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A 15-year-old girl presents 1 week after she twisted her right knee while playing basketball. She reports that she heard a "pop" in her knee and immediately felt her knee give out, making it difficult to walk. After the injury, severe swelling developed in the knee. Plain radiographs are completed, and an MRI is ordered (Figure 1).

How would you interpret this image?

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CHALLENGES IN SPORTS MEDICINE & ORTHOPEDICS

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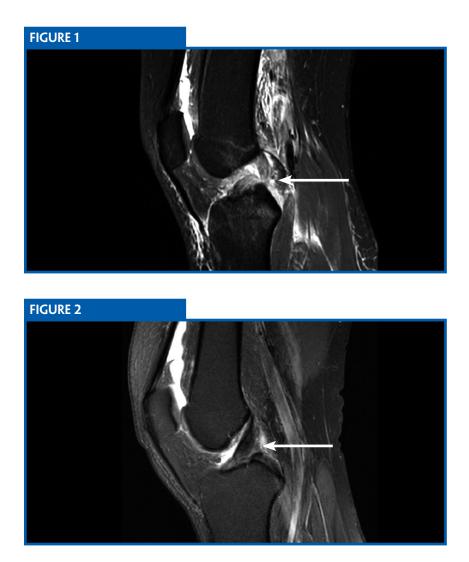


Figure 1, a sagittal view of the MRI of the patient's right knee, reveals a complete midsubstance tear of the anterior cruciate ligament (ACL). ACL tears are the most frequent cause of extended absence from participation in sports.¹ They commonly occur in deceleration and rotational movements during running, jumping, or cutting. The ligament helps maintain the stability of the knee by preventing anterior translation of the tibia. In the examination of a patient with a suspected ACL tear, the Lachman test is the most useful. The test is performed with the patient supine and the knee in 20° to 30° of flexion as the examiner applies an anterior force to the tibia with one hand, while using the other hand to stabilize the distal femur.² During the test, the hamstring must be relaxed in order to prevent a falsenegative result. Anterior translation of the tibia with a soft end point during the Lachman test is diagnostic of an ACL tear. This patient was scheduled for right knee arthroscopy with ACL repair. Figure 2 is a sagittal view of an MRI completed in a patient with an intact ACL.

References

- Cooper R, Crossley K, Morris H. Acute knee injuries. In: Brukner P, Khan K, eds. *Clinical Sports Medicine*. 2nd ed. New York, NY: McGraw Hill; 2001:chap 23.
- McMahon PJ, Kaplan LD. Sports medicine: knee ligament injury. In: Skinner H, ed. *Current Diagnosis & Treatment in Orthopedics*. 4th ed. New York, NY: McGraw Hill; 2006:176-186.