Original Article

Clinical Outcome after Arthroscopic Anterior Cruciate Ligament Reconstruction in Knee Injuries

Arthroscopic Anterior Cruciate Ligament in Knee Injuries

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ABSTRACT

Objective: To determine the clinical outcomes on basis of lyshlom knee score (LKS) system after arthroscopic anterior cruciate ligament (ACL) reconstruction.

Study Design: Prospective trial study.

Place and Duration of Study: This study was conducted at the Department of Orthopaedics, Ghurki Trust Teaching Hospital, Lahore, from January 2017 to December 2019.

Materials and Methods: In this prospective trial, patients undergoing arthroscopic ACL reconstruction at Department of Orthopaedics, Ghurki Trust Teaching Hospital, Lahore, were included. A total of 120 patients, undergoing arthroscopic ACL reconstruction were aged 18 to 45 years and had at least 1 year follow up. Gender, age, duration of follow up and LKS scores were noted in all enrolled patients.

Results: Out of a total of 110 patients, there were 110 (91.7%) male and 10 (8.3%) female. Mean age of the patients was noted to be 30.77 years with standard deviation of 4.6 years. Overall, mean duration of follow up was noted to be 21.18 months with standard deviation of 6.0 months. Overall, mean total LKS score was noted to be 90.95 with standard deviation of 12.93. We noted 65 (54.2%) cases to have excellent LKS scores whereas poor LKS scores were recorded among 5 (4.2%) cases.

Conclusion: Most of the patients undergoing arthroscopic ACL reconstruction were male. Clinical outcomes in terms of LKS scores in patients undergoing arthroscopic ACL reconstruction were good.

Key Words: Anterior cruciate ligament (ACL), arthroscopic technique, lyshlom knee score (LKS).

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INTRODUCTION

The Anterior Cruciate Ligament (ACL) has a major role in normal working of knee.[1] Rupture of ACL is one of the most common diagnosis in young patients either due to road traffic accident (RTA) or sports trauma. Reconstruction of the ACL allows the patient to resume sporting activities and prevents damage in meniscus and articular cartilage in turn reducing chances of arthritis.[2-4]

Numerous studies support the efficacy of anatomic ACL reconstruction in restoring normal kinematics and postoperative function of the knee. The goal of anatomic reconstruction is to place the ACL graft at a more anatomic location on both, tibia and femur.[3,4]

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Usually, there are two techniques for reconstruction of ACL, open technique and arthroscopic assisted technique. Arthroscopic assisted technique has many advantages over open procedure but it needs more expertise and cost comparatively. Currently, ACL reconstruction is most often performed using an arthroscopic assisted technique.[5]

Literature is deficient of ACL reconstruction data in developing countries. In developing countries like Pakistan, cost is the major issue. Athroscopic assisted ACL reconstruction is more expensive than open procedure. There is no large data available for such population showing the clinical outcome after arthroscopic ACL reconstruction. The objective of this study is to determine the clinical outcomes on basis of lyshlom knee score (LKS) system after arthroscopic anterior cruciate ligament (ACL) reconstruction.

MATERIALS AND METHODS

In this prospective trial, a total of 120 patients undergoing arthroscopic ACL reconstruction from January 2017 to December 2019, at The Department of Orthopaedics, Ghurki Trust Teaching Hospital, Lahore, were included. All included patients were aged between 18 to 45 years and had at least 1 year follow up.

Lysholm scoring questionnaire shown in Firgure-1[6,7] was adopted and enquired from all the patients. Face to

face interviews were done with all the study participants. If the patient stated that he/she did not understand the question properly, more explanation regarding that particular question was given until the patient understood what he/she was asked. All the study participants were invited to hospital. All those cases that had any new related injury after arthroscopic ACL reconstruction were also excluded from the study. Patients who had evidence of clinical and radiological degenerative change in the knee were also excluded. A standard script was followed for all the interviews to maintain a level of consistency. All the ethical standards written in "The Declaration of Helsinki 1964"[8] and its later amendments were fully followed in this study. Approval from institutional ethical committee was taken for this study. Written consent was also acquired from all patients.

Means along with standard deviation were calculated for the lysholm scoring between patients undergoing arthroscopic ACL reconstruction. Data about gender, age, duration of follow up and LKS was noted.

RESULTS

Out of a total of 120 patients, there were 110 (91.7%) male and 10 (8.3%) female. Mean age of the patients was noted to be 30.77 years with standard deviation of 4.6 years. Overall, mean duration of follow up was noted to be 21.18 months with standard deviation of 6.0 months. Table 1 shows the characteristics of patients.

