

Anomalous Variation at Distal Attachment of the Peroneus Longus: A Case Report

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ABSTRACT

Introduction: In human beings, peroneus longus (PL) adopts a great implication as it has the function of maintenance of the plantigrade position of the foot and also conserves the arches of the human foot. The distal attachment of PL has shifted from the lateral margin of the foot to its inner margin as a result of evolution; however, its insertion encroaches on the adjacent areas of the medial most cuneiform and proximal part of the first metatarsal. Therefore, some anomalous insertions in PL are commonly expected.

Methods and results: While doing dissection of cadavers for first-year MBBS students, we spotted a variation at the distal attachment of PL unilaterally in the right foot of a male cadaver. In addition to its normal insertion at the first metatarsal and medial cuneiform, an additional slip was found inserted on the base of the fifth metatarsal.

Clinical relevance: Numerous pathologies are linked with the PL tendon consisting of injuries, inflammation of the tendon, fractures, tenosynovitis, rupture due to accident, tear, and dislocation.

Keywords: Cuneiform, Dissection, Insertion, Peroneus longus.

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INTRODUCTION

Peroneus longus is a superficial muscle in peroneal compartment of the leg. It takes origin from the tibia from its lateral condyle, head of the fibula, proximal two-thirds of the lateral surface of the shaft of the fibula, and anterior and posterior intermuscular septae including fascia cruris. Distal attachment is by two slips: On the outer aspect of the base of the first metatarsal and the second slip on the medial most cuneiform.¹ According to Chhapparwal et al., morphologically, PL is distally attached to the outer border of the foot but has encroached and inserted from the base of the fifth metatarsal, across the sole, to the base of the first metatarsal, and also to the medial most cuneiform. The muscle may have variable distal attachments at any place between the first and fifth metatarsals and also provide fibrous expansions to the adjacent bones.² Numerous pathologies are linked with the PL tendon comprising injuries, inflammation of the tendon, injuries, inflammation of tendon, fractures, tenosynovitis, and tendon rupture.³ Peroneus longus is everted and plantar flexor of the ankle and it also contributes to stabilizing the foot and maintenance of the various arches of the foot.⁴

CASE DESCRIPTION

During dissection in while teaching first-year MBBS undergraduates, an additional slip at the distal attachment of PL was detected in the right foot only in a male embalmed cadaver in the Department of Anatomy, Guru Ram Das Institute of Medical Sciences, Amritsar, Punjab, India. In addition to its normal insertion at the base of the first metatarsal and medial most cuneiform bone, an additional slip of PL was found to be distally attached at the base of the fifth metatarsal. The left limb was also meticulously detected to find the same anomaly. The images of the sole of the foot on the right side were taken for citations in support of the case report.

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DISCUSSION

Usually, the distal attachment of the PL tendon is on the medial cuneiform at its plantar aspect and base of the first metatarsal.¹ According to Macalister's observation, the PL was inserted in the form of three tendinous slips to the first, third, and fifth metatarsals of the foot.⁵ Bergman et al. also reported variation at the insertion in the form of three tendons, to the fifth, third, and first metatarsals at their distal ends.⁶ Bardeen identified the insertion of PL on the base of the fifth metatarsal bone.⁷ Bhargava et al. noticed its distal attachment on all five metatarsal bones.⁸ In the study by Jayakumari et al., the tendon got split into two similar slips; one part was attached to the medial most cuneiform bone and the outer aspect of the base of the first metatarsal in the routine mode and another into the tuberosity located on fifth metatarsal bone.⁹ In our dissection, an additional slip of insertion of PL was found to be distally attached fifth metatarsal bone at its base (Fig. 1). As observed usually by clinicians, the peroneal muscles

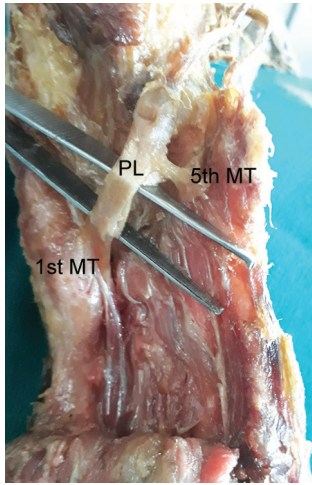


Fig. 1: An additional slip of insertion of PL found to be inserted on the base of fifth metatarsal

are usually stretched and prone to get injured while doing foot inversion. Anomalous variations of PL with additional tendinous slips at its distal attachment may act as a boon for providing supplementary sustenance and avoidance of damage to the talocrural joint during accidental twisting of the foot and also contributes to the stability of the talocalcaneonavicular joint.⁹ These variations are significant for their use in tendon transfer operations. Knowledge of these variations is also important for radiologists, clinicians, and surgeons.¹⁰

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