



ANALYSIS OF FUNCTIONAL OUTCOME OF 25 PATIENTS WHO UNDERGO ARTHROSCOPIC ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION SURGERY BY USING PERONEUS LONGUS MUSCLE AUTOGRAFT

Orthopedics

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ABSTRACT

INTRODUCTION: Peroneus longus is an unconventional and a newer alternative. **AIMS & OBJECTIVES:** To evaluate the functional outcome of Peroneus longus muscle auto graft in torn Anterior Cruciate Ligament arthroscopic repair in 25 patients in terms of Tegner & Lysholm knee score and AOFAS score at 6 months post-operatively. **INCLUSION CRITERIA:** All skeletally mature patients but less than 60 years of age having "near complete" or "complete" ACL tear with instability of knee joint. **METHODOLOGY:** Approx. 5 cm longitudinal skin incision is made over the posterolateral aspect of distal fibula of the affected limb, peroneus longus was identified and harvested. **CONCLUSIONS:** Peroneus longus graft has a large diameter, sufficient length and sufficient strength even in short stature patient. it has least change of graft failure.

KEYWORDS

Anterior Cruciate ligament reconstruction, arthroscopy, Peroneus longus auto graft, Lysholm knee score, AOFAS score.

INTRODUCTION:

Anterior Cruciate Ligament (ACL) injury/tear is a very commonly occurring injury in sports like football, cricket and also associated with sudden jerky movements occurring at the time of Road Traffic Accidents. This injury is typically associated with instability at the knee joint and difficulty in conducting activities of daily living. Patellar tendon (P2B), Hamstrings (Semi-tendinosus, Gracilis) and many other tendons have been used routinely to reconstruct torn ACL. Use of hamstring tendon graft is decreasing due to unpredictable graft size and reduction in hamstrings power post-harvest [1].

Complications associated with hamstring graft like anterior kneeling pain, hypoesthesia due to injury to infrapatellar branch of saphenous nerve, hypotrophy of the hamstring also results in a quadriceps-hamstring imbalance, which results in an imbalance in dynamic knee stability [2].

However, Peroneus longus is an unconventional and a newer alternative. This study aims at evaluating the outcomes of the Peroneus longus graft in the ACL reconstruction surgery.

AIMS & OBJECTIVES:

To evaluate the functional outcome of Peroneus longus muscle auto graft in torn Anterior Cruciate Ligament arthroscopic repair in 25 patients in terms of Tegner & Lysholm knee score and AOFAS score at 6 months post-operatively.

INCLUSION CRITERIA:

All skeletally mature patients but less than 60 years of age having "near complete" or "complete" ACL tear with instability of knee joint during walking and/ or running which was confirmed by clinically (Lachman test/ anterior drawer test) and radiologically (MRI).

EXCLUSION CRITERIA:

1. Patients with ACL avulsion injury.
2. ACL tear associated with other ligament injury like posterior cruciate ligament, collateral ligament injuries requiring surgery or posterolateral corner injury.
3. ACL tear associated with the fracture around the knee.
4. Patients undergoing revision ACL reconstruction.
5. Patients in whom previous meniscectomy was performed.
6. Patients having ACL tear with a diseased limb e.g. Polio affected limb, grade 3 and grade 4 osteoarthritis of the knee.
7. Patients age > 60 years.

METHODOLOGY:

This was a prospective study had been conducted in the department of

Orthopedics, GCS Medical College and Research Hospital, Ahmedabad. Total of 25 patients fulfilling the eligibility criteria were to be included in this study after taking informed consent.

All patients underwent arthroscopic ACL reconstruction by using peroneus longus tendon auto graft.

All patients were assessed clinically at 6 months post-operatively in terms of Tegner & Lysholm knee score and AOFAS score.

OPERATIVE PROCEDURES:

After induction of anesthesia, the patient is positioned supine with knee 90 degree flexion and a tourniquet applied on the upper thigh of the operative leg.

An examination under anesthesia is performed. Diagnostic arthroscopy is performed through an anteromedial and anterolateral portals to examine Meniscus and other ligament injury. Remnant of ACL shaved off.

