Posteromedial Corner of the Knee Injuries: From Anatomy to Surgical Treatment

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Introduction

The superficial medial collateral ligament (MCL) and other medial knee stabilizers, such as the deep medial collateral ligament and the posterior oblique ligament (POL), are the most injured ligamentous structures of the knee. These injuries result from a traumatic mechanism of injury involving valgus stress loading of the knee in isolation or in combination with tibial external rotation. The MCL has the greatest healing potential of any ligament in the knee; however, some patients with combined MCL and POL injuries, usually associated with an ACL injury, will experience persistent pain and continued functional rotatory or valgus instability after nonsurgical treatment. In these patients, reconstruction of the ACL and the medial knee structures is required.

Purpose

This video shows the normal anatomy of the medial and posteromedial ligaments of the knee and demonstrates MCL and POL reconstruction with the use of a semitendinosus tendon graft in a cadaver laboratory. In addition, the outcomes of surgical management of this type of injury are reviewed.

Methods

This video shows the gross anatomy of the medial area and the posteromedial corner of the knee and surgical reconstruction the MCL and POL with the use of a single semitendinosus tendon graft, with a single tunnel in the medial femoral condyle slightly posterior to the MCL insertion and one distal tibial tunnel on the insertion of the MCL and the other posterior tibial tunnel on the insertion of the POL, using graft fixation and an interference screw in each tunnel. Proximal tibial fixation of the graft for the superficial MCL was performed with the use of a suture anchor 12 mm distal to the joint line to attain proximal fixation of the reconstructed MCL. In all the patients, the ACL was reconstructed with the use of semitendinosus tendon allograft. The video shows the surgical procedure for reconstruction of the superficial MCL and the POL in a cadaver laboratory and in a patient. The rehabilitation protocol consisted of the use of crutches for 2 weeks postoperatively, allowing for progressive weight bearing and range of motion, and followed a reconstructed ACL rehabilitation protocol. A knee brace was not used. A total of 28 patients were reviewed, and outcomes were assessed at a mean follow-up of 19 months (range, 12 to 45 months; standard deviation ± 19.09 months) using the Lysholm Knee Scale score.

Results

A total of 28 patients (14 men, 14 women) with a mean age of 32.7 years (range, 16 to 53 years; standard deviation ± 19.09 years) were included in the study. All the patients had an MCL and POL injury associated with an ACL injury. At the end of follow-up, the stability of the posteromedial corner of the knee was excellent at 0° and 30° of flexion in 27 patients. The mean postoperative Lysholm Knee Scale score was 81 (range, 67 to 100; standard deviation ± 19.09) at final follow-up.

Conclusion

Medial-sided knee ligament injuries are complex and require a thorough understanding of anatomy and the diagnosis of associated ligament injuries. Patients with a combination of injuries should be treated surgically. Reconstruction of the superficial MCL and POL restores rotational and valgus stability to the injured knee.