The patient was a 23-year-old man, currently serving in a military airborne operations unit. During a jump training exercise, the patient’s right lower extremity became entangled in his parachute equipment upon exiting the aircraft, which caused hyperextension and valgus forces upon his right knee. While the patient was able to land from the jump without sustaining further injury, he was unable to bear weight on his right lower extremity due to medial knee pain. The patient was immediately transported to a physical therapist who was conducting musculoskeletal triage during the training exercise.

In addition to an inability to bear weight on his right lower extremity, the patient was unable to flex his right knee beyond 60° due to pain. Due to concern for a fracture, the patient was transported to an emergency department, where conventional radiographs were completed and interpreted by a radiologist as negative for a fracture. The patient was instructed in a weight-bearing-as-tolerated gait with axillary crutches and referred to a physical therapist.

Physical examination of the right knee by the physical therapist the day after the injury revealed moderate effusion, active range of motion from 0° to 90°, a positive Lachman test, and laxity with valgus stress testing at 0° and 30° of knee flexion. Due to concern over ligamentous disruption, the physical therapist ordered magnetic resonance imaging of the right knee, which revealed ruptures of the anterior cruciate ligament and medial collateral ligament (FIGURES 1 and 2). The patient was then referred to an orthopaedic surgeon. While the patient’s medial collateral ligament injury was treated nonoperatively, he subsequently underwent anterior cruciate ligament reconstruction.

FIGURE 1. Sagittal proton density fat-saturated magnetic resonance image of the right knee, demonstrating a rupture of the anterior cruciate ligament (arrow).

FIGURE 2. Coronal proton density fat-saturated magnetic resonance image of the right knee, demonstrating a high-grade tear at the distal portion of the medial collateral ligament (arrow), with associated laxity of the proximal portion of the ligament.

References

The opinions expressed herein are those of the authors and do not necessarily reflect the opinions of the Department of Defense, the US Army, or other federal agencies.

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Diagnostic Imaging in a Patient With an Acute Knee Injury