

# Ipsilateral Traumatic Posterior Hip Dislocation, Posterior Wall and Transverse Acetabular Fracture with Trochanteric Fracture in an adult: Report of First Case

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## What to Learn from this Article?

*Management of complex fracture dislocation around the Hip joint  
Surgical approach and tips on planning such complex injuries*

### Abstract

**Introduction:** Posterior dislocation of the hip joint with associated acetabular and intertrochanteric fracture is a complex injury. Early recognition, prompt and stable reduction is needed of successful outcome.

**Case Report:** 45 year old male patient presented with posterior dislocation of the hip with transverse fracture with posterior wall fracture of acetabulum and intertrochanteric fracture on the ipsilateral side. The complex fracture geometry was confirmed by CT scan. The patient was successfully managed by open reduction and internal fixation of intertrochanteric fracture was achieved with dynamic hip screw (DHS) plate fixation followed by fixation of acetabular fracture with reconstruction plate.

**Conclusion:** Hip dislocation combined with acetabular fracture is an uncommon injury; this article presents a unique case of posterior wall and transverse fractures of ipsilateral acetabulum with intertrochanteric fracture in a patient who sustained traumatic posterior hip dislocation. Early surgical intervention is important for satisfactory outcomes of such complex fracture-dislocation injuries.

**Keywords:** Hip dislocation; acetabular fractures; intertrochanteric fracture; operative treatment

### Author's Photo Gallery



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### Introduction

Posterior dislocation of the hip joint with associated acetabular fracture is an uncommon injury. Early recognition, prompt and stable reduction is the essence of successful management. A delay in diagnosis and reduction leads to preventable complications and morbidity. Final outcome depends upon the time elapsed from injury to treatment, type of fracture-dislocation, congruity and stability of the reduction and severity of injury [1, 2]. Posterior hip dislocations occur in axial force transfer through the femur to the hip joint in adduction at hip. According to varying position of the hip from extension to flexion (in adduction) leads to fracture of the wall of acetabulum or column fracture. There are case reports documenting dislocation of hip with column or wall fractures of acetabulum, with neck or intertrochanteric fracture [3,4]. The combination of posterior dislocation of hip with trochanteric fracture of femur, with fracture of posterior wall of acetabulum and transverse fracture acetabulum has not been reported in literature till date. We hereby present a case with above combination with sciatic nerve palsy. There was also ipsilateral anterior dislocation shoulder.

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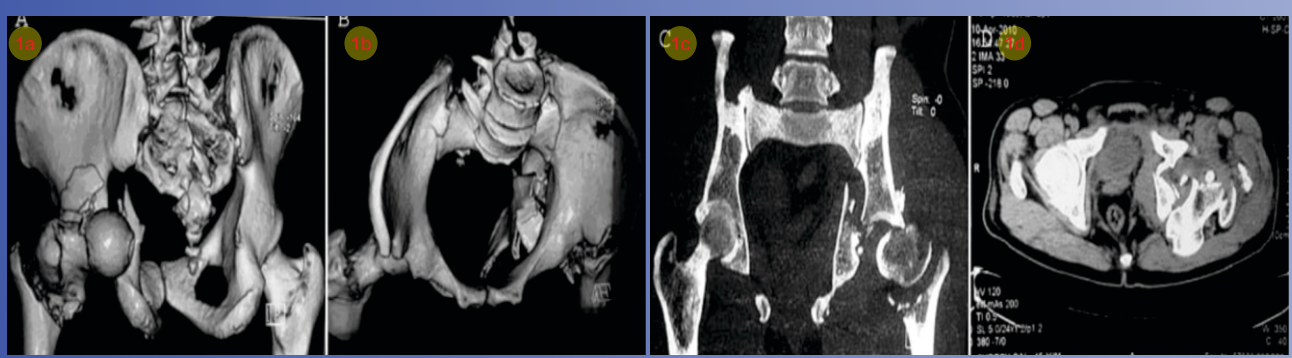


Figure 1: A) and B) three dimensional reconstruction of pelvis, C) coronal section, D) axial section; showing the posterior dislocation of hip with transverse fracture of acetabulum, fracture of posterior wall and intertrochanteric fracture

### Case Report

Forty five year old man had sustained a fall from moving train. After primary stabilization of patient as per ATLS (advance trauma life support) protocol, trauma series radiographs were obtained. Fracture geometry was defined by CT scan which showed posterior dislocation of the hip with transverse fracture with posterior wall fracture of acetabulum and intertrochanteric fracture on the ipsilateral side (Fig. 1A-D). There was also ipsilateral dislocation of shoulder in this patient (Fig. 2). He also had foot drop on ipsilateral side.

