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The Anterolateral Ligament in a 41 Paired Human Cadaver

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Context: The anterolateral ligament of the knee has recently received significant attention in anatomical studies. The anterolateral ligament has been identified in up to 97% of unpaired cadaveric knees. This ligament is believed to assist in limiting excessive internal rotation of the knee, which could make it an important accessory stabilizer. Segund fractures, an avulsion of the distal anterolateral ligament insertion, has been implicated in 75% of anterior cruciate ligament ruptures. However, the anterolateral ligament has not been identified in bilateral knees.

Objective: To identify the anterolateral ligament in the paired knees of cadavers.

Design: A descriptive study design was used.

Setting: Medical School Cadaver Laboratory.

Patients or Other Participants: Bilateral knees of 41 bodies (n=82 knees); female = 13, mean age = 80.9 years; male = 28, mean age = 77.3 years) were dissected to confirm the presence of the anterolateral ligament and its proximal and distal attachments.

Interventions: The attachments of the anterolateral ligament were identified by gross dissection in 41 knees bilaterally. The approach of each dissection was to visualize the anterolateral ligament attachment sites from the anteromedial lip of the lateral femoral epicondyle proximally to the anterolateral aspect of the tibial condyle distally. The anterolateral ligament demonstrated an oblique, anteroinferior course from the femoral site just proximal to the popliteal tendon to the anterolateral aspect of the proximal tibia, superior to a horizontal line connecting the fibular head and Gerdy's tubercle. The anterolateral ligament was shown to insert with the coronary ligament and the tibiofemoral joint capsule to the anterior horn of the lateral meniscus and enveloped the inferior lateral geniculate artery. Its attachment on the anterolateral tibia was found to be distinct from that of the iliotibial band.

Main Outcome Measures: The presence or absence of the anterolateral ligament was determined in paired cadavers. Once identified, the knee was internally rotated at 0° and 90° of knee flexion to confirm the integrity of the ALL.

Results: The anterolateral ligament was identified in 81 of 82 (97.561%) of knees and was present bilaterally in each of the 13 female specimens (26 knees) and in all but one knee of the male cadavers (55/56) or 98.2%.

Conclusions: Our data confirm that the anterolateral ligament is a distinct capsiloligamentous band prevalent in the majority of human knees. The anterolateral ligament insertion may be linked to Segund fractures, commonly associated with anterior cruciate ligament rupture. This anterolateral ligament should not be overlooked in the physical examination and diagnosis of rotary instabilities of the knee and is worthy of further biomechanical study.

Key Words: *Knee biomechanics; posterolateral corner; anterior cruciate ligament*