Table No.1: Characteristics of the Patients undergoing Arthroscopic ACL Repair (n=120)

Characteristics		Number (%) or Mean±SD
Gender	Male	110 (91.7)
	Female	10 (8.3%)
Age (years)		30.77±4.6
Duration of Follow up (months)		21.18±6.0

Overall, mean total LKS score was noted to be 90.95 with standard deviation of 12.93. We noted 65 (54.2%) cases to have excellent LKS scores whereas poor LKS scores were recorded among 5 (4.2%) cases. Table 2 shows LKS Scores among study cases.

Table No.2: Lyshlom Knee Score in Patients Undergoing Arthroscopic ACL Repair (n=120)

LKS Scoring	Number (%)
Excellent (95-100)	65 (54.2%)
Good (84-94)	38 (31.7%)
Fair (65-83)	12 (10.0%)
Poor (<65)	5 (4.2%)

DISCUSSION

For ACL reconstruction, both open and arthroscopic reconstructions are frequently done whereas lots of literature is available about different approaches adopted for ACL reconstruction. The debate still goes on that which approach is the best regarding ACL reconstruction.[9] In this prospective cohort study, we aimed to determine LKS scores following ACL reconstruction using arthroscopic reconstruction.

Overall, 91.7% of the study patients were male. It has been a well-established fact that male population is more exposed to road accidents and outdoor activities,[10,11] this could be the major reason why significantly more male are reported involving reconstruction procedures.

Quite a few systems have been developed in the recent years evaluating pre as well as post-operative condition of knee area. Different protocols are available but most are based on functional as well clinical evaluations. O'Donoghue is known to be the 1st to apply scale system aiming to evaluate post-operative results.[12] Our objective was to compare the post-operative outcome following arthroscopic ACL reconstruction in knee injuries based on follow up (at least 1 year). Various methods were considered aiming to evaluate knee region. We got attracted to LKS score which is based on the modified Lysholm protocol and has been used extensively all around the world. LKS has also been noted to have high reliability, validity as well as responsiveness all over the world.[13-17] This was the very reason that we adopted this scale and we are confident that translating results using such scale will further benefit larger proportions.

In the present study, overall mean LKS was noted to be 90.95 with standard deviation of 12.93. In a recent study conducted by de Villiers L[18] to find out the prevalence of osteoarthritis in the knee in the long term follow ups after ACL reconstruction, 43 patients were evaluated as per LKS. Mean KLS score was noted to be 84.35 in those patients. These results are very similar to our findings where we noted mean KLS score to be 82.78 in our patients. A study done by Kose O et al[11] noted the mean LKS score to be 93.56 which is close to what we found in the present study. Overall mean follow up in that study was recorded to be 33.4 months which is quite high in comparison to what we had in our findings. Kose O et al in another study from Turkey compared telephonic interview versus face to face completion of the LKS score in patients who had arthroscopic ACL reconstruction.[19] The researchers noted mean LKS to be 93.01±9.12 using telephonic interviews while face to face interviews has mean LKS score as 93.56±7.93. It was concluded that arthroscopic ACL reconstruction was noted to have acceptable LKS scores while both methods of scoring yielded nearly equivalent scores where the difference between 2 different ways of scoring was insignificant (p=0.130). Shah PD et al from India found arthroscopic ACL reconstruction in knee injuries to have good post-operative knee stability and satisfactory motion.[20] We noted 65 (54.2%) cases to have excellent LKS scores (95-100) whereas poor LKS scores (<65) were recorded among 5 (4.2%) cases. A study done by Halinen J et al from Finland found mean LKS scores to be 92±10.3

among patients undergoing ACL reconstruction while 65% of the patients had excellent LKS scores.[22]

In terms of limitations of this study, we did not compare arthroscopic ACL technique with other techniques so were unable to compare and conclude about the best possible technique to be used in this study. We had mean duration of Follow up as 21.18±6.0 months while some researchers have used lot larger duration of follow ups in their studies.[21] Further studies involving large follow up data should be done to evaluate the long term functional outcomes of arthroscopic ACL reconstruction. Another limitation of this study was that we somewhat translated the LKS scoring questionnaire when interacting with the patients but that could have some on the spot difficulties and confusion. It is recommended that LKS should be translated into our local language (Urdu) so that a standard format and style could be used to analyze the exact scoring outcomes.

CONCLUSION

Most of the patients undergoing arthroscopic ACL reconstruction were male. Clinical outcomes in terms of LKS scores in patients undergoing arthroscopic ACL reconstruction were good.

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Author's Contribution:

Concept & Design of Study:	Mudassar Hassan
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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