

Traumatic Hip Dislocation in A Child Younger Than 3 Years- A rare Case Report And Review of Literature

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What to Learn from this Article?

Paediatric Hip dislocations still have good prognosis, if treated at right time.

Abstract

Introduction: Hip dislocation in a child less than 3 years is a very rare event. Only a few case reports have been documented in Western literature. It is rarely reported from Indian population. Hip dislocations are mostly due to low velocity injury in children younger than 3 years. We report such a case of hip dislocation in a 2 year old child.

Case Report: A 25 month old child presented to our casualty following a fall from a slide 3 hours prior to presentation. His right lower limb was adducted and internally rotated. There was severe pain on attempting movements. An X-ray of the pelvis was taken which showed a posterior hip dislocation on the right side. The child had an emergency closed reduction under general anaesthesia followed by a broom stick plaster cast with hips in 30° abduction. Congruency of reduction was checked with image intensifier before plaster application. The plaster was removed at 6 weeks and gradual weight bearing started. The child was reviewed at 6 and 18 months with MRI scans at 6 and 18 months. There were no signs of avascular necrosis or chondrolysis.

Conclusion: Paediatric hip dislocation (less than 3 years of age) is a very rare entity whose incidence is on the rise due to the increase in road traffic accidents. The key stone in proper management is clinical suspicion, early recognition and prompt reduction (within 6 hours). Also gentle manipulation during reduction has a definite role in preventing iatrogenic chondrolysis and osteonecrosis of femoral head.

Keywords: Paediatric hip dislocation, broom stick plaster.

Introduction

The musculoskeletal anatomy of children varies remarkably from that of the adult population. The periosteum is thick in children, the bones are soft and elastic and can absorb quite some force because of the soft spongy nature. Hence dislocations are rare in paediatric age group. However with the increasing number of motor vehicles plying on our roads and the ever present risk of

road traffic accidents, there is a recent change in the above trend. Most of the paediatric injuries are the result of low velocity accidents. In case of high velocity injuries there is almost always the possibility of associated injuries and multi-system involvement. There has been case reports of traumatic hip dislocations in childhood mostly in the western world [3,8,9,10,11]. Most of the published articles in literature include the adolescent population

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Figure 1: X-ray taken immediately following injury showing dislocated femoral head.



Figure 2: X-ray following closed reduction and plaster application showing concentric reduction.

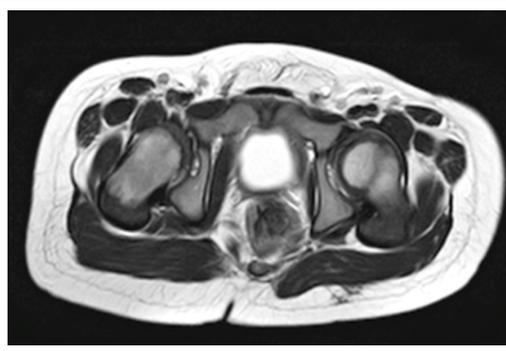


Figure 3: MRI taken immediately following closed reduction showing minimal marrow edema in head and neck area.



Figure 4: X-ray taken at 6 weeks following removal of plaster cast showing stable hip with no re-dislocation.

(12-17 years). There are very few case reports of such dislocations in children <3 years. Here we present a case report of a child (age 25 months) with traumatic posterior dislocation of the hip following low velocity injury.

Case report

A 25 month old male child presented to our casualty following a slip and fall from a slide while playing in a park. He presented 3 hours following fall. He had severe pain in the right hip and limb was adducted and internally rotated. An emergency radiograph of the pelvis taken in emergency showed a posterior dislocation of his right hip [Fig.1]. Emergency closed reduction under general anaesthesia was performed. Gentle traction with minimal rotation was sufficient to achieve reduction, the congruency of which was checked under image intensifier. Once congruency was confirmed, an above knee broom stick plaster was applied to both lower limbs with hips in 30° abduction. Check radiographs [Fig.2] was taken along with a MRI [Fig.3] of the hip to check if there was any traumatic injury to the physes. He was kept on the plaster for 6 weeks following which plaster cast was removed and child mobilized with as tolerated weight bearing. Follow-up X-ray was taken at 6 weeks [Fig.4] and serial MRI scans taken at 6 and 18 months [Fig.5 & Fig.6] showed no chondrolysis or osteonecrosis. He had restriction of flexion of knee beyond 120° at 6 weeks which improved to 140° by 8 weeks.

