

**CASE REPORT**

# Posterior Hip Fracture -Dislocation Associated with Ipsilateral Intertrochantric Fracture; a Rare Case Report

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**Abstract**

Hip dislocation occurs when the femur does not break and the force is transmitted towards the hip joint leading to a posterior dislocation of the femoral head with or without posterior acetabular fracture. We present the case of a 26 year old patient involved in motor vehicle accident. Clinical and imaging (radiography, CT) examination revealed an intertrochanteric fracture associated with ipsilateral posterior hip dislocation and posterior acetabular wall fracture simultaneously with ipsilateral tibial and fibular fractures. Such associations is very rare and can be explained by an extremely powerful force generated the three lesions simultaneously. This case is important not only because of its extreme rarity but also because of treatment method.

**Key words:** Hip, Hip dislocation, Hip fracture-dislocation, Intertrochantric fracture

**Introduction**

The hip joint is inheritably stable, so too much force is needed to dislocate. Dislocation of the hip is usually caused by high-energy trauma. The indirect mechanism of injury occur in car accident where the knee in flexion against the car board; the impact is transmitted through the patella and the femur, reaching hip level and pushed the femoral head towards the posterior (1,2).

Femoral head and acetabular fractures are commonly associated fractures with hip dislocation. But a case of posterior hip dislocation with posterior wall acetabular fracture and ipsilateral intertrochantric fracture following a motor vehicle accident is very rare. A review of literature indicated a few case reports has been described as posterior hip fracture- dislocation simultaneously with an intertrochanteric fracture (1,3,4).

**Case Presentation**

A 26 year- old man admitted to our emergency department at Shahid Kamyab Trauma Center, Mashhad, Iran, after road traffic motor vehicle accident.

Patient was awake with and GCS=15. The chief

complaint was severe pain in his right hip and right leg. On examination, his right leg was 3cm shorter and rotated externally with an open wound in the thigh (1 cm length) and swelling in the right knee, ankle and foot and ecchymosis around right chest, right groin and right foot. Vascular and neurological examination was normal. Examination of other limbs showed no injury. Standard radiographs in anterior - posterior (AP) showed a posterior hip dislocation associated with posterior wall acetabular fracture and ipsilateral intertrochantric and ipsilateral midshaft tibial and fibula fractures (Figure 1).

Computed tomography scan of the hip confined the injury ( Figure 2). Cervical spine and chest x-rays were normal.

In emergency operating room, we gently tried for closed reduction of the hip dislocation under general anesthesia with Allis maneuver. X-ray confirmed successful reduction of the hip dislocation (Figure 3).

Then surgical reconstruction of the fracture dislocation was performed 24 hours after injury under general anesthesia by using a posterolateral approach. The acetabular fracture was reduced and fixed with a 3.5 reconstructive plate. Then, we extended the approach distally

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Figures 1A and B. Ipsilateral hip dislocation, intertrochanteric fracture, posterior acetabular wall fracture and both bone leg fracture.

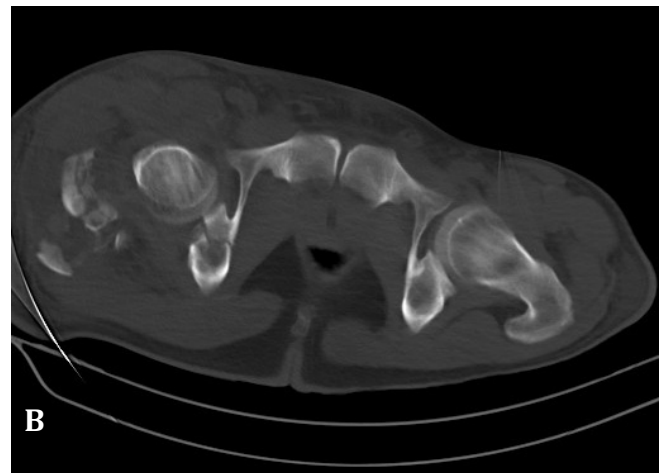
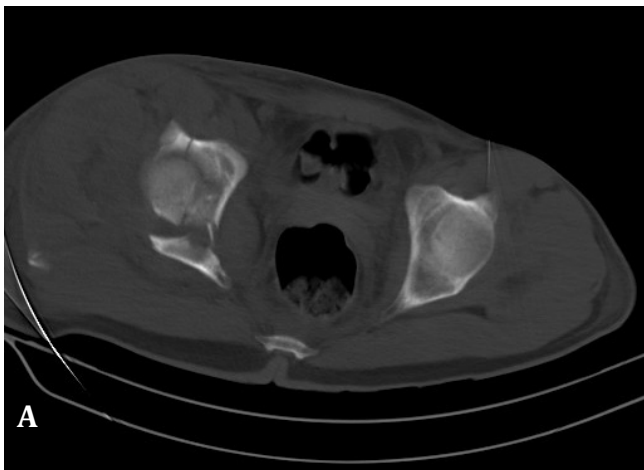


Figure 2 A and B. Control CT scan after closed reduction, hip is reduced and posterior wall fracture.



