

## Case Report

# Fracture of neck of femur with fracture of posterior column of acetabulum: a rare case of floating hip

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### ABSTRACT

Injuries around the hip joint are one of the most common orthopedic injuries and these types of injuries are grossly debilitating until treated properly. Simultaneous occurrence of fracture of proximal femur with fracture of ipsilateral acetabulum or pelvis is termed as floating hip injury. These injuries are very rare, only to be found 1 in 10,000 as well as there is lack of literature support regarding proper treatment protocol. Here we are going to present a case of fracture of neck of left femur along with fracture of left acetabulum in a 45 years old male undergone road traffic accident.

**Keywords:** Hip fracture, Fracture neck of femur, Fracture acetabulum, Floating hip, KL approach

### INTRODUCTION

Fracture of pelvis or acetabulum with associated ipsilateral femoral neck or trochanter fracture is termed as floating hip injury. These types of injuries are very rare, found only 1 in 10,000 hip injuries.<sup>1-3</sup> Moreover, fracture of femoral neck with fracture of posterior column are rarely found. Only 1 or 2 cases like this are reported in literature. Due to paucity of literature there remains an obscurity regarding proper treatment protocol and subsequent prognosis of these injuries. Such cases are really challenging for any surgeon and multiple surgeries may be required.

### CASE REPORT

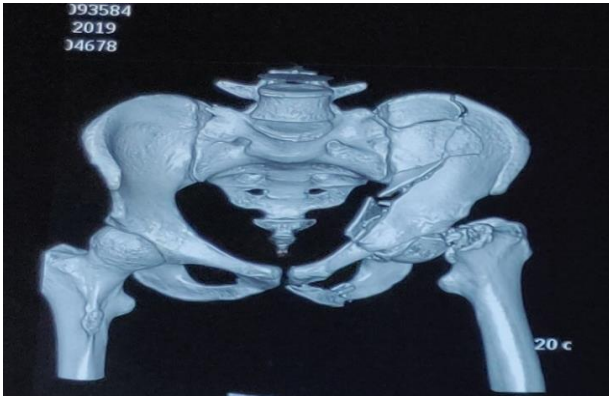
A 45 years old male patient without any significant medical comorbidities presented in casualty department with closed trauma of left hip secondary to trauma. He underwent road side accident. Immediately after trauma patient was unable to stand on his limbs and felt excruciating pain and deformity on left hip. After general physical examination no, other significant injury was found.

On physical examination patient was unable to do active straight leg raise. There was significant swelling around left hip. Distal pulse was comparable to normal side. No motor or sensory deficit was found on ipsilateral lower limb.

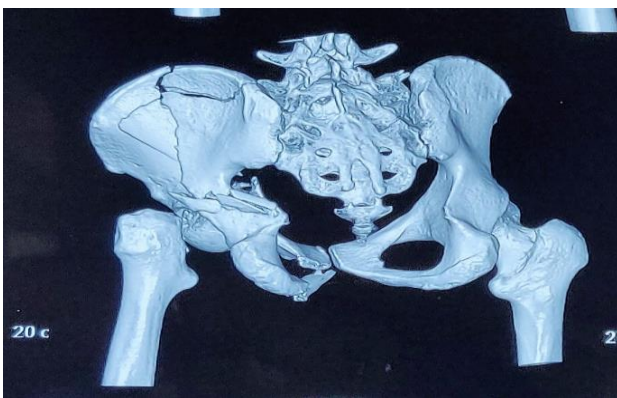


**Figure 1: Fracture of left sided neck of femur with ipsilateral fracture of acetabulum and inferior pubic rami.**

Plain antero-posterior radiograph of pelvis revealed fracture neck of femur with fracture acetabulum on left side. Iliac oblique and obturator oblique views were taken. Computed tomography of pelvis was done and 3D reconstruction images were studied. It was found to be an anterior column with posterior hemi-transverse fracture of acetabulum of left side with intraarticular extension. Initial management was done by skeletal traction through upper tibial pin. Pre-operative anesthetic work-up and pre-operative planning was done.



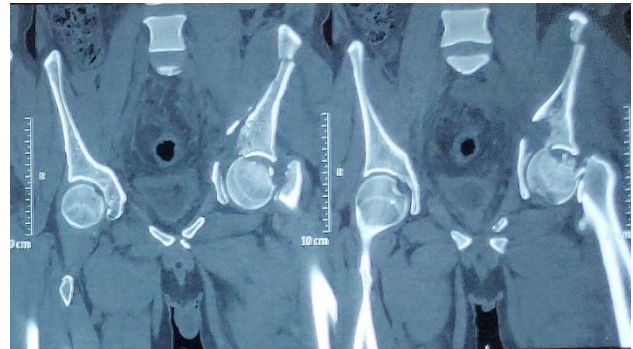
**Figure 2: Fracture of left sided neck of femur with fracture anterior column with quadrilateral plate extending to iliac wing and fracture of inferior pubic rami.**



**Figure 3: Fracture of neck of femur with fracture of posterior column and posterior wall of acetabulum extending to iliac wing.**

