Fracture acetabulum with central dislocation of hip treated with iliopinguinal approach: A case report

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ABSTRACT

Acetabulum fracture is an enigma and is a challenge to treat especially in the third world countries. True central fracture dislocation with femoral head completely dislocated medially in to the pelvis after fracturing quadrilateral plate, is an unusual injury that requires urgent treatment. Such a case of central fracture dislocation in 24 year old male was treated at our institute with open reduction through iliopinguinal approach. Internal fixation using an unconventional method of using interfragmentary screws through quadrilateral plate, and plating on the day of injury. Good reduction of fracture and stable fixation was achieved.

Keywords: Central fracture dislocation, Iliopinguinal approach, Internal fixation.

INTRODUCTION

There is increase in the incidence of high velocity trauma resulting in complicated acetabulum fractures due to modernization1. The surgical treatment of acetabular fractures is a complex area that is being continually refined1,2. Central fracture dislocation is an emergency and needs urgent treatment. It breaks the quadrilateral plate that is flat plate of thin bone forming boundary of pelvic cavity and acetabular wall1,2,3. Conventionally screw fixation through this plate is not used due to danger of penetrating the acetabulum4,5. Central fracture dislocation may be associated with the injury to viscera and neurovascular components that needs more emergent treatment2. Radiograph anteroposterior and Judet view and CT scan with three dimensional reconstructions is needed for proper planning of surgery6. Neurovascular status of the patient should be checked before the surgery. Even after surgery there are chances of osteoarthritis, osteonecrosis and infection.

MATERIAL AND METHODS

This case a 24 year old male presented to our institution after road traffic accident with severe pain in right hip. On preliminary examination patient was stable haemodynamically. Right lower limb was found to be obviously shorter then left and adducted. Radiographs confirmed the suspected diagnosis of hip dislocation (Fig 1). An urgent CT scan was done with finding of central fracture dislocation and fracture of quadrilateral plate along with anterior wall and posterior wall of acetabulum (Fig 2).

Patient was taken up for surgery after initial investigations were found normal. Iliopinguinal approach was used to reduce the femur and repair the fracture anatomically. Further all intrapelvic soft tissue injuries were ruled out. Fixation was done with two interfragmentary screws those were put through the quadrilateral plate fragments to fix these fragments with iliac...
bone an unconventional approach. During this screw fixation special attention was paid to prevent the penetration of screw through the bone into acetabulum. A reconstruction plate bent to buttress the quadrilateral plate was used to strengthen the fixation further. Intraoperatively good reduction with anatomical alignment and apposition of fragments was found. Post operative radiograph confirmed the same according to Matta’s criteria (anatomic reduction <1mm; imperfect 1–3mm; poor >3mm). Patient was kept non weight bearing post surgery, though movement of hip joint and physiotherapy started next day.

**DISCUSSION**

The quality of acetabular fracture reduction is the single most important factor in long term outcome of patients. The goal of acetabular fracture treatment is to have a hip with good long-term function and the avoidance of posttraumatic osteoarthritis. Letournel and Judet introduced the operative concepts of open reduction and internal fixation for acetabular fractures\(^1\). The extent of influence the initial fracture pattern has on clinical outcome of acetabular fractures has been studied. Letournel and Matta demonstrated that the fractures reduced to within 1mm of residual articular displacement have less incidence of posttraumatic arthritis and have a more durable and long-lasting functional hip joint than those fractures with 1 to 3 mm of residual displacement\(^1\). Absolute reduction was needed in this case of central fracture dislocation. This reduction of quadrilateral plate may not be possible without interfragmentary screw fixation, which is difficult and an unconventional approach due to thinness of bone at this particular segment of acetabulum\(^3,7\). But if utmost precaution is used during this procedure so that screws do not penetrate in to acetabulm

this can produce excellent results. Various surgical exposure options are ilioinguinal and iliofemoral or Kocher langenbach\(^1\). Selection of the surgical approach depends upon the type of fracture and possibility of post surgery complications. Over the years the use of ilioinguinal approach was emphasized because of the good results it usually provided including non development of heterotopic ossification and quick rehabilitation\(^5\). Giannoudis et al stated that incidence of heterotopic ossification is overall 25.6% and differs with surgical approach with highest incidence of 23.6% for iliofemoral approach and incidence of 1.6% for ilioinguinal approach. Chiu et al reported incidence of 5.6% with ilioinguinal approach and 66.7% in cases operated by iliofemoral approach. In case of central fracture dislocation ilioinguinal approach is better for proper reduction of fracture and internal fixation with plate buttersesing the quadrilateral plate. It can also rule out any visceral or neurovascular injury in the pelvis.\(^9\)

**CONCLUSION**

Urgent reduction of femoral head in the acetabulum and anatomical reduction of acetabular fracture with less then 1 mm gap is needed for long term good results in case of central fracture dislocation. Ilioinguinal approach is good surgical approach for this combing easy and good reduction and decreased long term complications of heterotopic ossification Interfragmentary screw through quadrilateral plate may be used for best possible results of absolute anatomical reduction. But every precaution should be taken to avoid penentration of acetabulm

**REFERENCES**