Approx. 5 cm longitudinal skin incision is made over the posterolateral aspect of distal fibula of the affected limb, peroneus longus and peroneus brevis were identified. Peroneus longus was tied by using a vicryl 2-0 with peroneus brevis tendon to maintain remnant peroneus longus stump function.

Peroneus longus cut just proximally to tie tendon. By using stirrup, peroneus longus tendon graft was harvested. Graft was prepared by removing a muscle tissue and tie by using a vicryl 2-0 to make a length of graft approx. 18 cm. Both ends of the graft sutured by using ethibond no 5. Graft fold and size taken by sizer.

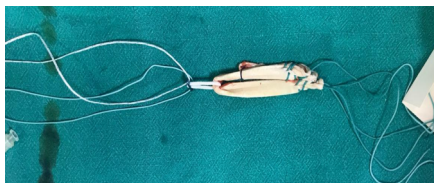
Femur tunnel and tibia tunnel prepared by using reamer. Graft fixed at femur end by endo-button and at tibia end by bio screw.

After reconstruction, stability of ACL was checked by Lachman's test, which showed no laxity. skin closed in layer. long knee brace was given to the patient.

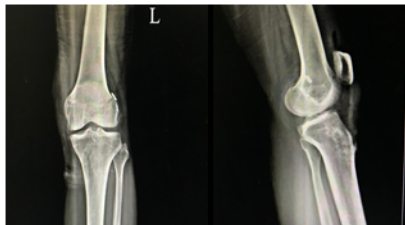
FIGURES:



[Figure 1]. Intra operative picture showing incision over right ankle to harvest a peroneus longus graft.



[Figure 2]. Prepared peroneus longus graft with endo-button



[Figure 3]. Post-operative x rays of left knee showing graft fixed at femoral end by endo-button.

POSTOPERATIVE STRATEGY:

Immediately post-operative ankle physiotherapy was started to avoid post-operative donor site weakness.

Passive straight leg raising (SLR) with long knee brace and quadriceps muscle strengthening exercise was started on post-operative day 1.

Patients also allow to partial weight bearing walker walking with long knee brace on post-operative day 1. At 3rd week patients were allowed full weight bearing.

Regular dressing was done and stitches were removed on 12th to 15th post-operative day.

Long knee brace was continue for 4 to 6 weeks then after hinge knee cap was used for more 4 to 6 weeks.

RESULTS:

About 92 percent of patients had good to excellent results in terms of lysholm knee score 6 months postoperative.

Two patients (8%) had fair result in terms of pain and mild instability of knee joint which was managed by oral analgesic, ice-application and physiotherapy.

Least postoperatively morbidity, stiffness (0%), infection (8%) and re-rupture incidence (0%).

In our study, the most common age group in which ACL rupture was found is between 20 to 30 age.

Male to female ratio for ACL rupture was 4:1

We found that 16 patients (64%) had dominant sides.

Most common symptoms of ACL rupture at the time of injury is pain and knee swelling.

Most common symptoms of ACL rupture at the time of presentation is instability of the knee joint.

Most common structure to be damage in case of ACL rupture is medial meniscus (40 % case).

CONCLUSIONS:

Primary aim of ACL reconstruction surgery is to achieve a stable knee joint and restore normal biomechanics of knee joint. Peroneus longus is easy to identify and easy to harvest. Some authors have shown that a reduction in autograft (hamstring) diameter is related to a higher revision rate, especially in younger patients [9].

Some authors have shown that a reduction in auto graft (hamstring) diameter is related to a higher revision rate, especially in younger patients [3]. Higher revision rate with graft sizes of less than 8 mm [4, 5].

We achieved a peroneus longus graft having a large diameter, sufficient length and sufficient strength even in short stature patient. Patients get early recovery, better compliance and excellent outcomes. Donor site morbidity like wound gap, infection and weakness of ankle joint was minimal.

Only disadvantage of the peroneus graft is additional scar mark over ankle.

DECLARATION OF CONSENT:

Consent was given by all patients for his/her images and other clinical information to be reported in the journal for the education purpose. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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