

Evaluation of Short Term Outcomes of Transportal Femoral Cross Pin Fixation in Anterior Cruciate Ligament Reconstruction

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Objectives: Many fixation techniques are currently in use for femoral side graft fixation at ACL reconstruction surgery. Short term success following ACL reconstruction highly depends on fixation strength of the graft. In this study we report short term results of anterior cruciate ligament reconstruction using double hamstring tendon autograft using double cross pin for femoral tunnel fixation.

Methods: Between years 2009 and 2013, 51 male adult anterior cruciate ligament injury cases treated surgically, in a single center, with at least one year follow up were investigated. Professional athletes, multi-ligamentous instability cases, cases requiring meniscus repair or further treatment for chondral injuries and cases with concomitant medial and lateral meniscus lesions were not included in the study. Femoral tunnel was prepared anatomically through accessory medial portal, opened medially and distally. Reconstruction was performed using double loop hamstring tendon autograft. Femoral side was fixed using double cross pin, whereas tibial side was secured using single biodegradable interference screw and titanium staple. No external immobilization method such as brace was administered. Patients were encouraged to bear weight as tolerated. Standard physiotherapy was instructed to all patients postoperatively. All cases were evaluated clinically at the end of at least one year follow-up. Clinical and functional evaluation consisted of pivot shift and Lysholm, International Knee Documentation Committee (IKDC) scores and Tegner activity evaluation systems.

Results: Mean age was 28.4 (18-39) years. Mean time between the injury and reconstruction was 13 (3-21) weeks. Average duration of surgery was 48 (35-70) minutes. No case of graft failure or posterior cortical fracture was encountered. In two cases, infection was treated successfully with local debridement and antibiotics with retention of the graft. At the end of follow-up period, none of the cases demonstrated positive pivot shift test. Pre-operative and follow-up Lysholm scores were 58.3±6.7 and 87.1±5.3 ($p<0.001$) respectively. Pre-operative IKDC scores were evaluated as C at 37 cases and D at 14, whereas, follow-up IKDC scores were evaluated as A at 42 cases, B at 8 and C at 1 case. Pre-operative and follow-up Tegner scores were 3.7±0.6 and 6.7±0.4 ($p<0.001$) respectively.

Conclusion: Although fixation strength of transcondylar graft fixation techniques has been questioned over loop systems with cortical fixation, it was reported that transcondylar fixation causes less tunnel widening at long term. Our study revealed successful short term results, with femoral tunnel preparation using accessory medial portal and double cross pin femoral fixation, allowing early weight bearing and rehabilitation without graft and fixation failure.

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