

Magnetic resonance imaging of the tensor vastus intermedius: A topographic study based on anatomical dissections

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The tensor of the vastus intermedius (TVI) is a newly described component of the extensor apparatus of the knee joint. The objective of this study was to evaluate the appearance of the TVI on magnetic resonance (MR) imaging and its association with the adjacent vastus lateralis (VL) and vastus intermedius (VI) muscles and to compare these findings with the corresponding anatomy. MR images were analyzed from a cadaveric thigh where the TVI, as part of the extensor apparatus of the knee joint, had been dissected. The course of the TVI in relation to the adjacent VL and VI was studied. The anatomic dissection and MR imaging revealed a multilayered organization of the lateral extensor apparatus of the knee joint. The TVI is an intervening muscle between the VL and VI that combined into a broad flat aponeurosis in the midthigh and merged into the quadriceps tendon. Dorsally, the muscle fibers of the TVI joined those of the VL and VI and blended into the attachment at the lateral lip of the linea aspera. In this area, distinguishing between these three muscles was not possible macroscopically or virtually by MR imaging. In the dorsal aspect, the onion-like muscle layers of the VL, TVI, and VI fuse to a hardly separable muscle mass indicating that these muscles work in conjunction to produce knee extension torque when knee joint action is performed. *Clin. Anat.* 30:1096-1102, 2017. © 2017 Wiley Periodicals, Inc.

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