

An unusual pattern of Posterior Dislocation of Hip associated with Comminuted Trochanteric Fracture

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Citation

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Abstract

A unique fracture pattern involving ipsilateral comminuted trochanteric fracture associated with posterior dislocation of hip in a young adult male following road traffic accident is described. No such pattern of injury could be found in the orthopaedic literature. Mechanism of injury, controversies regarding operative procedures and appropriate surgical approach are discussed. Result at one year of follow up showed complete union of fracture without any radiological signs of avascular necrosis of head of the femur.

INTRODUCTION

Posterior dislocation of the hip is not uncommon in car accidents where, because of the direction & severity of impact, dislocation is often associated with fractures. Posterior dislocation of the hip associated with fracture of the head of femur or acetabulum are well known^{5,10}. However dislocation of the hip with fracture of the neck or shaft of femur is very rare, and, have been described in the literature as case reports^{5,10,6,1}.

The combination of a posterior dislocation of the hip with ipsilateral fracture trochanter, without any fracture of the head of the femur is an unusual occurrence and has not been reported in the literature till date. The nearest report was a case where posterior dislocation of the hip was associated with fracture of the neck of femur along with trochanter⁸. A couple of case reports where trochanteric fracture was associated with anterior dislocation of the hip^{11,7,9} have been reported. The mechanism of injury and the options of surgical management have been discussed.

CASE REPORT

A 40 year old male was admitted to our hospital after 72 hrs in April 2006 as a road traffic accident case. The bus on which he was traveling was hit by an overtaking truck. On examination he was conscious but was unable to move his left lower limb which was 4 cm shorter than the right and was rotated externally. Left gluteal region and hip was swollen without any open injury. His ipsilateral knee was also swollen and painful. Radiographs showed posterior

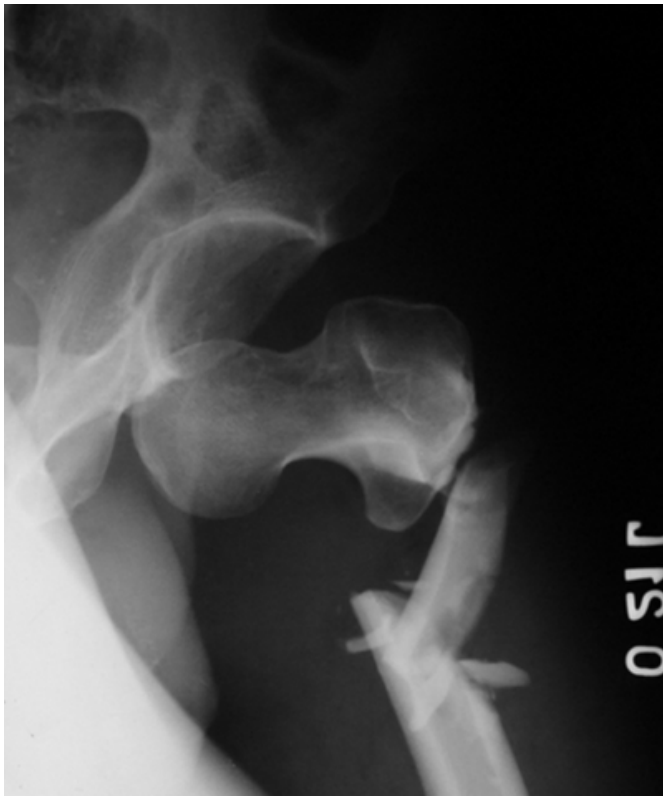
dislocation of left hip along with comminuted trochanteric fracture extending into subtrochanteric region (Fig 1). The proximal dislocated fragment comprising of head, neck and part of trochanter was flexed and rotated internally. There was no fracture in the head or neck component or acetabulum. Ipsilateral undisplaced transverse fracture of patella & tibial plateau were also associated with this injury. His sciatic nerve was intact and no vascular deficit was present.

Figure 1

Figure 1: A) AP Radiograph showing posterior dislocation of hip with comminuted trochanteric fracture extending into subtrochanteric region. Proximal fragment is internally rotated & flexed. B) Fracture configuration in lateral projection



Figure 2



Immediately patient was shifted to emergency OT and urgent surgical reconstruction of the fracture dislocation was planned. A trial of close reduction using schanz pin as a joy stick inserted into the trochanter was given but failed. Open reduction was contemplated with lateral thigh incision to facilitate both reduction and internal fixation. Anterior spike of proximal fragment had gone into the anterior thigh muscles which had to be split to achieve reduction. Hip was relocated manually and fracture reduced. Part of superior and posterior part of hip joint capsule was still found to be intact. Dynamic compression screw & plate was used as the fixation device to fix the fracture (Fig.2). Injuries of the knee / patella were treated as per protocol. At the end of one year patient had painless hip but the movements at hip and knee were terminally restricted. No radiological signs of avascular necrosis has been seen yet at the end of one year.

Figure 3

Figure 2: A&B) Radiograph showing fixation with Dynamic compression screw and plate. Fracture is well reduced and is in anatomical configuration in both AP and lateral projection



Figure 4



DISCUSSION

Hip joint dislocation is generally as a result of high energy trauma and is often associated with injury to head or

acetabulum^{5,10}. If the longitudinal forces are stronger than the adduction forces then an acetabular fracture is produced. When there is no fracture of head or acetabulum, it is believed that the dislocation, caused by a longitudinal compression force is combined with adduction. In associated neck fractures this is the first incident in this combined type of hip injury. The head of the femur is then fixed by the tight periosteum of the ilium, and further adduction causes the fracture of the femoral neck³. Our patient had been subjected to considerable force and in addition to his hip injuries, sustained injuries to his ipsilateral knee too. The above mentioned mechanism doesn't answer mechanism in this patient since the neck was intact. We believe that the first mechanism was longitudinal force combined with adduction force leading to posterior dislocation of the hip, however, the adduction force stopped short of fracturing the neck femur and was superseded by longitudinal and external rotation force leading to comminuted trochanteric fracture. Other mechanism could be a dislocation, caused by a longitudinal compression force combined with adduction followed by a posterolateral force over trochanteric region. Such fracture pattern has not been explained by the classification systems described for hip dislocation injuries

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Such injuries are orthopaedic emergencies and require immediate surgical intervention. Open reduction and internal fixation was performed soon after patient was received in emergency department. The closed reduction failed due to entrapment of distal spike of proximal. Lateral thigh incision provided access to anterior and posterior aspect of hip helping in reduction and later internal fixation. Dynamic compression screw and plate was used as fixation device in view of fracture configuration giving the good immediate stability. At 12 months after the injury, the patient has only terminal restriction of range of motion versus his contralateral normal hip. Radiographs of the hip show normal anatomy without signs of avascular necrosis of the femoral head could be because of partly intact posterior and superior portion of the capsule or not subjecting the patient to MRI investigation, yet a possibility of avascular necrosis cannot be ruled out in follow up of longer duration keeping in mind patient surpassing the recommended time limit for reduction of 12-24 hrs, best being within 6 hrs^{4,2}.

CONCLUSION

This pattern of injury doesn't fit into the present classification systems described for hip dislocation injuries. Classification system should be reviewed to include such pattern of injury. We hypothesize that the mechanism of Injury could be longitudinal force with adduction to start with, followed by external rotation or a direct injury to trochanter. This kind of injury needs open reduction and internal fixation at the earliest available opportunity.

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