



TRAUMATIC HIP DISLOCATIONS IN CHILDREN - SERIES OF TWELVE CASES

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ABSTRACT

Traumatic dislocations of hip in children are of rare occurrence and are often missed in the busy orthopaedic hospitals. Usually they present late with complaints of persisting pain, deformity and limp. Early diagnosis is of utmost importance to prevent the hazardous complications. This is the first study reported from India where traumatic hip dislocations were diagnosed early and managed without any complications. Twelve children with traumatic hip dislocations were treated during a period of six years at two orthopaedic centres. Closed reduction followed by immobilisation was done for four weeks. Patients were followed up for minimum of one year and any complication noted. Among the cohort of 12 patients, we had eight male and four female patients. The age group varied from Two years to thirteen years with the mean age of seven years (Range =2 to 13 years, mean=7.2 years). All the hips were dislocated posteriorly. Eight hips were reduced during 24 hours and four hips after 24 hours. All the hips were reduced by closed methods. Hips were then supported by either hip Spica or Skin traction for four to six weeks. No complication with respect to avascular necrosis of head of femur (Ficat staging), nerve injury, limp, pain on weight bearing, recurrent dislocation or loss of reduction was seen on final follow up. No difference was also noted in the Spica group or skin traction group. Traumatic dislocation of hip in children is not uncommon. Regarding the low energy trauma required in this kind of dislocation and long-term and hazardous complications due to the delayed diagnosis, it is important to consider the probability of hip dislocation in traumatic child. An early reduction is an absolute priority to decreases the risk of Avascular necrosis.

INTRODUCTION

The ball and socket nature of hip joint makes it a very stable joint. The ligamentous and the muscular cover adds to this stability. However in children the hip joint stability is compromised by the external covering of ligaments which are lax and that of acetabulum which is pliable. The end result of this instability is that even a

trivial trauma like tripling can lead to dislocation. Severe impact injuries like that in motor vehicle accidents can cause dislocations in children as well as in adults. Hip can dislocate anteriorly, posteriorly or centrally, with posterior dislocation being the most common. [1,2]. Children below 10 years can have dislocations following minor trauma. [3]



Isolated posterior hip dislocations occur in majority of cases. [4] Once considered to be rare, traumatic hip dislocations in children are being recently reported from all the corners of the world. Data from India is however missing which is quite surprising. Being the 2nd largest country in terms of population, it is presumed to have more data on such injuries. We took the initiative to study the traumatic hip dislocations in the paediatric group from hospitals in which the authors have worked during the past seven years and have managed these cases.

MATERIAL AND METHODS

Study consists of twelve patients managed by the authors from 2007 -2013 in HFH and Rockland hospitals. Age, sex, time since injury, site and mode of injury, method of reduction, cast or no cast application and any complication occurring during the follow up was noted. All patients were first managed in Emergency department. After the primary stabilisation, an Antero posterior X ray of the pelvis with both hips was done. Diagnosis was confirmed and closed reduction was done under general anaesthesia or sedation.[Figure 1] Post reduction X rays were taken. [Figure 2] Hip was immobilised either by Spica cast or below knee skin traction. MRI was not done routinely. Patients were discharged on 2nd day and followed up in outpatient department. Any complication or

loss of reduction was noted. Traction or Spica was removed after 4 weeks, and partial weight bearing was allowed. Final follow up of minimum one year was noted for AVN of femoral head.

RESULTS

Among the cohort of 12 patients, we had eight male and four female patients. (Table 1) The age group varied from Two years to thirteen years with the mean age of seven years (Range =2 to 13 years, mean=7.2 years). Three cases had dislocated their hips after Road traffic accidents and all the three were boys. The severity was high in patients aged seven years or more. Rest of the nine cases had low or moderate injury. All the hips were dislocated posteriorly. Three cases had associated injuries. Eight patients reported to hospital during first 24 hours of injury while as four patients reported after 24 hours with one patient reporting after six days. Eight hips were reduced during 24 hours and four hips after 24 hours. All the hips were reduced by closed methods. Hips were then supported by either hip Spica or Skin traction for four to six weeks. No complication with respect to avascular necrosis of head of femur (Ficat staging), nerve injury, limp, pain on weight bearing, recurrent dislocation or loss of reduction was seen. No difference was also noted in the Spica group or skin traction group.

