

# Posterior dislocation of hip with ipsilateral subtrochanteric fracture of femur in a child: a very rare case report

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## Abstract

In children, traumatic hip dislocations although rare, but are more common than hip fractures. Trivial injuries may cause a hip dislocation in young children because of their immature pliable cartilage and lax ligament. Subtrochanteric femoral fractures occur below the lesser trochanter to 5 cm distally in the shaft of the femur. In young and healthy individuals, the injury usually results from high-energy trauma. Posterior dislocation of hip with subtrochanteric fracture is very rare and it usually results due to a significant injury. We report a case of nine year old child, presenting with posterior dislocation of hip with ipsilateral subtrochanteric fracture of left femur. Such types of injuries are not fitting into any present system of classifications.

**Key words:** Paediatric, Subtrochanteric Fracture, Hip Dislocation.

## Introduction

According to MacFarlane [1], half of the hip dislocations in children occurred between the ages of 12 to 15 years.

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It has been found in traumatic hip dislocations that the more severe the injury, the worse the prognosis [2]. Like in adults, posterior dislocations are much more common than anterior ones. Closed reduction, if successful, produces better results than open reduction. However, open reduction may be required for more severe injuries.

**Case Report**

Occasionally, complete reduction may be prevented by interposition of the capsule, labrum & other soft tissues, or an osteocartilaginous fragment. Roentgenograms of both hips should be taken after closed reduction to compare the joint spaces.

Currently a computerized Tomography (CT) scan of the hip is routinely recommended to assess the congruency of reduction and to look for any intraarticular osteocartilaginous fragment.

In open reduction, the hip should be redislocated and the acetabulum should be checked for loose bony fragments or an inverted limbus or other soft tissue. Reduction should be confirmed roentgenographically in the operating room, ensuring that the width of the joint space has returned to normal.

Subtrochanteric or proximal femur fracture are rare, both in adults and children. These fractures are the difficult to manage. It usually occurs in the two age groups.

In young and healthy individuals, it results from high-energy trauma, whereas in the elderly osteoporosis is the main culprit. The fracture typically occurs at the junction of cortico-cancellous bone, where the mechanical stress is highest.

In subtrochanteric fractures, the proximal fragment usually is in a position of flexion, abduction, and

external rotation because of the unopposed pull of the iliopsoas, abductors, and short external rotators. If alignment and length are maintained, mild malrotation usually corrects itself with growth.

The ideal treatment of femoral shaft fractures in children is one that controls alignment and length, is comfortable for the child and convenient for the family.

The various muscle attachments in this region also cause marked displacement. Operative treatment is recommended for most types of these fractures, and the methods of internal fixation are still evolving.

**Case Report**

A nine year old child presented to us two weeks after injury to his left upper thigh and hip in a road traffic accident when a heavy vehicle hit him from front while he was walking on the road. On local examination left lower limb was in attitude of external rotation. Deformity was present over left hip and left thigh.

Tenderness present over the lateral aspect of upper 1/3<sup>rd</sup> of left thigh and left hip. There was no open wound. Head of the femur was palpable posteriorly in the gluteal region. Distal neurovascular status was intact.

On radiological examination of left hip joint with femur showed dislocation of left hip with comminuted subtrochanteric fracture left femur (Figure-1). He was operated and open reduction of posterior dislocation hip

**Case Report**

and fixation of the joint with a single k –wire and open reduction and internal fixation with multiple k-wire for subtrochanteric fracture was done under spinal anaesthesia (Figure-2, regret for poor quality

radiograph). After three weeks k-wire from the hip joint was removed (Figure-3). He was advised to walk with partial weight bearing on the affected limb after about 6 weeks of surgery.



**Figure 1:** Preoperative radiograph of left hip with thigh showing subtrochanteric fracture with femoral head out of acetabulum.



**Figure 2:** Immediate postoperative radiograph showing reduced left hip joint and fixation of subtrochanteric fracture using multiple k wires.



**Figure 3:** Radiograph three weeks after the index surgery, K wire removed from the hip joint, showing callus formation across the fracture s

## Discussion

Posterior dislocation of hip with subtrochanteric fracture is unusual fracture especially in the children. Such injuries usually follow high energy trauma.

If the longitudinal forces are stronger than the adduction forces then an acetabular fracture is produced.

If there is no fracture of head or acetabulum, then it is believed that the dislocation caused by a longitudinal force in combination with adduction forces [3].

But in children dislocation can occur by just trivial forces primarily because their immature cartilage is pliable and their ligaments are lax. Treatment modality also changed as per the severity of injury. Factors that influence the ultimate result after dislocations of the hip

are, severity of the injury, interval between injury and reduction, type of treatment, period of non-weight-bearing, whether recurrent dislocation develops, whether avascular

necrosis develops, and whether reduction was incomplete because of the interposition of an object in the joint.

However time interval between injury and reduction is not important in children. Closed reduction when ever attempted always has better results than open reduction.

Open reduction is some time required if associated with severe injuries. Recurrent dislocation is more common in children than adults because of ligamentous laxity.

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Higher incidences of dislocations are more common if associated with hyper laxity syndromes e.g. Downs's syndromes.

Sometime complete reduction may be prevented by soft tissue interposition of capsule, labrum or osteocartilaginous fragments. It can be detected on plane Roentgenograms by comparing the joint spaces & Shenton's line. If involved joint space is wider and the Shenton's line is broken then incomplete reduction should be suspected.

Sub trochanteric fractures however less common in both the age group and usually occur due to significant trauma.

A fracture occurs at the cortico-cancellous junction. Combination of posterior dislocation of hip with subtrochanteric fracture in children has not been reported till date [4,5].

Only a few cases are reported similar to it, in one posterior dislocation of hip with intertrochanteric fracture was reported [6] while in other two anterior dislocations with trochanteric fracture had been reported [7,8].

**Conclusion**

Posterior dislocations of hip with ipsilateral subtrochanteric fracture are rare injuries especially in children. Such fractures are difficult to handle and

require proper treatment as early as possible. This kind of injury need open reduction and internal fixation at the earliest available opportunity.

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