

Arthroscopic Popliteus Sling Reconstruction for Posterolateral Rotatory Instability of Knee – A Prospective Study

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Summary:

Posterolateral rotatory instability is often a missed diagnosis causing delayed failure of cruciate reconstructions. Popliteus sling reconstruction controls the posterolateral rotatory instability and is therefore advisable for these cases. Arthroscopic popliteus reconstruction is minimally invasive, with lesser risk, precise anatomical placement and better patient compliance with excellent results

Abstract:

INTRODUCTION

Injuries to the posterolateral complex (PLC) are common in a multiligament injured knee. These injuries may also occur in isolation. Injury to the PLC results in laxity with 2 components – The varus rotation and the posterolateral rotational laxity. Depending on the structures injured it could result in a combined laxity or an isolated varus or rotational laxity. Posterolateral rotational laxity is primarily due to injury to the popliteus or the popliteofibular ligament.. This posterolateral rotational instability was managed by an anatomical popliteus sling reconstruction procedure.

MATERIALS & METHODS

11 knees with posterolateral rotatory instability were treated with popliteus sling reconstruction in the past 4 years. 2 knees presented with associated injury to the anterior cruciate with posterior cruciate ligament. 4 knees presented with associated anterior cruciate injury. 5 cases presented with isolated posterolateral rotatory instability (PLRI). All cases presented between 3 months to 15 months following the primary injury. Knees with isolated PLRI had primary complaints of pain rather than instability. The diagnosis of PLRI was based on clinical examination. The confirmatory tests performed were dial test in 30° and 90° flexion, reverse pivot shift test, posterolateral drawers test and standing apprehension test.

Anatomical reconstruction was done for the popliteus sling. The tibial tunnel was drilled anteroposteriorly exiting at the popliteus musculotendinous junction. Femoral tunnel was at the insertion site of popliteus on the lateral femoral condyle. Double stranded autologous gracilis was used as graft for reconstruction from the ipsilateral knee. It was fixed with a round cannulated interference screw in the femoral and tibial tunnel or in 2 cases over a suture disc on tibial side. In the first 6 cases popliteus reconstruction was done through an open technique. In the final 5 cases an all arthroscopic technique was used for the reconstruction. Associated cruciate reconstructions were performed arthroscopically at the same stage.

RESULTS

11 knees were operated on in the past 4 years. 2 patients were lost to followup after 1 year. The average follow up was for 26 months. There were no complications encountered in these cases. All patients achieved full range of motion except for 2 cases which had tightness in terminal 5° flexion as compared to opposite normal knee. The patient satisfaction by SF12 was better in the arthroscopic group as compared to the open reconstruction group. Instrumented quantitative assessment of the rotations could not be made. However the posterolateral rotational laxity was compared to the preoperative laxity and to the opposite normal knee in all cases by dial test. All patients achieved rotations compared by dial test equal to the opposite normal knee. IKDC scoring showed improvement to normal or near normal activity levels in all these cases.

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CONCLUSION

The popliteus sling reconstruction offers a good surgical modality of treatment to address PLRI of knee. Anatomical popliteus sling reconstruction gives good results. Arthroscopic popliteus sling reconstruction has better patient satisfaction. It is minimally invasive, safe, effective and reliable procedure for treatment of posterolateral rotatory instability of the knee.