

Multiligamentous Knee Injury With Biceps Femoris Avulsion and Common Peroneal Nerve Injury: Acute, Single-Stage Reconstruction of the Anterior Cruciate Ligament, Posterior Cruciate Ligament, and Posterolateral Corner

Lauren Schoof, Nicole D Rynecki, Mackenzie Ann Roof, Dylan T Lowe, Spencer Matthew Stein, Michael J Alaia¹
¹NYU Langone Orthopedic Center

Background

Multiligamentous knee injuries (MLKI) are defined as a tear of two or more of the major knee ligaments. Typically, these are high-energy injuries, often associated with knee dislocations and neurovascular injury. The incidence of these injuries has been reported to be approximately 0.02% to 0.20%; however, this likely is an underestimation because of frequent spontaneous reduction of knee dislocations in the field, leading to missed injuries or delayed diagnoses. As many as 18% of patients will have associated vascular injury, and as many as 40% of patients will have a common peroneal nerve palsy, which is most common with combined anterior cruciate ligament (ACL)/posterolateral corner (PLC) injuries. Although, patients with a MLKI generally should be treated surgically, questions remain with regard to the optimal timing of surgical treatment, whether surgical treatment should be performed in a staged manner or in a single surgical setting, and whether ligaments should be repaired or reconstructed.

Purpose

This video demonstrates acute, single-stage reconstruction of the ACL, posterior cruciate ligament (PCL), and PLC in a patient with an intact common peroneal nerve and complete motor and sensory palsy.

Methods

The anatomy, classification, diagnosis, and treatment options associated with a MLKI are reviewed. The case presentation of a 45-year-old man with a knee dislocation and MLKI (ACL, PCL, PLC [lateral collateral ligament, biceps femoris, popliteus]) and associated common peroneal nerve palsy is reviewed. After a thorough discussion of risks, advantages, and prognosis, the patient elected to proceed with acute, single-stage allograft reconstruction of the ACL, PCL, and PLC.

Results

The ACL, PCL, and PLC were successfully reconstructed intraoperatively. The ACL was fixed with the use of metal interference screws, and the PCL was fixed with the use of all-inside suture buttons. At 1 year postoperatively, the patient had regained considerable range of motion, with 0° to 130° of passive motion and 0° to 120° of active motion and no complaints of instability; however, he only regained partial sensation in the superficial and deep peroneal nerve distributions and partial recovery of strength in the extensor hallucis longus. The patient did not experience recovery in tibialis anterior function.

Conclusion

Acute, single-stage allograft reconstructions of the ACL, PCL, and PLC with early weight bearing and range of motion progression postoperatively may result in a good functional outcome with very good range of motion and no residual laxity; however, common peroneal nerve injury may limit functional outcomes, and patients with complete peroneal nerve palsy on presentation are less likely to regain function.