



Neglected Posterior Dislocation of Hip in Children -A Case Report

Authors

Dr Sanjeev Gupta, Dr Tanveer Ali

GMC Jammu India

Introduction

Traumatic posterior dislocation of the hip in children is an uncommon injury^[1]. It makes up over 80% of pediatric hip dislocations. As compared to adults, minimal trauma is required to produce dislocation in children. This can be attributed to a soft, pliable acetabulum and ligamentous laxity in younger age group^[2]. This fracture has a better prognosis if managed within 6 hours. Delay in reduction is associated with long-term complications such as episodes of renewed dislocation, chondrolysis, avascular necrosis and degenerative arthritis^[3].

Posterior dislocation is diagnosed on the basis of classical deformity of flexion, adduction and internal rotation. However, the diagnosis can be missed if an associated shaft fracture masks the classical findings.

The treatment should be initiated as early as possible. The options for management of hip dislocation in children are closed and open reduction,^[4] salvage by excisional orthoplasty, realignment osteotomy, arthrodesis or total hip replacement. We choose to manage our patients by open reduction and internal fixation by K-wire and post operative immobilization with hip spica.

Case Report

We report two cases of neglected traumatic posterior dislocation of hip in children aged 3-

1/2(female) and 4 years (male). Both patients had a history of fall from height. The first patient had suffered dislocation on her left side one month back and was managed at a peripheral centre by hip spica. The second patient had a history of trauma 5 weeks back and was managed by a bone setter at home. Both the patients had unilateral posterior hip dislocation. The second patient had an associated posterior wall acetabular chip fracture. They presented to the hospital because of persisting pain, deformity, and limp.

After clinical examination, anteroposterior and lateral hip X-rays were performed. They showed a posterior hip dislocation (Fig 1). A NCCT pelvis with both hips was also obtained. (Fig 2)



Fig 1: Pre-op X-ray



Fig 2: Pre-op NCCT pelvis.



Fig 4: Post-op X-ray.

Both patients were managed by open reduction by posterior-lateral approach. The acetabulum was filled by fibrous tissue in both cases. The soft tissue was removed followed by reduction of femoral head (Fig 3). The hip was held in position by k-wire through the femoral head into acetabulum (Fig 4). Immobilization was achieved by application of hip spica (Fig 5). The k-wires and hip spica was removed at 6 weeks and physiotherapy was initiated. Patients were gradually allowed to bear weight from 7th week onwards.

We used Garret et al criteria to grade results as excellent, good, fair or poor^[5]. An excellent result meant no pain, a full range of hip motion and no limp. Good result meant no pain, slight limp, 75% range of movement. Fair result meant pain but not disabling, moderate limp, 50 % range of movement. Poor result meant disabling pain, marked limitation of hip motion and abduction or adduction deformity.



Fig 3: Intra-op manipulation.



Fig 5: Hip spica in situ.

Patients remained under follow-up for 12 months. More than 75% range of movement was observed at follow up and the patients were pain free(Fig 6). Radiologically in both cases there were early changes of osteonecrosis of femoral head with preservation of the joint space (Fig 7).



Fig 6: Picture on follow up.



Fig 7: X-ray after removal of hip spica and K-wire.

Discussion

Dislocation of hip in children is a rare injury, but we received two cases within 6 months time in our institution mainly because ours is a developing country and patients come to hospital many days after trauma with repeated massage and manipulations.

Posterior dislocation of hip joint should be reduced as early as possible. Delay in reduction is associated with increased chances of complications. From the few case reports

available, we know that the risk of developing a femoral head necrosis increases with delay in initiation of treatment. Mehlmann and colleagues described a twentyfold higher risk for femoral head necrosis if the reposition is performed with a delay of more than 6 hours after trauma^[6]. This emphasizes the need for immediate reduction. Also the closed reduction of neglected dislocation becomes difficult with time as the acetabulum is filled with fibrous tissue as stated by Miltner and Wan in their study^[7].

There are several methods of reduction of old dislocation. Options include closed reduction, open reduction, salvage by excisional orthoplasty, realignment osteotomy, arthrodesis or total hip replacement. We choose to manage our patients by open reduction and internal fixation by K-wire and post operative immobilization with hip spica.

Kumar S et al in their study of 18 patients managed by open reduction obtained excellent results in 17 patients^[8]. Gardner ROE et al in their case report of 7 patients found open reduction with a postero-lateral approach, posterior capsulorrhaphy, and femoral shortening (as required) produces a satisfactory outcome with a stable, congruent reduction. They concluded that good clinical function can be expected with a low incidence of avascular necrosis^[9].

In children, even with changes suggestive of avascular necrosis and some restriction of motion after open reduction, the anatomically placed femoral head maintains the stimulus for growth of the pelvis and the femur. It prevents deformity and maintains limb length^[10].

We conclude that the dislocation should be diagnosed rapidly and must be treated urgently. Repetitive closed reduction trials should be avoided. Open reduction is a satisfactory treatment for neglected hip dislocation. It not only prevents deformity, but also maintains limb length.

References

1. Banskota AK, Spiegel DA, Shrestha S, Shrestha OP, Rajbhandary T. Open reduction for neglected traumatic hip dislocation in children and adolescents. *Journal of Pediatric Orthopaedics*. 2007; 27(2):187-91.
2. H. Rieger, D. Pennig, W. Klein, and J. Grunert, "Traumatic hip dislocation during the years of growth. A review of the literature," *Zentralblatt für Chirurgie*. 1991; 116(3): 155–163.
3. Kutty S, Thornes B, Curtin WA, Gilmore MF. Traumatic posterior dislocation of hip in children. *Pediatr Emerg Care*. 2001; 17(1):32–35.
4. V.S.Pai and B.Kumar: Management of unreduced traumatic posterior dislocation of the hip :heavy traction and abduction method. *International Journal Of The Care Of The Injured*. 1990; 21: 225-27.
5. Garrett JC, Epstein HC. Harris WH- Treatment of unreduced traumatic posterior dislocation of the hip. *J Bone Joint Surg Am*. 1979; 61:2–6.
6. C. T. Mehlman, G. W. Hubbard, A. H. Crawford, D. R. Roy, and E. J. Wall, "Traumatic hip dislocation in Children," *Clinical Orthopaedics and Related Research*, 2000: 376; 68–79,.
7. Miltner. L. J. and Wan, F. E. Old traumatic dislocations of the hip with reference to operative treatment. *Surg. Gynec. Obst.*, 1933: 56, 84.
8. Kumar S, Jain AK. Neglected traumatic hip dislocation in children. *Clin Orthop Relat Res*. 2005; (431):9- 13.
9. Gardner ROE, Worku N, Nunn TR, Zerfu TT, Kassahun ME. Management of Neglected Traumatic Hip Dislocation in Children. *Journal of Pediatric Orthopedics*. 2020 Feb. DOI: 10.1097/bpo.0000000000001535.
10. Sudhir Kumar and Anil K Jain. Open reduction of late unreduced traumatic posterior hip dislocation in 12 children. *Acta Orthop Scand* 1999; 70 (6): 599-602.