A VARIATION AT THE INSERTION OF PERONEUS LONGUS- A CASE REPORT

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ABSTRACT

The present study is a sincere attempt to highlight the morphological description of a variant insertion of peroneal tendon with their clinical relevance. Awareness of such anatomical variants is important while undertaking reconstructive procedures. A detailed knowledge of the insertion of peroneus longus muscle and its variations will help to better understand the symptoms associated with peroneus longus tendon pathologies and the role played by the peroneus longus tendon in maintaining the arch of the foot. In our study, additional slips at the insertion of peroneus longus were observed in an embalmed cadaveric limb of middle aged male. Out of the four slips of insertion, one slip was inserted on the base of first metatarsal, second on medial cuneiform, third slip to 1st and 2nd dorsal interossei and the fourth slip to 3rd plantar interosseus. The variations seen in the mode of insertion of the Peroneus Longus muscle may be regarded as developmental arrest in the process of migration from the fibular digit to the tibial digit and finally to the medial cuneiform. Clinically, this bipenniform muscle of lateral compartment can be used for translocation in treatment of paralytic pes calcaneus.

Key words: Peroneus longus, insertion, lateral compartment, paralytic pes calcaneus

INTRODUCTION

Peroneus longus is a superficial muscle in the lateral compartment of the leg¹. It arises from head of fibula, proximal 2/3 of lateral surface of fibula, deep surface of fascia cruris, anterior and posterior crural intermuscular septa and few fibres from lateral condyle of tibia. The tendon inserts by two slips. One slip is inserted on the lateral side of base of
first metatarsal and the other on the medial cuneiform. Peroneus longus acts to evert and plantar flex the ankle and stabilizes its subtalar motion. It is thought to be the main contributor to the plantarflexed first ray seen in cavus feet.

Multiple orthopedic pathologies are related to the peroneus longus insertion tendon including tendinitis, tenosynovitis, dislocation, acute rupture, chronic tear, and avulsion fractures. The study of peroneus longus tendon insertion is important clinically because of its importance in maintaining the arch of the foot. The use of an accessory tendon obviates the sacrifice or weakening of a tendon that is used for routine function of the foot and the ankle. Peroneus longus tendon graft can be used for anatomical reconstruction of the spring ligament and anterior cruciate ligament.

On morphological grounds Peroneus Longus should be inserted on the fibular side of the foot. Peroneus Longus has shifted its insertion from the base of the fibular digit, across the sole, to the base of tibial digit and finally also to the medial cuneiform. The migration of the tendon of muscle across the sole of the foot from fibular to the tibial border is a gradual process in the ontogeny of man and a repetition of the phylogeny of the muscle. The morphological evolution of the muscle can readily be followed in the mammalian series. The muscle may get inserted anywhere between these two digits and also give fibrous expansions to the neighbouring structure.

CASE REPORT

While doing dissection of cadavers for undergraduate medical students, we detected variation at the insertion of peroneus longus. Variation was present unilaterally on the right side of a male cadaver. Four slips of insertion of peroneus longus were observed, out of the four slips, one slip was inserted on the base of first metatarsal, second slip on medial cuneiform, third slip merged with first and second dorsal interossei and fourth slip to third planter interosseus. The slips were dissected carefully to expose its origin, course and insertion. The specimen was photographed (Figure 1).

DISCUSSION

The insertion of the peroneus longus tendon described in the text books is at the plantar surface of 1st cuneiform and on the 1st metatarsal. The literature revealed that the variation in the fibular compartment muscles range from 13% to 20%. The fourth fibularis muscle as member of a group of accessory fibular muscles has been described as to be unique to humans. Bergman reported that it may be inserted in the plantar foot and may serve as the origin of the plantar interosseus muscles.

In another research by Jayakumari S, the tendon of fibularis longus muscle may give slip to first dorsal interosseus.

In the present report, four slips of insertion were present, out of which two slips attached normally but third slip blend with 1st and 2nd dorsal interossei and 4th slip with 3rd plantar interossei (Figure 1).

Clinically, the fibular muscles are often stretched and injured from traction during inversion of foot. Further, these types of variations of insertion peroneus longus with additional slips at tendon of insertion may act as an additional support for protection.
against twisting of ankle joint and also may enhance the stability of talo-calcaneo navicular joint\textsuperscript{10}.

**CONCLUSION**
In our study, we found extra slips of insertion of peroneus longus. Out of the four slips, one slip was inserted on the bases of first metatarsal, second slip on medial cuneiform
and third slip blended with the first and second dorsal interrosei and fourth slip to 3rd plantar interroseeus. Whereas normally the tendon is inserted by two slips. One is inserted on the lateral side of base of first metatarsal and the other on the medial cuneiform. The presence of an accessory tendon slip may eliminate the wear and tear and weakening of that tendon used for routine function of the foot and the ankle. It may act as an extra support and protection of ankle joint against twisting and also may improve the stability of talo-calcaneo navicular joint. This variation can be considered as morphological evolution of the muscle followed in the mammalian series.

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Additional slips of peroneus longus at insertion