

Posterior Cruciate Ligament Reconstruction Using Single-Bundle Achilles Allograft with Open Tibial Inlay Fixation

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Objectives: PCL reconstruction research has shown that the tibial inlay and transtibial tunnel procedures offer similar biomechanical results. The purpose of this study was to evaluate the early results of PCL reconstruction using a single-bundle Achilles allograft and tibial inlay fixation.

Methods: We retrospectively studied 14 patients who had undergone PCL reconstruction using the direct tibial inlay fixation technique from 2009 to 2013, with a mean follow-up of 13.4 months. (6-28 months). The patients were 11 males and 3 females with an average age of 29.2 years (17-41 years). Ipsilateral femoral shaft fractures were determined in 2 cases, ipsilateral trochanteric fracture in 1 case and popliteal artery injury in 1 case. Surgery was performed within 2-4 weeks. Spanning-joint external fixation was applied to 2 patients because of gross instability with failure to maintain reduction in a brace. Combined reconstructions involving the posterolateral corner (9/14), anterior cruciate ligament (ACL (11/14)), or medial collateral ligament (MCL (1/14)) were performed. All PCL reconstructions were performed with Achilles allograft. In 1 case with arterial injury, the repair was made by a cardiovascular surgeon. In 2 case, deep infection developed, which was controlled with debridement and antibiotic treatment. Superficial peroneal nerve injury in 1 case was treated with tenolysis in the 6th month, then partial healing was seen at 18 months. In all patients, the preoperative posterior drawer (PD) examination was positive. All patients were evaluated with preoperative and postoperative examination and x-rays. The International Knee Documentation Committee (IKDC) evaluation was applied to all patients at the final follow-up.

Results: Postoperative PD examination demonstrated the following: 0 (normal) in 4 patients, 1+ in 7 patients, and 2+ in 3 patients, compared to the preoperative PD of 3+ or greater in all patients. Preoperative IKDC objective evaluation rated all knees as severely abnormal based on instability. The final follow-up objective IKDC evaluation distribution was as follows: A, 4 knees; B, 6 knees; C, 3 knees and D, 1 knee, compared to D in all 14 knees preoperatively. The average final follow-up IKDC subjective score was 74.1 (20-100).

Conclusion: Despite transtibial PCL reconstruction being advocated by several authors, it has technical difficulties of the arthroscopic approach to the posterior compartment of the knee. In the open inlay technique, posterior arthrotomy allows accurate placement of the tibial PCL insertion, avoiding the killer curve and more closely duplicating the normal PCL anatomy. Based on our initial experience with this technique at early follow-up, we continue to use the tibial inlay technique as our preferred technique for isolated or combined reconstruction of the PCL.

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