

# Traumatic Posterior Hip Dislocation in a 5 Years Old Girl

Papa Amadou Ba\*, Mamady Sekou Conde

Traumatology-Orthopedics Department, Principal Military Hospital, Cheikh Anta Diop University, Dakar, Senegal  
Email: \*Pabaortho@gmail.com

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## Abstract

**Introduction:** Traumatic hip dislocation is uncommon, but more common in boys. We report a case of a traumatic posterior hip dislocation in a 5 year-old girl. **Case report:** A 5-year-old girl fell from the ground and landed on her right hip during a playful accident. She had a closed right hip trauma, vicious attitude of the homolateral lower limb, without any signs of sciatic nerve damage. The standard radiographs showed a posterior dislocation of the hip, without any associated bone injury. A closed reduction was performed upon admission under general anesthesia. There was an associated coxa valga. The hip was congruent. No signs of sciatic nerve damage were observed. An Additional Cutaneous traction was performed, followed by protection of the support. At 4 months of follow-up, she had resumed her previous activities without any deficit. The radiograph showed no signs of early osteonecrosis of the femoral head; the reduction was maintained. **Conclusion:** Traumatic posterior hip dislocation is rare in children. It occurs in a young girl, with a coxometric abnormality after a low-energy trauma. Its closed reduction is easy. The outcome is favorable in the short term.

## Keywords

Children, Low Energy, Posterior Hip Dislocation

## 1. Introduction

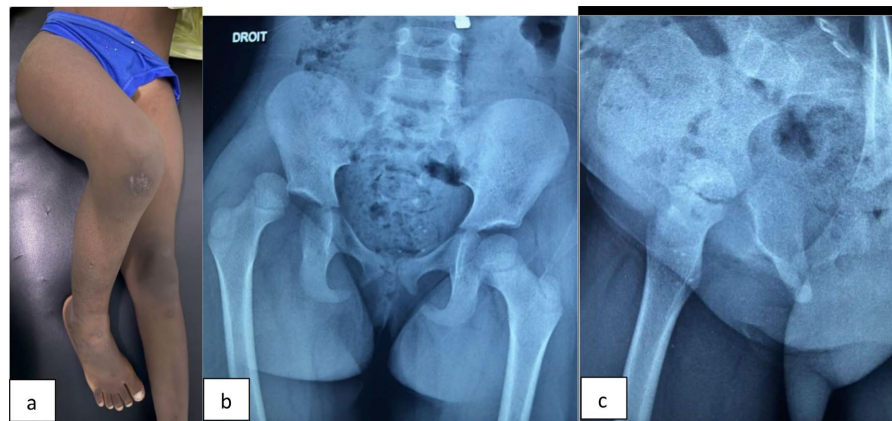
Traumatic dislocation of normal hips in children is a rare injury [1], accounting for 5% of all hip dislocation at any age [2], with an incidence of 0.8 cases per million/year [3]. Posterior dislocation accounts for 80% of such cases [4]. It occurs predominantly in older boys, which is probably due to their higher traumatic morbidity [5]. In younger children, dislocation may result from low energy trauma [6], and this might be related to the anatomic characteristics of this age group [7]. The

younger the child, the more predisposing factors there are and the higher the susceptibility of the hip dislocation to the minor trauma [5]. It constitutes an orthopedic emergency [8]. The treatment should be performed as early as possible [8]. The reduction is usually easy to achieve; but labral, capsule, and/or osteochondral fragment interposition may prevent concentric reduction [9]. There is usually a favorable outcome after expedient reduction, although avascular necrosis can occur [7].

We report a case of a traumatic posterior hip dislocation in a 5 years old girl caused by low energy trauma.