Table 1. Showing patient characteristics

Parameter	Male	Females	Total
Sex	N=8	N=4	N=12
Site	Right Hip	Left hip	
	N=4	N=8	N=12
Mode of injury	Severe	Mild/Moderate	
	N=3	N=9	N=12
Type	Posterior Dislocation	Anterior dislocation	
	N=12	N=0	N=12
Time Since injury	Less than 24 hours	More than 24 hours	
	N=8	N=4	N=12
Age (in years)	Range (2-13)	Mean 7.2 years	

Figure 1. Showing Dislocated Right Hip



Figure 2. Post Reduction X-ray



DISCUSSION

Traumatic dislocations of hip in children occur rarely and are much rarer in children below five years of age. [1,2] In the series of eight cases reported by M S Minhas,[5] the youngest was 2 years and 4 months.

Vemulapalli KK has reported traumatic dislocation in 21 month old child following fall from stairs. [6] The Youngest child reported in this study is 2 years of age and is the youngest child diagnosed with traumatic hip dislocation from India. In different studies, the incidence of



concomitant fracture in children is reported to range from 4 to 18 percent. [3,4] In our series only one patient had associated tibial fracture which was undisplaced and was managed with hip spica cast. literature suggests that the mode of injury and complications are different in different age group and the children below 10 years can have dislocations after low-energy injuries.[3] A Study by Rees showed Males are affected more than females [7] whereas Pearson DE [8] in his study showed females were affected more . The present study had male female ratio of 2:1. Posterior dislocation are common as was the case in present study. [3,4]

Diagnosis is usually made by clinical suspicion and a good quality X-ray and if in doubt about concentric reduction, further imaging is indicated. [9] MRI provides useful information of the surrounding soft tissues as a cause for instability or recurrent dislocations[10] since the incidence of soft tissue interposition ,after closed reduction ranges between 15% to 25% [11] and posterior wall involvement occurs in 17%-33% of children with posterior hip dislocations[12]. MRI was not done routinely. Only cases where the closed reduction was difficult to achieve we did MRI to rule out any soft tissue interposition. Treatment of dislocated hip is early reduction by closed method as was done in present series and in younger age group, sedation with analgesia is sufficient.[13] Sciatic nerve injury is the most common complication in traumatic hip dislocations of children [8,14].whereas our cases were neurologically normal. Avascular necrosis is reported to be 10% after hip dislocations [15] in which the delay in reduction and severity of trauma were reported as the cause.

Recurrent hip dislocation is less common. However if the posterior capsule does not heal properly, dislocation may occur again. [16] As far as complications are concerned, avascular necrosis is the commonest one

which may resemble perthe's disease. Other rare complications are heteroptic ossification and the osteoarthritis. [17]

Post reduction stable hip can be treated with skin traction as non-weight bearing for more than 4 weeks has no effect on the prognosis of disease. [18] Our patients were not allowed to bear weight for 4 weeks. And none of the complications were found in our cases during the follow up period. However a long term follow up is required to justify the statement.

CONCLUSION

Traumatic dislocation of hip in children is not rare. Regarding the low energy trauma required in this kind of dislocation and long-term and hazardous complications due to the delayed diagnosis, it is important to consider the probability of hip dislocation in traumatic child .A routine X-Ray of pelvis should be asked in traumatic cases complaining of hip or knee trauma and children with multiple injuries. An early reduction is an absolute priority to decreases the risk of Avascular necrosis. Prolonged immobilisation is not required and normal MRI can help in early rehabilitation. Further the sample size in our study is low to draw a conclusion. We recommend further studies to look for the actual number of such cases as this may be only the tip of ice berg.

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