

Anatomic-radiologic study of the anterolateral ligament of the knee

Veronica Macchi¹, Andrea Porzionato¹, Gloria Sarasin¹, Maria Martina Sfriso¹, Carla Stecco¹, Aldo Morra², Bruno Grignon³, Raffaele De Caro¹

¹ Institute of Human Anatomy, University of Padova, Padova, Italy - ² Radiologic Center, Euganea Medica, Padova, Italy - ³ Department of Anatomy and Guilloz Imaging, CHU Nancy, Nancy, France

Recent anatomic investigations of the lateral structures of the knee have identified a new ligament, called the anterolateral ligament (ALL). To date, the anterolateral ligament has not been microscopically analysed. A retrospective MRI study was carried out in 50 patients by two observers. MRI has been performed for various indications excluding trauma. 10 specimens of ALL were sampled from bodies of the Donation to Science program of the University of Padova. A thin linear structure originating at the lateral epicondyle, running obliquely downwards and forwards and inserting at the lateral aspect of the proximal tibia was observed in 18 cases (90%), with a mean length of 3.8 cm and mean thickness of 1.9 mm. The ALL was hyposignal on both T1- and T2-weighted sequences. From the microscopic point of view the ALL corresponds to a fibrous connective tissue, organised in 2-3 layers of collagen tissue (mean thickness 983±423 micron), with scarce elastic fibres, separated by a thin layer of fibroadipose tissue from the adjacent structures. The ALL appears as almost constantly depicted by MRI and shows a fibrous structure. Its layered organisation could account for its mechanical importance, as a presumed stabilizer of the medial rotation of the knee.