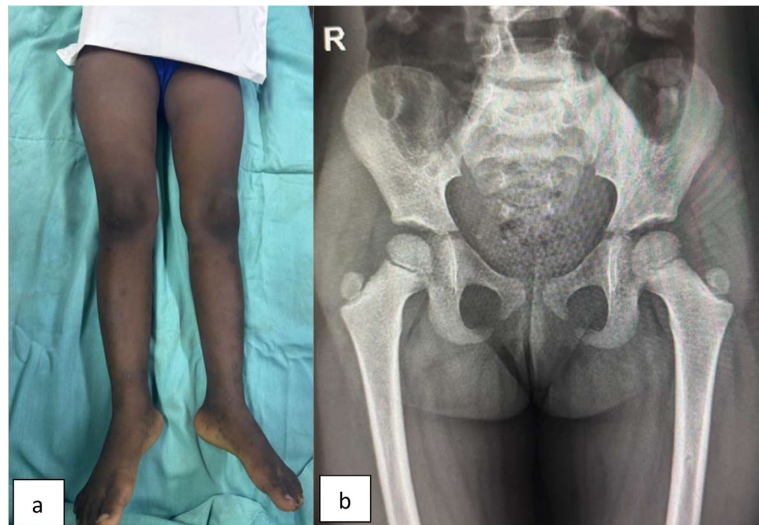
## 2. Case Report

A 5-year-old girl with no history of medical or surgical pathology, fell from the ground and landed on her right hip during a playful accident. She was received at the emergency department 1 hour later for closed trauma of the right hip with vicious attitude of the homolateral lower limb: combining flexed knee, adduction and internal rotation figure (Figure 1). There was no evidence of sciatic nerve and/or vascular involvement. The standard radiograph in the lateral and antero-posterior views of the injured hip showed a posterior displacement of the femoral head without any associated bone injury (Figure 1).



**Figure 1.** Clinical (a) and radiological (b), (c) aspects of traumatic posterior hip dislocation in a 5 year-old girl.

Two hours later, under general anesthesia, a closed reduction was performed in the operating room. The patient was in supine position on the standard table, the knee and the hip flexed in 90, a traction force was applied along the axis of the femur, while the pelvis was held by an assistant. The reduction occurred (Figure 2). The control radiograph showed a coxa valga at 140, an external coverage angle of the acetabulum at 31, and the hip was congruent without any widening of the joint space compared to the non-traumatized side (Figure 2). There was no evidence of sciatic nerve injury. Cutaneous traction for three weeks was done, followed by protection of the support for three more weeks.



**Figure 2.** Clinical (a) and radiological (b) aspects after reduction of a traumatic posterior hip dislocation in a 5 year-old girl.

At 4 months of follow-up, she had resumed her previous activities without any deficit. The radiograph showed no signs of early osteonecrosis of the femoral head; the reduction was maintained.

### 3. Discussion

Traumatic posterior hip dislocation in children is uncommon, unlike in adults. This observation concerns a 5 year-old girl, victim of low energy trauma. The diagnosis was made using a standard radiograph. The reduction was performed earlier. The outcome was satisfactory in the short-term.

The rarity of this injury in children contrasts with the benign nature of the trauma in this age group [1]. This injury is more common in boys [10] [11] and may occur at any age among children, although the peak incidence occurs between 4 and 7 years of age and between 11 and 15 years of age [10]-[12]. In younger children, the acetabulum is very flexible, loose and cartilaginous; and the ligaments are weak [3] [7] [8] [13], thus allowing trivial trauma to result in dislocation [14]-[17]. So these represent the most recognized predisposing factors [14]-[17]. Other anatomical conditions are also associated with this injury such as: coxa valga, defect in external coverage of the femoral head, an opening of the acetabular angle and a decrease in acetabular anteversion [1] [18]. There are probably other predisposing factors that are still unknown [1]. The flexibility of the periarticular structures may explain the absence of associated bone injuries [2] [7]. A vicious attitude of the limb in a context of low-energy trauma, without any pathological history or any medical warning signs, should make this injury suspect despite the similarity with other hip injuries such as a fracture separation of the proximal end of the femur. Good-quality radiographic evaluation is essential for confirming or discarding the diagnosis, revealing the type of dislocation and discarding the hypothesis of associated fractures [3]. Traumatic hip dislocation in children is an orthopedic emergency [4] [16]. There is

a consensus that the reduction should be performed immediately, preferably using a closed procedure and under general anesthesia [12] [19] [20] or with relaxants [4] [12], using the same maneuvers as used for reductions in adults (Stimson, Allis and Bigelow) [3] [8] [11] [12] [14]. After the reduction, the joint congruence should be evaluated, comparing the joint space, lateralization of the head [21] and breakage of Shenton's line [11] with the contralateral side. There continues to be no consensus regarding the treatment to be followed after achieving reduction [8]. Despite the difference in post-reduction care methods, the duration of limb nonweightbearing of up to 6 weeks is noted by several authors, in order to allow the capsule to heal [3] [11] [13] [15] [22]. The outcome of traumatic hip dislocations in children is generally favorable compared to that in adults [8]. The younger the child, the fewer complications they experience [8].

#### 4. Conclusions

Traumatic posterior hip dislocation is rare in children. It occurs in a young girl, with a coxometric abnormality, after a low-energy trauma. Its closed reduction under general anesthesia is easy by external maneuver. The outcome is favorable in the short term after a maximum of 6 weeks of nonweightbearing.

A long-term follow up would be a beneficial option in order to look for late-onset complications such as aseptic femoral head osteonecrosis.

#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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