Figure 3. Control x-ray after closed reduction of the hip dislocation.



Figure 4. AP x-ray of the pelvis after open reduction and internal of acetabular fracture and intertrochanteric fracture.

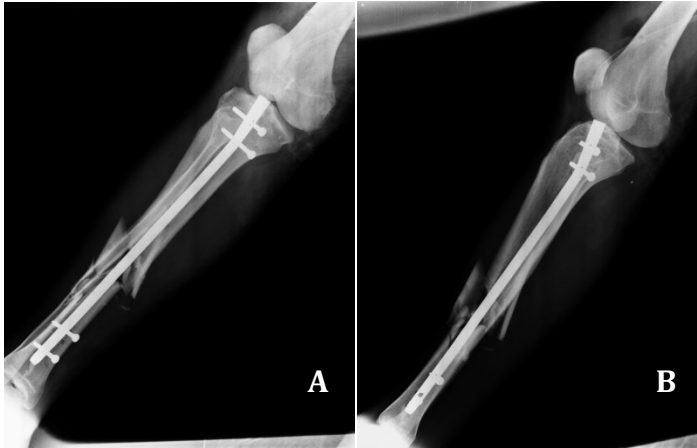


Figure 5A and B. AP and lateral x-rays of the right leg after closed IM nailing.

to reduce and fix intertrochantric fracture with applying a dynamic hip screw (DHS) (Figure 4). Two days later tibia fracture was repaired by closed intramedullary nailing. (Figure 5).

Seven days after the surgery he was discharged from the hospital. The patient allowed to start touch-down ambulation with crutches from fourth day postoperatively. This minimal weight bearing status was continued for 12 weeks. At last follow-up after 12 months after surgery, fractures were healed with heterotopic bone formation around the hip and no radiological sign of avascular necrosis (Figure 6). The hip range of motion was partially limited and the patient could walk independently without pain.

### Discussion

The hip joint is one of the most stable joints in the body



Figure 6. One year follow-up pelvis x-ray shows that both acetabular and Intertrochantric fractures are united with no sign of AVN but heterotopic bone formation is visible around the hip.

due to its ball and socket architecture and tight ligamentous and muscular structures. Association between hip dislocation and posterior acetabular wall fracture is very frequent but with intertrochantric fracture it is very rare (5). In this presentation we described a case of posterior hip dislocation associated with acetabular fracture and intertrochantric fracture simultaneously. Up to now there have been different classifications described for acetabular fractures, hip dislocation and intertrochantric fractures separately such as Pipkin, Brumback, OTA, Evans, Boyd and Griffin, but we think our case couldn't be classified in any of them (6,7,8).

Alexa *et al* reported a case of posterior hip dislocation and intertrochantric fracture that was treated by hip closed reduction and then fixing the trochantric fracture with dynamic hip screw (DHS)(4). Yosefi *et al* reported another case with hip dislocation, acetabular posterior wall fracture and intertrochantric fracture. First they reduced the hip and fixed the acetabular fracture. In another stage they used fracture table and fixed intertrochantric fracture. They reported that movements in operated hip joint were terminally restricted and dorsal right foot had numbness (1). In the present case we performed both posterior wall and intertrochantric reduction and fixation in one session of surgery and patient was in lateral position.

A few authors support early open reduction of hip fracture dislocation associated with an intertrochantric fracture (4,9,10). In this case in order to decrease the damage to capsule and articular cartilage, despite difficulties, we attempted close reduction and fortunately it was successful.

The most probable complication of such cases is avascular necrosis (AVN) of the femoral head. According to most authors, performing an open reduction for the hip joint dislocation may also increase the risk of developing AVN (4,9). Our patient did not have any sign of AVN after 1 year follow-up.

In conclusion this case report is important due to the rarity of this injury. The association of the intertrochantric and posterior wall fractures and hip dislocation is atypical and difficult to explain through common mechanisms and classifications. Early management including trying closed reduction for the hip and internal fixation of acetabulum and intertrochantric fractures are mandatory.

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