



**A CASE REPORT**

**A VARIATION AT INSERTION TENDON OF TIBIALIS ANTERIOR**

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**ABSTRACT:** During routine dissection classes in 2011 in the Department of Anatomy, an anomalous insertion of the tibialis anterior tendon was observed on the left side of a formalin-fixed cadaver of a middle aged man without any trace of scars, adhesions or signs of trauma or operation. The insertion of the tibialis anterior tendon was on medial cuneiform only by one slip. The tibialis anterior is an important muscle because of its function and its use in tendon transfer as a treatment of recurrent congenital clubfoot and paralytic equinovarus foot deformities in cerebral palsy and arthroscopy. Morphology of the tibialis anterior muscle is important for its implications in minimally invasive plate osteosynthesis of tibial fractures. The insertion of the tendon of the tibialis anterior muscle may be related to pathologic changes of the foot and in particular, hallux valgus. Morphologic data should enable evaluation of such a relationship and perhaps offer a basis for improved therapy.

**Key words:** cadaver, cuneiform, equinovarus, fracture.

**INTRODUCTION**

The tibialis anterior muscle is classically described as originating from the lateral tibial condyle, the proximal half of the lateral aspect of the tibia, the interosseous membrane, the deep surface of the fascia and intermuscular septum. The occurrence of an anatomical variation in this muscle is of great medical importance, as it may impair or even preclude surgical procedures. On the other hand, supranumerary fascicles or tendons, can be used as donor sources, with no harm to the muscle function. [1, 2] In this present study, we describe the finding of a unilateral anatomical variation of tibialis anterior tendon which insert on medial cuneiform only. This muscle is often affected in poliomyelitis. [3] The tibialis anterior muscle has been used with great success as a donor for reconstruction of injuries, especially for the repair of skin loss of distal third of the leg. [4] Tibialis anterior can be used as transplant in tibioperoneal tenoplasty for congenital club foot with peroneal insufficiency.[5] Herndon performed transposition of Tibialis Anterior in the treatment of Paralytic talipes calcaneus which is one of the most disabling deformities that may develop in paralytic foot.[6] Abnormality of tibialis anterior may be related with flat foot or hallux valgus deformity. [6, 9]

## CASE REPORT

During routine cadaveric dissection of left leg in middle aged male body. anterior tibialis muscle presented with an anatomical variation at its insertion. The insertion of tendon was on medial cuneiform only by one slip only. Normal Insertion of the tendon of tibialis anterior is on medial side of medial cuneiform and base of first metatarsal. The specimen was photographed. (Figure 1).



**FIGURE 1** Showing insertion of tendon of tibialis anterior on medial cuneiform only by one slip and not reaching upto 1st metatarsal (MT)

## DISCUSSION

Awareness of the anatomy and variations of the extensor tendons on the dorsum of foot is necessary for an orthopedic surgeon while assessing traumatized or diseased foot and during tendon transfer operations. [4] Normally the tendon of tibialis anterior is inserted on medial side of medial cuneiform and base of first metatarsal where as in our study the insertion of tendon was on medial cuneiform only by one slip. Occasionally a muscle recorded as abnormal in man is present normally in some lower animals on the other hand, muscles which are supposed to be evolutionarily advanced are recorded in animals. Only a few of them can be explained on the basis of comparative study. Function modifies the structure greatly and these changes are independent of the organiser theory [7] Similar type of findings were also observed by Laiq Hussain [8] in 14.5% cases and Arthornthurasook [4] in 15.9% cases. But in our study the percentage is 16.6% which is almost similar to the findings of other authors. Brenner in his study on 156 cases, observed its insertion on medial cuneiform only in two cases [9] (1.28%) [10].

## VARIATIONS IN INSERTION OF TIBIALIS ANTERIOR (COMPARATIVE STUDY)

YEAR	AUTHOR	VARIATION
2002	Brenner	Insertion on medial cuneiform only or on 1st metatarsal only
2002	Hussain L	Insertion by two slips of equal or unequal lengths
2005	Ikiz ZA	Insertion of tendon on lateral side of foot [10]
2011	Present study	Insertion of tendon on the medial cuneiform by one slip only

### SUMMARY AND CONCLUSION

In the present study a variation in which insertion of tibialis anterior tendon was observed on medial cuneiform only by a single slip. Moreover this variation was observed unilaterally. Abnormal insertions of Tibialis anterior tendon may be related to pathologic changes of the foot particularly hallux valgus and flat foot.

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