The Anterolateral Ligament

18

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18.1 Introduction

In 1879, Dr. Paul Segond was the first to describe the existence of a "pearly, resistant, fibrous band" at the anterolateral aspect of the human knee. In the following decades, other authors described a ligamentous structure in the same anatomical region of the knee, but this ligament was described rather confusingly and was referred to by many different names [1]. In 1976, Hughston reported about the "mid-third lateral capsular ligament"; this name was later adopted by Johnson in 1979 and by Laprade in 2005 [2–4]. In 1987, Irvine described a similar structure as "the anterior band of the lateral collateral ligament" [5], and between 2002 and 2012, other authors reported about the "anterior oblique band" and the "anterolateral ligament" [6–8]. In 2013, a profound analysis of these papers inspired the first thorough anatomical study of this enigmatic knee structure, thenceforth unanimously called the "anterolateral ligament" (ALL) of the knee [9] (Fig. 18.1).

By characterizing precise anatomical landmarks of the ALL and suggesting an important influence on rotational stability of the ACL-injured knee, this chapter has provoked a shockwave of anatomical, biomechanical, and clinical publications in recent literature. It also created a lot of controversy especially in the first couple of years, as some authors denied the existence and/or importance of this structure. This initial controversy is now abate, and in 2018, an extensive review of literature, together with cadaveric dissection sessions, by a group of 33 international expert knee surgeons and scientists resulted in a consensus paper which confirms the existence and biomechanical importance of the ALL [1].

By now, the ALL has been consistently demonstrated to attach posterior and proximal to the lateral femoral epicondyle and the origin of the LCL, and it runs superficial to the LCL and attaches on the tibia midway between the anterior border of the fibular head and the posterior border of Gerdy's tubercle [1] (Fig. 18.2).

The initial hypothesis regarding the biomechanical properties of the ALL suggested an effect of controlling internal rotation and anterior translation together with the anterior cruciate ligament (ACL) [9]. Different biomechanical studies have confirmed this, and the ALL is now known to be an important restraint restricting tibial internal rotation [10–13]. Furthermore, injuries to the ALL have been shown to induce high-grade results of the pivot shift test in ACL-deficient knees [14].

For many decades, even before the characterization of the ALL, lateral extra-articular tenodesis (LET) techniques were used in order to

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