

STUDY OF ANTERIOR CRUCIATE LIGAMENT INJURY AND ITS MANAGEMENT

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ABSTRACT

BACKGROUND

The anterior cruciate ligament is the weaker of the two cruciate ligaments stabilizing the knee joint, and therefore gets torn easier than the posterior cruciate ligament.

OBJECTIVE

To determine pattern of anterior cruciate ligament injury and its management in a tertiary care center.

MATERIALS AND METHODS

A prospective study was carried out for two years, 28 patients with ACL injury were included. A detailed history regarding the pattern of injury was noted and ACL reconstruction was done using BT Autograft with mini-arthrotomy and arthroscopic assisted ACL reconstruction.

RESULTS

The mean age of the study subjects was 30.6±7.3 years & majority were males. Majority of the ACL injury was sports related & was on the right knee. 64% underwent arthroscopic assisted ACL reconstruction & majority of them had normal range of motion of the knee.

CONCLUSION

Our present study concludes that most common age group involved was 20-30 years & ACL injury was more common among males. Patients with an early ACL reconstruction were more satisfied with the end result. Also, ACL reconstruction techniques using BTB auto graft leads to good ligamentous stability and function of the knee.

KEYWORDS

Anterior cruciate ligament, Reconstruction.

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INTRODUCTION: Ligamentous injury of knee joint is common and potentially serious.¹ The anterior cruciate ligament (ACL) is the weaker of the two cruciate ligaments, and therefore gets torn easier than the posterior cruciate ligament (PCL).² The knee joint becomes very unstable when the ACL is torn, because the ACL is a crucial ligament stabilizing the knee joint.^{3,4}

The logical aim of the treatment of a torn ACL is to obtain a stable and painless knee joint with full range of motion and good muscle strength. Conservative treatment of a torn ACL often fails leading to chronic instability, muscle weakness, and post-traumatic osteoarthritis.⁵ Therefore, reconstruction

of a torn ACL with an intra-articular auto graft has become the most common method in ACL surgery. The most common current graft choices for the ACL reconstruction are the bone-patellar tendon-bone (BTB) and semitendinosus and gracilis (STG) autografts.⁶

Although there is a growing body of data on ACL injuries, information available on pattern of injury and its management in our study area is limited. Hence this present study was conducted to determine the pattern of Anterior Cruciate Ligament injury and its management in a tertiary care hospital.

MATERIALS AND METHODS: A prospective study was conducted over a period of two years in our hospital. All the patients presenting with knee injuries with positive clinical findings of anterior cruciate ligament injury were included in the present study. A pretested and structured questionnaire was used to elicit the detailed history regarding the type of injury & mechanism of injury. ACL reconstruction was done

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for all the 28 study subjects who were included in the study after obtaining their informed consent. ACL reconstruction was done using BTB autograft with mini-arthrotomy, and arthroscopic assisted ACL reconstruction. Follow up assessment was done to know the stability and functioning of the knee joint.

RESULTS: The present study included 28 patients with clinical signs of ACL injury. Among the study subjects, 26 (92.9%) were males and the rest 2(7.1%) were females. The mean age of the study subjects was 30.6±7.3 years. Majority of them belonged to 20-30 years' age group.

Mechanism of Injury	No. of cases	%	P-value
Sports	19	67.86	>0.05
Road Traffic Accident (RTA)	09	32.14	

Table 1: Distribution of study subjects based on the Mechanism of Injury

Side	No. of cases	Percentage	p-value
Right	18	64.29	>0.05
Left	10	35.71	

Table 2: Distribution of study subjects based on the side of Injury

Among the study subjects 25% (7) of them had associated medical meniscal injury.

Duration	No. of cases	Percentage
6 weeks	09	32
6 weeks-8 months	19	68

Table 3: Distribution of study subjects based on the time from injury to operation

Surgery	No. of cases	Percentage
Mini arthrotomy	10	35.7
Arthroscopic assisted ACL reconstruction	18	64.3

Table 4: Distribution of study subjects based on the type of surgery

IKDC	Procedure	
	Mini arthrotomy (%)	Arthroscopic assisted ACL reconstruction (%)
Grade A	6(60)	14(78)
Grade B	3(30)	04(22)
Grade C	1(10)	0
Grade D	0(00)	0

Table 5: Distribution of International Knee Documentation Committee (IKDC) score based on the procedure

There was a statistically significant difference between the IKDC scoring based on the two different procedures.

Range of motion of the knee was normal in 24 patients with the extension loss of less than 10 degrees in 2(7%)

patients & flexion loss of less than 15 degrees in 2(7%) patients.

DISCUSSION: In the present study the mean age of the study subjects was 30 years and the most common age group involved was 20-30 years which is similar to other study.⁷

In the present study, ACL injuries were more common among males than females. However, in various other studies, it was found that more number of females had ACL injuries than males.^{8,9}

This study demonstrated that a middle-third BTB auto graft is effective for reconstruction of an acutely ruptured as well as chronically insufficient ACL. However, patients with early reconstruction were more satisfied with their knees than the patients with late reconstruction. Also the former patients had less pain and functional limitations and could return to more strenuous athletic activities than those with the late reconstruction. Various other studies also conclude that ACL reconstruction needs to be done at the earliest.

In our study, patients with accompanying injuries had to be out of their work for almost five months postoperatively, while the patients with an isolated ACL tear could return to their work after three and half months. Also, only 2% of the patients with isolated ACL rupture could not return to pre injury level, while this number was somewhat higher (3%) in the patients with accompanying injuries.

CONCLUSION: Our present study concludes that most common age group involved was 20-30 years & ACL injury was more common among males. Patients with an early ACL reconstruction were more satisfied with the end result. Also, ACL reconstruction using mini arthrotomy and Arthroscopic assisted ACL reconstruction techniques using BTB auto graft leads to good ligamentous stability and function of the knee.

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