

# SLIPPED CAPITAL FEMORAL EPIPHYSIS CAUSED BY AN IMPLANT - A CASE REPORT

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## ABSTRACT

A nine-year old boy sustained a traumatic fracture of the neck of left femur and was treated by closed reduction and cancellous screw fixation. Fourteen months later the tips of the screws were found to be at the epiphyseal plate and there was evidence of slip of the upper femoral epiphysis. The opposite hip was normal and no other abnormalities were detected. It is postulated that the slip was caused by the implant.

**Key Words:** Slipped Capital Femoral Epiphysis.

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## INTRODUCTION

Slipped capital femoral epiphysis is a relatively uncommon condition in the local population. Although many aetiological factors have been postulated often no abnormalities are found in the patients. This is a case report of a nine-year old boy in whom an implant used for fixation of fracture neck had caused a slip of the capital femoral epiphysis.

## CASE REPORT

A nine-year old boy was admitted to the Orthopaedic Department of UKM with a closed basal fracture of the neck of left femur following a road traffic accident. He was otherwise healthy with normal physical developments. The fracture was fixed with two cancellous screws under image intensifier control five days later (Fig 1).

A single hip spica was applied and patient was discharged with weight relieving crutches twelve days later. The cast was removed at six weeks and the child started full weight bearing at eight weeks. Follow-up X-rays revealed that the fracture had united. There was full range of movements of the left hip which was painless on weight bearing.

An X-ray taken at fourteen months after the internal fixation showed early evidence of slipping of upper femoral epiphysis. The epiphyseal plate appeared widened and the tip of the screws were impinging on the epiphyseal plate (Fig 2). The opposite hip was normal. The cancellous screws were removed and the epiphysis was fixed in-situ with two Knowles' pins (Fig 3).

## DISCUSSION

Various aetiological factors have been postulated in slipping of the proximal femoral epiphysis although the exact cause is often not established. Among the more frequently postulated factors are endocrine abnormalities (1), mechanical factors (2), trauma (3) and genetic defects (4).

The patient in this case report had sustained a basal fracture of the neck of the left femur without any evidence then of concomitant slip of the proximal femoral epiphysis. This was internally fixed with cancellous screws not traversing the epiphyseal plates. Follow-up radiographs were normal until fourteen months later when, with healing of the fracture and shortening of the neck, the cancellous screw tips had impinged on the epiphyseal plate and had mechanically 'pushed' the capital femoral epiphysis, causing it to slip at the epiphyseal plate.

The child did not manifest any endocrine or other abnormalities to suggest other possible causes for the slip of the capital epiphysis.

The contralateral hip was normal. Serial radiographs of the fixed neck of femur during the post-operative follow-up of fourteen months produced sufficient evidence to show that the slip was caused by the two screws 'pushing-off' the capital femoral epiphysis at the growth plate. The other possible explanation would be the presence of the tip of the screws at the epiphyseal plate inducing a foreign body reaction and irritation, hence the slip.

The aim of this report is to draw attention to a slip of the epiphysis of the head which may possibly be brought about by implants used to internally fix fractures of the neck of femur in children. A search of the literature did not reveal any similar reports.

In a long term follow-up of children with femoral neck fractures, Leung and Lam (5) recorded late displacement of the epiphysis in two out of 41 patients. These were later treated by multiple pin fixation. They also recorded four out of 41 of the fractures had healed with a resultant short femoral neck. Lam (6) advocated the use of Moore's pins when internal fixation was selected because it has a plain distal end that causes minimal or no damage if it was inadvertently inseted beyond the epiphyseal plate. Moreover the threaded proximal portion of the pin gave better purchase at the cortex of the femoral shaft.

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In a review of 132 cases of fracture of the femoral neck in children Ratliff (7) did not record any instance of iatrogenic or late slip of the proximal femoral epiphysis though he had included nine cases of traumatic separation. In the X-rays after removal of the cancellous screws and the Knowles' pins there was evidence that the neck had become shorter, as observed by Leung and Lam (5).

