A new variant of fibulocalcaneus anterior

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INTRODUCTION

A muscle of the anterior leg compartment that inserts onto the lateral calcaneus has been described within the literature at least three times. It was first identified by Gruber (1) who named this muscle “peroneo-calcaneus externus anterior.” Lambert and Atas (2) discovered another bilateral example, which they named “anterior fibulocalcaneus.” The muscle has subsequently been identified in a clinical setting using MR imaging (3). The aim of this article is to present the fourth description of this muscle, but one that differs from the previous observations in that this example has a dual insertion. Knowledge of this variation may help clinicians and basic researchers form a more nuanced appreciation of variations in foot dorsiflexor and evertor muscular anatomy.

CASE REPORT

During a routine anatomy dissection an anomalous muscle was identified in the right leg of a White male cadaver, age 89 years at death (Figure 1). The muscle lay within the anterior compartment between fibularis tertius and the fibula. It originated on the anterior surface of the fibula and partially shared an origin with extensor digitorum longus and fibularis tertius. A dissection artifact gives the impression that the muscle may have originated as two heads when in fact it had a single head along the shaft of the fibula. Followed distally the muscle quickly differentiated from this common origin and presented with a unipennate structure attaching to an anterior tendon. The muscle belly persisted about 90% of the length of the leg. Thereafter, the muscle continued as a single cord-like tendon to cross the talocrural joint anteriorly. At the level of the lateral malleolus of the fibula the tendon bifurcated into two unequal insertions. The thicker insertion tendon attached to the superior lateral calcaneus just proximal to the calcaneocuboid joint. The thinner insertion tendon attached to the lateral talus at the point of transition from the body to the talar neck. A branch of the deep fibular nerve appeared to be the source of innervation to this muscle.

No trace of this muscle could be identified within the left leg. No other muscular variations were identified within this individual. The other muscles of the right anterior leg compartment did not appear to be irregular or diminished in any way.

DISCUSSION

Bergman et al (4) describe several examples of fibulato-calcaneus muscles that are associated with the name “fibulocalcaneus.” Most are muscles that arise in the posterior compartment and insert onto the sustentaculum tali of the calcaneus. Therefore those muscles are not comparable to the muscle described here. The muscle described here is offered as a unique example of the fairly rare muscle variant fibulocalcaneus anterior. This name, or anything like it, is not listed within Terminologia Anatomica (5).

Key Words: Foot evertors; Anterior crural compartment; Muscle variants
locations imply an action line that would be very close to the talocrural axis of rotation. This arrangement would yield a very small moment arm, and thereby imply that fibulocalcaneus anterior is a very weak dorsiflexor. The interpretations of foot eversion that were originally ascribed to fibularis tertius may be properly applied to the fibulocalcaneus anterior.

The literature provides descriptions of several fibula to calcaneus foot evertor muscles. Most of these muscles are found within the lateral compartment of the leg (1,2,12-14). The recurring incidence of these muscular variants suggests that additional foot eversion capabilities may be showing some selective favor in human biomechanical evolution. Therefore, it may be proper to view fibulocalcaneus anterior as another example of one of these evolutionary “experiments” in foot evasion.

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REFERENCES