



ARTHROSCOPIC REVISION ACL RECONSTRUCTION WITH IPSILATERAL AUTOLOGOUS HAMSTRING GRAFT

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ABSTRACT

The number of revision anterior cruciate ligament (ACL) surgery has risen over the past few years. Revision ACL surgery is recommended for patients who have symptomatic objective pathological laxity after a failed primary ACL reconstruction. The choice of graft in revision surgery remains a debatable issue. Autografts constitute a popular choice as many authors recommend autografts both for primary and revision ACL reconstruction. We present a case of 34 year old man with operated case of acl reconstruction using BPTB graft 10 years ago with complaint of instability and difficulty in walking post trauma since 5 months with mri s/o complete acl tear for which he underwent revision acl reconstruction arthroscopically with ipsilateral hamstring graft(semi t and gracilis). The number of patients with recurrent instability after a failure of an anterior cruciate ligament reconstruction has risen since last 10-15 years.

KEYWORDS :

INTRODUCTION

The number of anterior cruciate ligament (ACL) reconstructions has increased over past few years. Despite the high success rate (75 - 95 % according to various reports^{1,2,3,4,5} the number of revision ACL surgery has also risen. Recurrent symptomatic instability⁶ and presence of giving-way episodes are reliable indicators of ACL failure. When failure has been defined as recurrent laxity⁶ (side to-side laxity in excess of 5 mm or grade 2+ or greater on pivot shift testing), the reported prevalence has ranged from 10% -25%. Patient selection, graft and fixation choice and choice of surgical technique are considered essential to successful revision surgery. With regard to graft choice, allografts seem to have been gaining in popularity over the past few years^{8,9}, despite the numerous downsides (i.e. prolonged time of biological fixation and remodel, reduced availability and costs, possible risk of infection from disease transmission). For this reason, autografts remain the treatment of choice for both primary and revision ACL reconstruction. The bone-patellar tendon-bone(BPTB)¹⁰ remains the preferred graft source for ACL reconstruction in case of hamstring failure and vice versa.

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CASE REPORT:

A 34 year old male patient came with chief complaint of instability while walking and climbing stairs since last 5 months. Patient had history of acl reconstruction in the same limb 10 years ago after which patient had no complaint regarding instability. thereafter patient suffered an injury while playing football 2 years ago.

5 months ago while playing volleyball patient had again twisting injury after which he had developed gross instability.

On examination patient had lachman grade 3 with pivot test grossly positive .(+3) Knee rom was normal with mcmurray test negative and was advised some investigations X-ray was taken showing titanium screw fixation on both femoral and tibia side with incision over knee s/o BPTB graft harvest in the primary acl surgery.



FIG.1 PRIMARY SURGERY INCISION(BPTB GRAFT)

Mri showed high grade acl re-tear in the same previously operated knee.

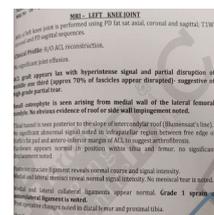


FIG.2



FIG3.A SCREWS REMOVED



FIG3.B HAMSTRING GRAFT

Patient was explained for revision acl reconstruction with planning of taking ipsilateral hamstring graft on the basis of the diameter of screw inserted on the tibia side.



FIG 4.
Arrow shows vertical femoral tunnel made in primary surgery

According to the images of x-ray and mri ,the tunnel was made vertical as trans tibial technique 10 years ago in the primary surgery.



FIG 5.
Screw inserted in primary surgery on femoral side



FIG 6.
The diameter of the bio screw removed on the tibial side was 7mm and thus hamstring graft of semi-t and gracilis was taken from the same side with graft diameter of 9mm and anatomical femoral tunnel was made . the femoral side bio screw inserted previously was removed as it was obstructing the new anatomical path of the revised acl.



FIG 6. A



FIG 6.B



FIG 7
Thus revision acl reconstruction was done with implants of titanium screw on tibial side of 9*30mm And femoral side adjustable endobutton was used .

Post op Lachman and pivot both were negative and thus the idea of doing extra articular illiotibial band tenodesis for stability was not avoided after reconstruction.

Patient was advised physiotherapy of static quads extension, closed chain knee rom gradual active, and ankle pumping. Since it was a revision surgery, accelerated rehabilitation program was avoided.

DISCUSSION

The number of patients with recurrent instability after a failure of an anterior cruciate ligament reconstruction has risen during the last 10-15 years because of increase in the primary acl reconstructions¹⁻⁵. It is accepted that not all patients with a failed anterior cruciate ligament reconstruction are candidates for revision surgery. Patients who have recurrent symptoms of instability during sports activities or activities of daily living as well as objective findings of laxity (positive Lachman and pivot shift tests) are candidates for revision surgery⁷⁻⁸. However, patients with pain and swelling alone, without laxity, could have a meniscal tear or cartilage degeneration and probably are not suitable for anterior cruciate ligament revision surgery. These case had knee pain and instability during sports and daily activities and instability on objective evaluation. The most common etiologic factor in failures of anterior cruciate ligament reconstructions is considered to be an error in surgical technique—i.e., improper intra-articular placement of the graft with impingement of the graft in the intercondylar notch, improper tensioning of the graft, or inadequate graft fixation. Surgical revision of a failed anterior cruciate ligament reconstruction requires thorough preoperative planning and evaluation of the factors¹⁰ that may have caused the failure . The evaluation should include a radiographic examination to evaluate the

orientation of the tunnels (and any possible enlargement of them) and the type of pre-existing fixation devices. In our case, there was no need to undergo two stage procedure as the primary surgery was done with transtibial technique thus having vertical femoral tunnel and we created anatomic tunnel in the revision surgery¹¹. The use of allograft tissue for a revision anterior cruciate ligament reconstruction has been criticized¹². The cost of the tissue, the efficiency of the procedure in patients with chronic instability, and disease transmission should all be considered. Use of a bone-patellar tendon-bone graft from the contralateral side necessitates harvesting of the graft from the contralateral, healthy leg and often patients are reluctant to pursue this approach. Our first choice for revision anterior cruciate ligament reconstruction is the use of ipsilateral hamstring tendons. Some authors have criticized the use of hamstring tendons for revision of a primary reconstruction that had been performed with a bone-patellar tendon-bone graft because the hamstring tendons are generally several millimeters smaller in diameter than the patellar tendon bone plugs. Thus, many of these patients have expanded tunnels, and one of the keys for a successful hamstring reconstruction is appropriate "fit and fill" of the graft in its host tunnel¹³. Therefore, the problem with revision anterior cruciate ligament surgery with a doubled gracilis and semitendinosus tendon graft seems to be secure fixation of the graft in the tunnels employed. In the last few years, the use of an accelerated rehabilitation program after anterior cruciate ligament reconstruction has become widely accepted. However, it is well known that secure tendon-to-bone healing requires at least twelve weeks. Therefore, accelerated rehabilitation, and the related micro motion of the graft in the tunnels, could compromise the bone-tendon interface, resulting in poor biological fixation¹⁴. When hamstring grafts are used, especially in revision surgery and even when strong and stiff fixation devices are utilized, we believe that a slower rehabilitation program such as the one employed in the present study should be followed.

CONCLUSION:

Hereby we present a case of revision acl reconstruction where primary surgery done with BPTB graft had vertical tunnel due to transtibial approach gave us an opportunity to make a more strong anatomical femoral tunnel for acl with better prognosis for which hamstring graft was enough providing good tension and strength without any extra articular iliotibial band tenodesis.

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