High resolution US and MRI features in evaluation of meniscal and cruciate ligament injuries around knee joint

Thesis

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To my family

My mother, father and brothers to whom, I owe a lot of things more than I can count.

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LIST OF ABBREVIATIONS

+ve	:	Positive
ACL	:	Anterior cruciate ligament
AHLM	:	Anterior horn of lateral meniscus
AP	:	Antero posterior
HRUS	:	High resolution ultrasound
MCL	:	Medial collateral ligament
MRI	:	Magnetic resonance imaging
PCL	:	Posterior cruciate ligament
PHLM	:	Posterior horn of lateral meniscus
PHMM	:	Posterior horn of medial meniscus
SE	:	Spin echo
STIR	:	Short tau inversion recovery
T1	:	Longitudinal relaxation time
T2	:	Transverse relaxation time
-ve	:	Negative

REVIEW OF THE LITERATURE

Anatomy of the anterior cruciate ligament

The anterior cruciate ligament, an intra-capsular extra-synovial structure with a synovial envelope, is the main stabilizer of the knee for pivotal activities. (1) The intra articular length of the anterior cruciate ligament is between 28 and 31 mm (1) the proximal attachment of the anterior cruciate ligament is at the semicircular fossa on the posteromedial aspect of the lateral femoral condoyle (Fig.1). At the stronger distal attachment, the ligament fans out under the intercondylar roof and the transverse ligament to insert into the tibial spines between the lateral and medial menisci. (2) Although the anterior cruciate ligament does not have bundles that are distinct from an anatomical perspective, it has been divided into two functional bundles, the anteromedial bundle that is larger, stronger, and taut in flexion and the posterolateral bundle that is taut in extension. This configuration provides a functional isometry, providing a taut ligament throughout complete knee range of motion (3). The anterior cruciate ligament has a distinct crimped pattern that straightens as the ligament is put under strain.