

EXTENSOR MECHANISM COMPROMISE AND PATELLAR FRACTURE

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CASE PRESENTATION

History

A 26-year-old basketball player felt an immediate pop after a twisting hyperflexion injury to his left knee but attempted to continue playing. After a second pivoting injury during the same game, he stopped playing because he could not fully extend his knee. Subsequently, a large effusion developed, and he presented to the emergency department for examination. Radiographs obtained at that time ruled out a periarticular fracture. The patient presented for specialty evaluation 5 days after the injury.

At initial presentation, the patient held his knee flexed 10° and described pain with further extension. Physical examination revealed that the extensor mechanism was intact, and the patellar examination was unremarkable. There was a 1+ effusion and lateral joint tenderness, knee range of motion was 10° to 100°, the posterior drawer test was negative, varus/valgus stress testing at 30° was normal, the Lachman test was a low grade III with a soft end point, an attempt at pivot-shift testing produced guarding, and the dial test was negative at 30° and 90°. KT-1000 arthrometer (MEDmetric Corp, San Diego, CA) testing revealed a 9-mm side-to-side maximum manual difference.

The knee radiographs were normal. MRI revealed an effusion, anterior cruciate ligament (ACL) disruption with classic lateral compartment bone bruises, and a bucket-handle lateral meniscus tear displaced into the intercondylar notch (Figure 1).

The patient was counseled about treatment options for his ACL injury. Based on his desire to continue sports participation for more than 6 hours per week in activities that would put his knee at risk for further pivoting episodes and a high (> 6 mm) KT-1000 side-to-side difference, ACL reconstruction was recommended. Initial meniscal surgery to assist with motion recovery and staged ACL reconstruction also were discussed. However, the patient wished to proceed with a single-stage reconstruction procedure; he had professional time constraints and was concerned about insurance coverage during an upcoming job transition.

By 12 days after the injury, gains in his range of motion were significant; he lacked only 2° of terminal extension and was able to flex beyond 125°. Because of this rapid improvement, a single-stage procedure was selected. After a



Figure 1 Coronal MRI scan showing a bucket-handle lateral meniscus tear displaced into the intercondylar notch.

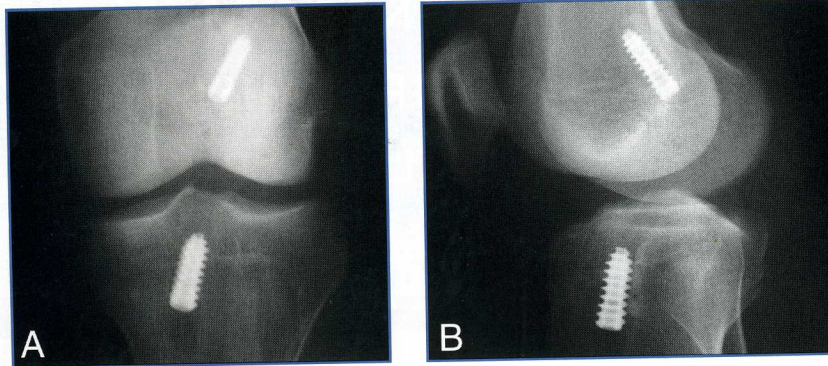


Figure 2 Initial postoperative AP (A) and lateral (B) radiographs following ACL reconstruction.

complete discussion about graft alternatives, patellar tendon autograft was chosen.

The patient underwent an uncomplicated arthroscopically assisted ACL reconstruction and lateral meniscus repair 21 days after the injury. A standard single-incision endoscopic reconstruction technique¹ was used, and an inside-out meniscus repair was performed using an accessory incision. Diagnostic arthroscopy did not reveal any other significant intra-articular pathology.

The patient was discharged home from the recovery room after physical therapy instruction, and his initial postoperative recovery was uneventful. Radiographs obtained on postoperative day 8 revealed appropriate tunnel and interference screw positions (Figure 2). The patient had complete hyperextension and flexion to 90°, and his rehabilitation was progressing uneventfully.

He was instructed to wear a brace for the first 6 weeks postoperatively to protect his extensor mechanism. He was allowed weight bearing as tolerated with the brace locked in full extension for the first 2 weeks, and then allowed to unlock the brace for ambulation. He was allowed immediate full motion without the brace when not weight bearing.

Current Problem and Treatment

Five weeks postoperatively, the patient fell and sustained a direct blow to the patella. He was not wearing the brace at the time and admitted to brace

noncompliance. A large effusion developed immediately, and he presented for examination.

Physical examination revealed a 30° extension lag and significant pain with quadriceps activation. Radiographs showed a displaced transverse patellar fracture at the level of the proximal harvest bed (Figure 3).

The patient subsequently required urgent open reduction and internal fixation with two partially threaded cannulated screws and a tension band construct (Figure 4).

DISCUSSION

Recognizing the Problem and Situations at Risk

ACL injury is extremely common, especially in the athletic population. It is estimated that 100,000 new ACL injuries occur annually, and one of every 3,000 people will sustain an ACL injury in a given year.² In the past, these injuries often would preclude return to high-level sports activities. With current surgical techniques for ACL reconstruction, knee stability can be restored, and injured athletes can return to strenuous activities more than 90% of the time, usually within 6 months. Given this success rate, individuals wishing to return to demanding activities are often candidates for ACL reconstruction. When counseling these patients, however, it is important to communicate potential adverse outcomes of ACL reconstruction.