Surgical fixation was done on 6<sup>th</sup> day after trauma. Patient was given epidural analgesia. After that, patient was kept on right lateral position on operating table. Skin incision was given on left buttock and left hip with posterior wall of acetabulum exposure done through Kocher-Langenbach approach. After that fracture was reduced and fixed with 8 holes recon plate with 6 cancellous screws. A window was made through skin incision anteriorly and via this window vertical fracture of acetabulum was fixed and augmented with 5 holes recon plate with 3 cancellous screws. Next patient was positioned supine. Fracture neck of femur was reduced and fixed with 3 CC screws in inverse triangle

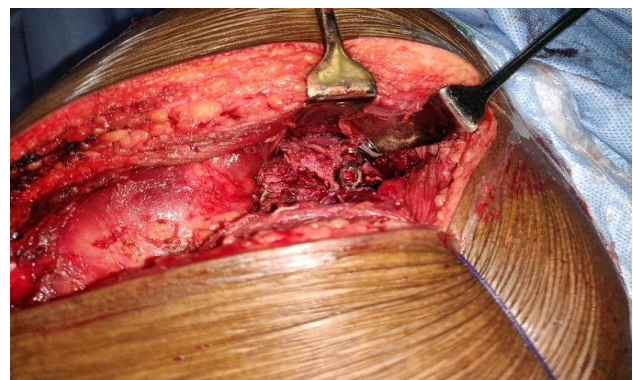
formation. Post-operative radiograph showed a good reduction. Patient was kept in general ward for 5 days after surgery and then discharged. Skin sutures removed on 14<sup>th</sup> day after surgery. Patient was kept in follow up and radiograph at regular interval of 2 weeks, 1 month, 3 months, 6 months and 1 year showed gradual fracture healing. On each follow up patient was clinically assessed. No complication was noticed during follow-up. Patient was kept non weight bearing for 3 months and then partial toe-touch weight bearing was allowed after that. Full weight bearing was allowed at 6 months.



**Figure 4: Coronal sections showing fracture of quadrilateral plate as well as weight bearing dome of acetabulum along with fracture neck of femur.**



**Figure 5: Intra-operative photograph showing reduction of posterior column fracture.**



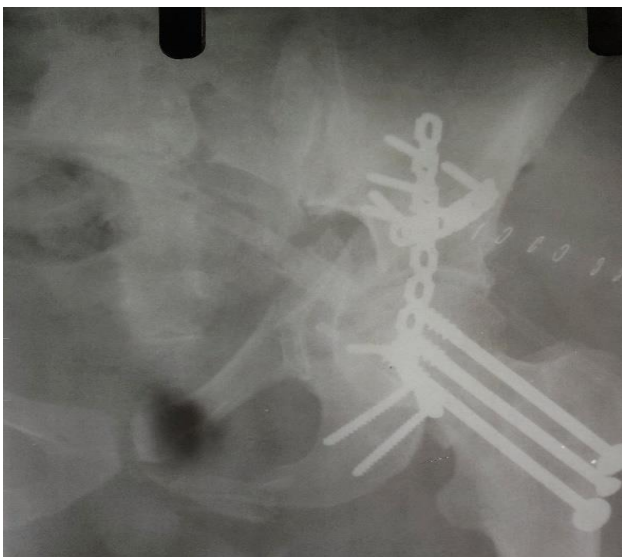
**Figure 6: Intra-operative photograph showing application of recon plate on posterior column.**

## DISCUSSION

Floating hip injuries are a rare presentation.<sup>1,2,4</sup> Moreover, a case with a similar presentation to the one discussed in our report is even more rare. The management of such cases is difficult due to their low incidence and paucity in literature regarding their management.<sup>4-7</sup>

Whenever one comes across a patient with the associated fractures as shown in our case, two main issues need to be planned before surgery. The first issue is with regard to which fracture will be addressed first, and the second issue is with regard to the implant to be used. Kregor suggested prioritising the acetabular fracture first in fixation.<sup>6</sup> Liebergall et al stated that fixing the femur first would help in easy reduction and traction while fixing the acetabulum.<sup>1</sup> Oh et al reported a similar case like ours where they used screws for the femoral neck and retrograde nail for the femoral shaft.<sup>7</sup>

Judet et al proposed that posterior acetabular fractures are due to a direct blow to the greater trochanter with hip at 30-50° of flexion or an axial blow through knee with hip at 90-100° of flexion.<sup>8</sup> Regarding our case it may be hypothesized that injury was due to fall from two-wheeler and subsequent axial blow through femoral shaft transmitted to posterior column of acetabulum. Associated femoral neck fracture occurred due to high velocity of trauma and shearing force at the neck during injury.



**Figure 7: Post-operative radiograph showing posterior column fixation with recon plate and neck of femur fixation with cannulated screws.**

## CONCLUSION

In our case there was comminution present in acetabular fracture but femoral neck fracture was relatively simple. This may be attributed to the fact of non-development of avascular necrosis in femoral head.

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