FLEXOR ACCESSOREUS LONGUS
An Unusual Muscle Anomaly

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The discovery of an unusual muscle anomaly during an open operation to correct a recalcitrant deformity of a severe club foot is presented because of its possible phylogenetic significance.

CASE REPORT

In 1962 a girl of five was admitted to the Shriners' Hospital in Winnipeg with persistent deformity of both feet. Born of healthy parents, she had no family history of deformities, and she had no associated abnormalities. Treatment had been started at the age of three and a half weeks and continued for three years. Both calcaneal tendons had been lengthened and serial plasters and manipulations had partly corrected the deformity. Later, soft-tissue release operations were done. The right foot was operated upon first and no unusual muscle anomaly was found.

Subsequently the left foot had a soft-tissue release. After lengthening of the tendo calcaneus all the structures on the medial aspect of the ankle as far as the talo-navicular joint were exposed. The tibialis posterior, flexor digitorum and flexor hallucis longus tendons were dissected, isolated and retracted together with the posterior tibial vessels and nerve. This gave access to the deltoid ligament of the ankle which was divided.

During this dissection an additional muscle was noticed. It had two bellies. Proximally it seemed to be attached to the fascia over the flexor hallucis longus and deep fascia of the calf. The distal belly disappeared into the sole.

Figure 1 shows the muscle and its relationship to surrounding structures. Tension on the muscle aggravated the varus deformity. After division of the deltoid ligament and resection of this muscle good correction of the hind foot was attained. Figure 2 shows the appearance of the muscle after it had been excised.

DISCUSSION

The anomalous muscle was identified as the flexor accessorius longus. It was found only in the left foot but it could have been overlooked in the right. Wood (1867) stated that such a muscle was present in 1 per cent of specimens examined specifically by him.

The flexor pronator group of muscles, extending in primitive times from the leg to the foot, comprised two main components which have subsequently become subdivided: 1) The flexor digitorum brevis and plantaris. Originally continuous, these two muscles have become separated, leaving the flexor digitorum brevis as a highly specialised muscle which helps to control the changing posture of the foot, and the plantaris which remains as an interesting vestige. 2) The flexor accessorius longus. Originally this muscle transversed the whole distance from the leg to the foot, but it has gradually migrated to the sole, where, as the accessorius or quadratus plantae, it has become an important coordinator of tension in the long flexor tendons of the toes. Wood Jones (1944) suggested that this migration took place in several stages, but that the muscle occasionally appears in its original form with two bellies.

This muscle may be a link in the phylogenetic development of the long flexor muscles of the foot. In this child the anomalous muscle may have contributed to the persistent foot deformity but it cannot be regarded as a significant factor. Muscle anomalies are variable and infrequent in association with club feet (Wiley 1959) and in any case this anomaly is relatively rare.
The medial aspect of the left ankle region has been dissected. The arrow points to the anomalous muscle which lay posterior to the tibialis posterior, neurovascular bundle, and flexor digitorum (which is being retracted). It could be isolated from the flexor hallucis longus.

The resected muscle. Because of the middle tendinous portion it is easy to mistake it for the flexor hallucis longus unless the dissection is continued distally. (Scale shows centimetres.)

SUMMARY

1. An unusual muscle anomaly found during an operation for a severe club foot is recorded.
2. This muscle fitted the description of the flexor accessoreus longus and may add support to the phylogenetic theories of development of the long flexor muscles suggested by Wood Jones.

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REFERENCES