



Clinical Outcomes of PCL Avulsion Fractures

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ABSTRACT:

Background: Bony avulsion fractures of PCL constitute a subgroup of PCL injuries. It causes pain and knee instability, with limitation of range of motion. The management of PCL avulsion fractures remain a controversy among orthopaedic surgeons.

Objective: To study the clinical improvement in PCL avulsion fractures managed surgically. It is by functional ability of patient post operatively by LYSHOLM knee Scoring scale

Methods: It is a prospective study in 5 patients with PCL avulsion fractures from November 2020-May 2022. The Inclusion criteria were tear of posterior cruciate ligament from its attachment, avulsion of ligament from tibial or femoral attachment.

The Exclusion criteria included compound Injuries, presence of any other fractures and age less than 18 years. The method of treatment in this study is open reduction and internal fixation with cannulated cancellous screws.

Results: The 5 cases in the study included were of PCL avulsion fractures with an increased frequency in 20-30 years of age, due to fall on flexed knee. All were treated with internal fixation of 4mm partial threaded cannulated cancellous screws. There was a significant reduction in pain, gain of full movement of knee

and no wound Complications. The LYSHOLM Score was maximum of 95 in 2 patients, 90 in 1 and 85 in 2 patients. On radiographic evaluation, there was no screw loosening or back off and there were signs of union

Conclusion: The treatment options for PCL avulsion fractures varies from conservative to operative. But open reduction and internal fixation with partial threaded cannulated cancellous screws is reported to be an excellent technique for avulsion fracture of PCL. Modified Burks and Schaffer approach is safer and easier.

I. INTRODUCTION

Injuries around knee involve ligamentous injuries more often PCL injuries go unnoticed in emergencies The incidence of PCL injuries is

increasing due to more automobile injuries and sports[1]. Anatomy - PCL is the largest ligament of knee, The PCL attaches at the posterior intercondylar fossa in posterior tibia and the femoral notch on the medial femoral condyle Average length of the PCL is 38mm, average width is 13mm



[2]. Functions of PCL PCL is the primary stabilizer of knee.

They offer resistance to the posterior translation of tibia on knee flexion.

In PCL deficient knees, there is excessive posterior translation of tibia.

[3]. The aim of the study is to analyze:

Outcome in patients with PCL Avulsion injuries treated with open reduction and internal fixation

[4]. To study the clinical improvement in PCL avulsion fractures managed surgically and to assess the functional ability of patient post operatively by LYSHOLM knee Scoring scale

II. MATERIALS AND METHODS

Source of study: Patients with PCL avulsion fractures Place of study: Prathima institute of medical sciences Type of study: prospective Sample size: 5

Period of study: November 2020 - May 2022

INCLUSION & EXCLUSION CRITERIA

Inclusion Criteria

- Posterior cruciate ligament tear



- Avulsion of ligament from tibial or femoral attachment

Exclusion Criteria

- Compound injuries
- Any other associated fractures
- Age less than 18 years



METHOD OF COLLECTION OF DATA

History by verbal communication

Clinical examination

Radiological: Xrays, MR Iscan

Procedure and post procedure radiologic and lab evaluation

CASE

Age – 45 yrs.

Sex – Male

H/O Trauma – alleged to have sustained injury to right knee due to slip and fall

No H/o any past illness

No known co morbidities

On Examination – patient is conscious, coherent, cooperative

Afebrile

Vitals – stable

Local examination – diffused swelling localised to right knee, tenderness is present and patellar tap is positive

Movements – are painful and restricted

Posterior drawer test – positive

Lachman test – positive



PROCEDURE

Patients were positioned in the prone position.

A transverse incision 3-4cm along the knee flexion crease, carried distally from the medial edge as an inverted L-shaped incision.

The underlying small saphenous vein and medial sural cutaneous nerve were isolated and protected.

The knee capsule identified and vertical incision made.



PCL Avulsion Injuries:

0 - 3 weeks: long knee immobilizer with toe touch weight bearing.

Quadriceps strengthening and isometric exercises.

3-6 weeks: Assisted ROM of knee up to 30° then progressively increasing up to 120° at the end of 6 weeks.

After 6 weeks: Discontinue the brace and return to strenuous activity is allowed after radiologic healing Follow Up - Regular follow ups at 2 weeks for suture removal, then 4 weeks, 12 weeks and 6 months

The major problem in open method of fixation was knee stiffness, but none reported in our study they restored full range of knee flexion



LYSHOLM KNEES CORING SCALE

LIMP -5,3,0
USINGCANE/CRUTCHES -5,2,0
LOCKING SENSATION IN THE KNEE-15,10,6,2,0
GIVING AWAY SENSATION FROM KNEE-25,20, 15,10, 5,0
PAIN.- 25,20,15,10,5, 0
SWELLING.-10,6,2,0
CLIMBING STAIRS.-10,6,2,0
SQUATTING.-5,4, 2, 0

AGE INCIDENCE

20-30years -- 3cases
30-40years --1case
40-50years --1case

MODE OF INJURY

Road traffic accidents – 2
Fall – 2
Sportsinjury.--1

THE LYSHOLM SCORE WAS

Maximum of 95 in 2 patients, 90 in 1 and 85 in 2 patients
On radiographic evaluation, there was no screw

loosening or back off and signs of union seen

III. DISCUSSION

Isolated ACL injuries are rare but isolated PCL injuries are common

The analysis of 5 patients with PCL injuries are recorded, who are treated with surgery Tibial side avulsion was present in all 5 avulsion cases The commonest age group was 20 -30 years Males are only available in our study group, may be related to a greater number of road traffic accident cases.

Fall on flexed knee account for most of PCL injuries cases were reported due to rta, 2 cases were reported due to fall and 1 case due to sports injury Definitive fixation was done after initial stability and resuscitation We preferred open method as it helps in accurate reduction of fracture fragments and accurate placement of screw Fixation of fracture fragment needed 2 screws in 3 cases and single screw in 2 cases

IV. CONCLUSION

Bony avulsion fractures of PCL constitute a subgroup of PCL injuries It causes pain and knee instability, with limitation of range of motion Open reduction and internal fixation with partial threaded cannulated cancellous screws is reported to be an excellent technique for avulsion fracture of PCL Modified Burks and Schaffer approach is safer and easier. It involves minimal dissection and reduced risk for neurovascular injuries

I. There was a significant reduction in pain, gain of full movement of knee and no wound complications in 5 cases of study with open reduction and internal fixation

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