He was taken up for surgery in lateral position. Surgical exposure was done by standard Kocher–Langenback approach. On exposure short external rotators and posterior capsules were found torn with ragged margins. The sciatic nerve was found stretched over dislocated head but intact. The trochanteric fracture site was used to pass guide wires in the head of femur, then the trochanteric fracture was reduced under vision and wires were passed in retrograde fashion from head through trochanteric fracture. Head was found vascular on drilling. Stable fixation of intertrochanteric fracture was achieved with dynamic hip screw (DHS) plate fixation

supplemented with derotation screw (Fig. 3). Then the fracture geometry of pelvis and acetabulum was defined. The floor of acetabulum was cleared of debris and relocation of hip was done. The distal part of hemipelvis was found displaced medially and was pulled out laterally through direct traction on a screw placed in posterior column as jockey and with use of tongs.

The postero-superior wall fragment was displaced superiorly and was pulled down with AO type towel clip. Provisional fixation of wall and column were done with k wires. Definitive fixation was achieved with molded eight hole reconstruction plate on posterior column and two partially threaded cancellous screws were used for wall fracture fixation additionally (Fig. 4). The hip was stable after fixation. In the postoperative period, in bed physiotherapy was started after 1 day. Patient could be mobilized with support of a walker after one month because of shoulder dislocation. The radiograph at 6 months shows evidence of fracture union (Fig 5).

### Discussion

Dislocation of hip in an adult male is indicator of a severe injury and it is rare that we see it in combination with fracture on one side of hip, either in femur or in



Figure 2: Antero posterior view of shoulder showing dislocation



Figure 3: Antero posterior view of shoulder showing dislocation



Figure 4: Immediate post operative x-ray of pelvis

acetabulum [3,4]. It is even rarer to find fractures on both side of hip. The femoral fractures usually occur at femoral head, in the neck region, in the shaft and very rarely in the intertrochanteric region. The acetabular fractures generally relate to the type of dislocation, posterior dislocation with posterior wall and column fractures and anterior dislocation with anterior wall fractures. This case shows unrelated fracture of acetabulum (transverse) with posterior dislocation. Chen et al have also described anterior acetabular wall fracture in a case who had posterior fracture-dislocations of the hip[5]. Because of the rarity of this combination the treatment guidelines are not clear. Posterior dislocation of hip poses great danger for vascularity of hip as such because of disruption of the posterior capsule and injury to retinacular arteries. Development of AVN (Avascular necrosis) is also dependent on the severity of the injury to the hip and the duration of the dislocation [6]. Delayed reduction or irreducibility due to trochanteric fracture or posterior wall fracture can be detrimental for vascularity and therefore early reduction is desired for restoration of blood supply to the head of femur. Reduction can't be achieved if there are associated fractures of neck of femur, acetabulum, button holing of head through capsule, displacement of piriformis in the acetabulum, impingement of torn labrum or osteochondral loose bodies [7,8,9]. Association with hip dislocation with intertrochanteric fractures are extremely rare phenomenon with only three cases have been described in the literature.[10,11,12] Possible mechanism of such injuries could be a continuing high degree of force and collision between the greater trochanter and iliac bone [11]. This case had a fall from moving train, so combination of mechanisms might have occurred. Barquet and Mussio [10] reported a case of posterior fracture dislocation femoral head fracture intertrochanteric fracture and fracture shaft of the femur in an 25 year old male patient. He was managed successfully without any complication with a DHS after open reduction. Singh et al [11] also reported an intertrochanteric fracture with inferior dislocation of the hip he treated closed manipulative reduction of the dislocation with the aid of a Schanz screw using C-arm imaging. A dynamic hip screw was then used to fix the intertrochanteric fracture. Recently Alexa et al [12] also treated posterior dislocation of the hip with trochanteric fracture in a 41 year old male. They also found small displaced fragment of posterior wall of acetabulum in their case on C-arm but fracture was not fixed as the

stability of the joint was preserved.

In surgical practice intertrochanteric fracture is operated in supine position but transverse bicolumnar fractures can be fixed in prone position (Kocher-Langenback) or supine (ilio-inguinal approach). There are no clear cut guidelines for operative treatment of combination of both fractures with dislocation of hip. We used Kocher-Langenback approach in lateral position because of posterior dislocation of hip, to examine sciatic nerve as patient had preoperative foot drop and to clear the floor of acetabulum of debris but in this position lateral view image by image intensifier can't be taken for intertrochanteric fracture. By virtue of retrograde placement of guide wire through fracture site correct lateral position was chosen. The problem in fixation of transverse fracture of acetabulum in lateral position is difficulty in reducing the medially displaced distal segment of hemipelvis, as the reducing force is to be applied against gravity

### Conclusion

Early surgery in such cases will optimize outcome in terms of a congruent hip, reducing chance of AVN. The surgical approach is dictated by the dislocation (anterior or posterior) in such cases.

### Clinical Message

Combination intertrochanteric fracture, hip dislocation of with acetabular fracture is an uncommon injury. CT scan is the investigation of choice to establish fracture pattern and surgical planning. Prompt management is required for such injuries to prevent complications.

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