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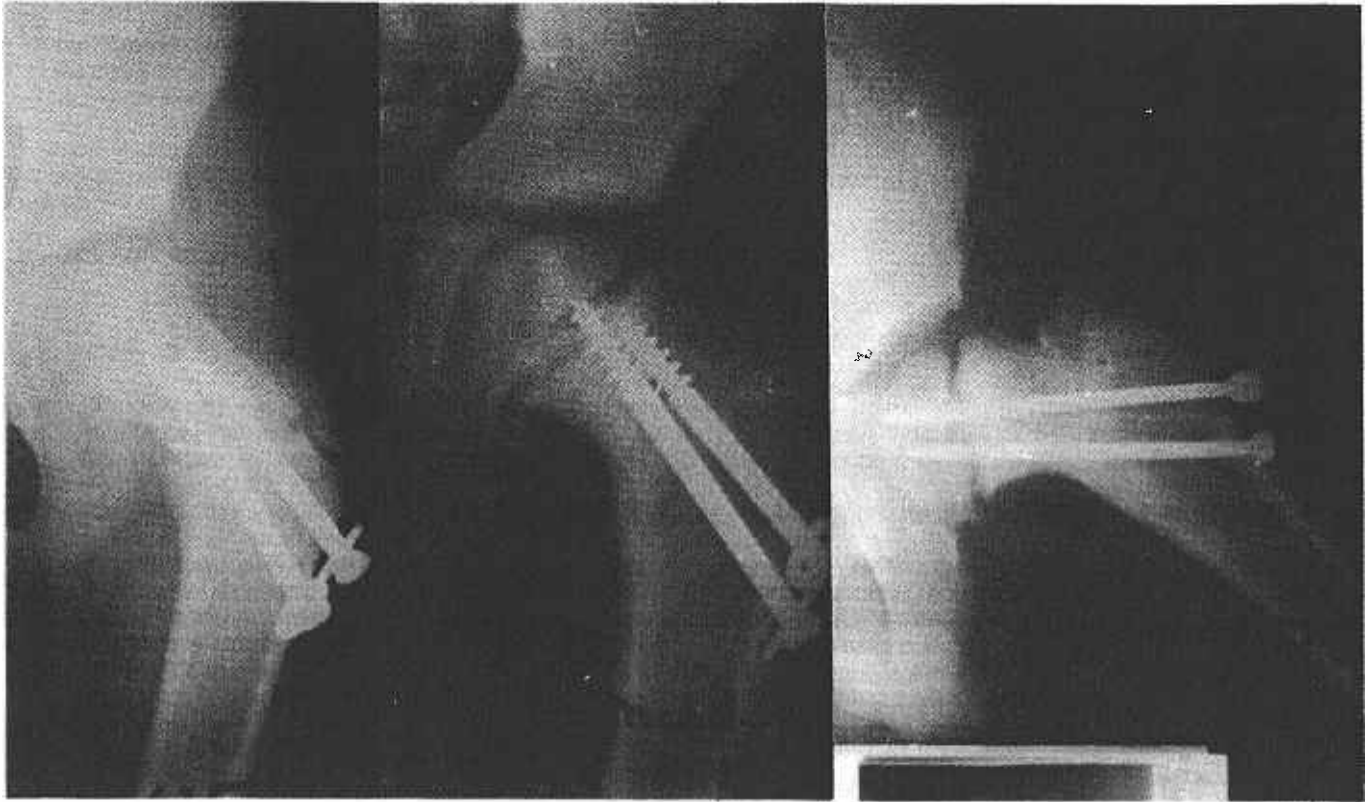


Figure 1

Figure 2

Figure 3

Figure 1:  
Xray of left hip at six weeks after operation showing the tip of the cancellous screws clear of the epiphyseal plate.

Figure 2:  
Xray of left hip showing a grade I slip of the upper femoral epiphysis. The epiphyseal plate is widened and the tip of one screw is impinging on the epiphyseal plate.

Figure 3:  
Xray of left hip after removal of screws and fixation with Knowles' pins. There is evidence of shortening of the neck.

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