

CASE REPORT**Posterior Dislocation of the Hip Joint due to Trauma in Children: a three case series**

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ABSTRACT

Aim: To appraise cases that presented with posterior dislocation of the hip secondary to trauma in paediatric age group and to analyse difficulties along with challenges that arise in the diagnosis (both radiological and clinical), treatment plan, complications and the outcome of such injury in children.

Methods: Three children with traumatic posterior hip dislocation and a mean age of 3.3 ± 0.47 years who were followed-up at 6 months were assessed.

Results: The primary early treatment was closed reduction, executed within six hours of injury. The three subjects were treated with reduction under anaesthesia. The adjuvant treatment was immobilization via hip spica. Follow up was uneventful.

Conclusion: Dislocation of the hip joint due to trauma should be attended to as early as possible with emphasis on achieving anatomical reduction preferably via reduction and close follow up.

Keywords: Hip joint, posterior dislocation, trauma

INTRODUCTION

Dislocation of the hip joint due to trauma in children is usually posterior and an infrequently occurring event. It is an orthopaedic emergency¹.

In children less than ten years, it may be a consequence of minor injury and caused due to by acetabular pliability and ligament laxity. Dislocation and its type is very critical in determining the form of typical deformity. Patient will present with the leg in flexed position plus adduction and internal rotation in posterior dislocation of hip joint^{2,3,4,9}. The working of the sciatic nerve should be noted before the procedure and after also^{3,4}. Soft tissue inter-position can cause limited reduction of the joint automatically. It can be easily missed and may lead to arthritis because of permanent damage to articular surface¹.

Computed tomography (CT) along with techniques of magnetic resonance imaging (MRI) are helpful in cases of improper reduction. These techniques can establish the occurrence of small, fractured segments or intervening soft tissue¹⁴. If there is any incidence of any fragments or intervening tissue, reduction is tried again^{3,4}, if this fails, then open reduction can be done via the posterior approach^{3,4,10}.

Open reduction is indicated if close reduction is unsatisfactory and insufficient or if there is any suspicion of injury to sciatic nerve that warrants an exploration^{2,3} or if there is any associated fracture of head, neck of femur or acetabulum that requires surgery. The treatment should be given as soon as possible. There are two methods of treatment

1. Nonoperative closed reduction under G/A or sedation.
2. Operative open reduction

The method in all three cases was closed reduction Immediate complications include fractures and/or neurological damage. Late complications are repeated dislocation, chondrolysis, avascular necrosis which may eventually lead to arthritis of the hip joint.

The purpose of this research is to assess posterior dislocation of hip joint due to trauma in a series of children in whom diagnosis was made with the help of clinical and radiological findings and to discuss their treatments and results.

CASE SERIES

Three cases of posterior dislocation of hip joint due to trauma in paediatric population were evaluated between October 2020 and June 2021. The patients were attended at Department of Orthopaedics and Spine, Ghurki Trust Teaching Hospital, Lahore,

Received on 13-10-2021

Accepted on 22-05-2022

The mean age was 3.6 years (range 3- 4 years). Two kids (66%) were male and one (33%) was female.

Direct trauma was the reason of injury in all these three paediatric cases (100%). The left hip joint was affected in one case (33%) and the right hip in two cases (66%). The diagnosis was made from clinical and radiological findings. On examination, they were unable to walk and had a textbook presentation of adduction along with flexion and internal rotation and associated limb length discrepancy. These three patients were treated with closed reduction technique. Patients were monitored by two weekly follow up. The data was analysed with IBM SPSS Version 26.0. Ethical Committees of the Ghurki Trust Hospital approved this study and parents of the patients gave their consent. They were provided verbal as well as written free and informed consent statement. Our patients presented with mild trauma which is categorized as low energy. Treatment performed within six hours of presentation was based on closed reduction under anaesthesia.

Table 1. After treatment of the paediatric patients of posterior dislocation of hip joint at

Patient age	Gender	Treatment	Duration taken for Wt bearing	Neurologica complication
4	M	HS	4	NIL
3	M	HS	4	NIL
3	F	HS	4	NIL

HS- Hip Spica Ghurki orthopaedic department

It revealed that joint anatomy has returned to normal in all three cases with no associated lesions in radiographs. At the time of discharge the children can walk without restrictions. Follow-up showed absence of any clinical abnormalities or recurrent dislocations. Range of motion in the contra-lateral hip was similar in all patients. Subsequent radiographs were normal. Follow-up visits were uneventful in all patients and none of the patients demonstrated any chondrolysis, AVN or joint erosion. Secondary surgical treatment was not required in any case.

DISCUSSION

Dislocation of the hip joint in children who are younger than 16 years is extremely uncommon², (0.8 cases per million/year) and around 80% of these present as posterior dislocations^{2,9,10,11}. It is more common in boys (4:1)^{8,9}.

Acetabulum is cartilaginous in young children therefore loose and flexible^{2,3,4}, thus permitting a trivial stress or trauma to cause dislocation^{5,7,8,9,10} as the child grows there is calcification of cartilage resulting in a strong joint and ligament now a small trivial injury will not displace the hip joint^{1,2,10}.

Our cases were comparable to those described in literature. We observed that it was more common in males and that low-energy trauma was the cause in all cases.

In paediatric age group dislocation of the hip-joint due to trauma requires urgent management². World over orthopaedic faculty is in agreement that such cases should initially be treated with urgent closed reduction under general anaesthesia³, or with relaxants³. Once the joint is reduced, joint symmetry, joint space, head-lateralization, and any disruption in Shenton's line should be assessed and confirmed by comparing with the opposite side.

The three patients presented in this case-series were treated with closed reduction with the patient being given sedation/general anaesthesia. X-rays were done to assess and confirm joint symmetry in all patients.

Posterior dislocation of the hip joint due to trauma in children can cause many complications .the incidence of different complications is as follows: Nerve injuries in 5%^{2,9} Avascular necrosis in 8% to 10%, Chondrolysis reported in 6% of the children. Follow up of all the three cases was uneventful and produced good long-term results when compared with adults¹⁰.

CONCLUSION

Posterior dislocation of the hip due to low-energy trauma occurred in young children but had good initial results if they were immediately treated with closed reduction. However, long-term follow up needs to be conducted to better understand these injuries.

Conflict of interest: Nil

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