Discussion

Paediatric hip dislocation in children less than 3 years is still a rare entity. However with the everpresent danger of motor vehicle accidents in our crowded and chaotic roads, this rarity may become more common. In most children however, hip dislocations are mostly due to low velocity accidents which occur during playing.

There are a few reports in Western literature of hip dislocation in paediatric population, most of them are case reports [3,8,9,10,11]. They mostly report children >3 year old with hip dislocation. There has been only two case reports of children less than 3 years with hip dislocation [1,3]. Also most of the reports emphasizes the need to do urgent reduction within the golden period (i.e 6 hours) [1,4,5,10,11]. The risk of osteonecrosis in one study was 5.7% in acute cases vs 47.8% in old neglected cases [5] undergoing reduction procedures.

The severity of the injury is also an important predictor for the development of osteonecrosis [4]. Also important is that during closed reduction, care is to be taken not to perform forceful manipulation as this greatly increases the risk of iatrogenic physal separation. As is with our case gentle traction with minimal rotation is enough to reduce the joint [2,4].

The method of immobilization varies with the authors from skin traction to plaster cast application [1,11] but we found that results with plaster cast are more predictable with better patient co-operation.

Child abuse is also a possible etiology of hip dislocation in children when a child presents with a doubtful history and injuries in various stages of healing [8].

In our patient, the immediate post-reduction MRI showed a small linear posterior labral tear which had healed in subsequent MRI scans taken at 6 months



Figure 5: MRI at 6 months showing normal physal plate with no AVN



Figure 6: MRI at 18 months showing normal femoral head anatomy and physes

Conclusion

In literature there are case reports of traumatic hip dislocations in childhood (<3 years) in the western archives. Here we present a case report of a traumatic hip dislocations in a child <3 years in Indian population. Paediatric hip dislocations are a medical emergency which requires a great deal of suspicion to detect early and treat appropriately. Our patient had excellent recovery and functional outcome because of early reduction within the "Golden period" (6 hours). Although he had a labral tear, the soft tissues healed with immobilisation without any further intervention with no permanent disability. We therefore conclude that traumatic hip dislocations in children <3 years is an uncommon injury but a keen lookout is a must for early diagnosis and treatment.

Serial no.	Authors/ year of publication/Ref No.	Cases studied	Age of children	Last follow-up (Months)	Functional outcome	Complication rate	Remarks
1	Meena et al 2012 [1]	1	16 months	2 years	good	Nil	Early diagnosis & treatment –key
2	Vialle R et al 2005 [2]	35	Skeletally immature children	6 months	34/35 – good 1/35- fair	1/35 – total AVN 1/35 – Partial AVN	
3	Vemulapalli et al 2005 [3]	1	21 month	18 months	excellent	Closed reduction within 6 hours	
4	Bressan et al 2014 [5]	53	< 7 years	2 years	42/53 – excellent 8/53 - good 3/53 - fair	AVN- 3 Redislocation - 3 Coxa Magna-3	Higher rate of AVN in neglected cases. Also higher rate of open reductions
5	Haverstock et al 2013 [7]	1	8 months	12 months	Excellent	Nil	
6	Murphy et al. 2014 [8]	1	3 years	6 months	Excellent outcome	Nil	
7	Furuya H et al 2014 [9]	1	13 years	3 months	Excellent outcome	Nil	Closed reduction done within 2 hours
8	Baker JF et al 2011 [10]	1	3 years	18 months	Excellent	Nil	Golden period for reduction is first 6 hours
9	Martinez- Guerrero JI et al 2012 [11]	1	4 years	18 months	Excellent outcome	Nil	Closed reduction done after 8 hours of injury

Clinical Message

Paediatric hip dislocations are uncommon injuries of childhood especially with low velocity injuries. However a high degree of suspicion combined with early and prompt reduction is the keystone in management. This is to ensure a good functional outcome and prevention of complications like osteonecrosis and chondrolysis.

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