

Original Article

Anterior cruciate ligament avulsion in skeletally immature patient short term follow up and analysis of the resultSoman Kumar Chatterjee¹, Utpal Bandyopadhyay², Arindam Basu³, Sourav Ghosh³

ACL injuries are relatively uncommon in children. In our Institution we did a retrospective study and found that incidence was increasing. After clinical suspicion imaging was done to confirm diagnosis. All Type III injuries were fixed arthroscopically and results were analysed.

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Key words : ACL, children.

Incidence of ACL injuries in children have increased in the last few years. This may be due to improved physical examination and availability of better imaging tools increased awareness of parents increased participation in sports. In most of the cases, avulsion from tibia occur and in few cases mid-substance tear occur¹.

Classification :

- Type I - Undisplaced
- Type II - Only anterior open up
- Type III - Completely displaced single fragment
- Type IV - Completely displaced more than one fragment

MATERIALS AND METHOD**Study Design :** Retrospective Study**Study Area :** Nilratan Sircar Medical College & Hospital. Patients admitted through out Patient Department at NRS Medical College, Kolkata.**Study Population :** Six children, Age 10-13 years, Average age 12 years.

Age	Sex	Mode of Injury	Type of injury
10 years	M	Playing football	IV
11 years	F	Fall from Bi-Cycle	III
12 years	M	Playing football	III
13 years	M	Fall from motor cycle	IV
13 years	M	Playing football	III
13 years	M	Playing football	III

We did X-ray of knee (AP & Lateral) and MRI of knee for diagnosis for skeletal maturity,

- (i) Chronological
- (ii) Physiological sign
- (iii) Radiological method

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Operative Technique :

For Type III cases, we have done epiphyseal fixation with 4 mm cannulated screw fixation through Arthroscopic high anteromedial portal. For Type IV cases, we have done fixation with pullout suture by using Ethibond and suture wheel through a 4 mm single transphysealtibial tunnel.

Postoperative Care :

Extension knee brace during walking for 4 weeks. Knee bending exercise as the pain decreases. Isometric quadriceps and hamstring exercises. Quadriceps beyond 30 degree knee flexion avoided. Gradual return to sports.

Result Analysis :

No patient complaining of giving away sensation No limb length discrepancy or varus valgus deformity

One patient complaining of initial knee stiffness associated with meniscus injury repaired at same sitting

All patients regained ROM equal to the contra lateral knee.

Follow-up :

Follow-up is done every 4 weeks for the first 3 months and for every 3 months thereafter. In all cases, children returned almost to their pre-injury level after 6 months. Only the girl child took a little longer to recover. She also developed stiffness which recovered gradually.

DISCUSSION

Review of literature : The treatment of ACL avulsion injuries in skeletally immature patients is controversial. Major concern for potential physeal damage²⁻⁴. Some authors recommended that the smallest fixation device available should be chosen to avoid physeal damage⁵. Ahn *et al*⁶ described a new technique of a physeal-sparing all-inside repair-has concerns regarding the integrity of the transverse ligament. Zhao *et al*⁷ used a figure-of-8 suture technique with a transpatellar tendon portal Arthroscopic reduction and antegrade cannulated screw fixation through a high anteromedial portal or a pull-out suture via a tunnel drilled from the proximal tibia remain popular fixation strategies.

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