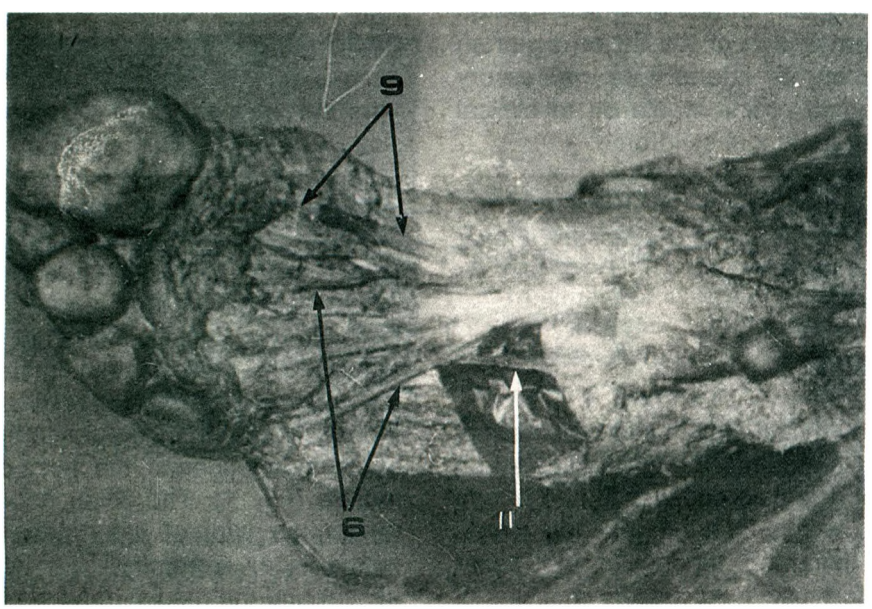

Fig. 2: Medial head of the rudimentary flexor accessorius muscle (quadratus plantae) as a thin muscular slip (the lateral head was absent).

6- Tendon of the flexor digitorum longus muscle
9- Tendon of the flexor hallucis longus muscle
11- Flexor accessorius muscle (quadratus plantae muscle)

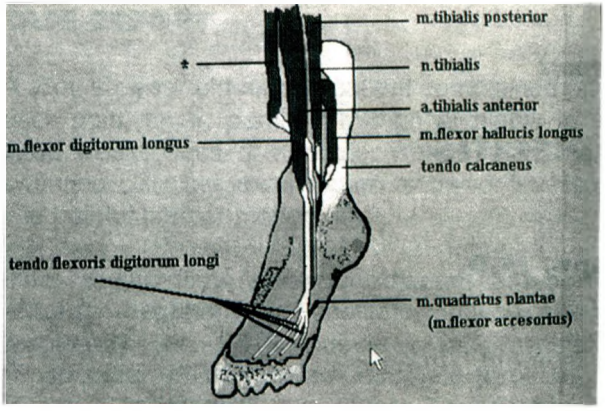

Fig.3: Illustration of the anomalous long accessory and flexor accessorius muscle (quadratus plantae).

DISCUSSION

Embryologically, the flexor system arises from a common muscular basis (5). It is known that the flexor accessorius muscle (quadratus plantae muscle) may contribute one or more tendons of the flexor digitorum longus muscle and its medial head may arise from the leg region (6-8). From the phylogenetic view; the long accessories of the accessory flexor digitorum longus are considered to be regressive anomalies (5). The anomalous form of the muscles of the calf and foot mentioned above may have significance in traumatology and reconstructive surgery. At this point, there are many clinical problems related to the accessory muscles. One of the most important one is the tarsal tunnel syndrome. Tarsal tunnel syndrome is a clinical state in which the tibial nerve and/or its branches are compressed in the fibroosseous tunnel at the posteromedial malleolus.

Classically; local tumors, posttraumatic edema or scars, fractures, bony exostosis, venous dilatation, tenosinovial ganglions are considered as the ethiological factors, today these variations have reached the ratio of 8 % (9) and it has become possible to detect them by using non-invasive methods (1, 3, 10).

The long accessory flexor digitorum muscle is one of the variations of the calf (2). These variations would be diagnosed by MRI with the accurate attachments of the muscle and the relation of this muscle to the tibial nerve and its branches without a need for a surgical examination (1, 3, 10, 11). This provides important information in planning the therapy.

REFERENCES

1. *Ho VW, Peterfy C, Helms CA. Tarsal tunnel syndrome caused by strain of an anomalous muscle: an MRI specific diagnosis. J Comput Assist Tomogr 1993; 17: 822-823.*
2. *Sammarco GJ, Stephens MM. Tarsal tunnel syndrome caused by the flexor digitorum accessorius longus. A case report. J Bone Joint Surg (Am) 1990; 72: 453-454.*
3. *Buchmann WR, Cheung Y, Jahss MH. Magnetic resonance imaging of anomalous leg muscles: accessory soleus, peroneus quartus and the flexor digitorum longus accessorius. Foot and Ankle 1953; 12: 109-116.*
4. *Williams PL, Warwick R, Dyson M, Bannister LH. Gray's Anatomy, 37th edition, London: Churchill Livingstone, 1989: 650-651.*
5. *Pac L, Malinowsky TR. M. flexor digitorum longus accessorius in the lower limb of a man. Anat Anz 1985; 159: 253-254.*
6. *Barlow TE. The deep flexors of the foot. J Anat 1953; 87: 3308-3310.*
7. *Lewis QJ. The comparative morphology of flexor accessorius muscle and the associated long flexor tendons. J Anat 1962; 96: 321.*
8. *Testut L, Latarjet A. Traité D'anatomie Humanie. Paris: Doin CIE Editeurs, 1948: 1180-1181.*
9. *Sarrafian SK. Anatomy of the foot and ankle. Descriptive, topographic, functional. Philadelphia: JP Lippincott, 1983: 118-128.*
10. *Kerr R, Frey C. MRI in tarsal tunnel syndrome. J Comput Assist Tomogr 1991; 15: 280-286.*
11. *Yüksel M, Önderoğlu S, Yener N, Yüksel E. An accessory flexor digitorum longus muscle. Acta Anat Basel 1993; 148: 62-64.*