

Obturator Dislocation of Hip with Ipsilateral Fracture Neck Femur- A Case Report

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Learning Points for this Article:

Obturator dislocation and ipsilateral fracture neck femur is a rare injury. In the presence of a significant sized chondral injury, it is sensible perform head replacing surgery. The Antero-lateral or lateral approach is best suited to deal with this kind of injuries.

Abstract

Introduction : Traumatic dislocation of hip with ipsilateral fracture neck femur is a rare injury because the different mechanism of both these injuries. The management of such injuries is a challenge as the chances of nonunion and avascular necrosis of femoral head are very high with fixation methods. We report a case of obturator dislocation of the hip with ipsilateral fracture neck of the femur which was treated with uncemented total hip replacement.

Case Report: A 32-year-old male sustained obturator dislocation with ipsilateral fracture neck femur following road traffic accident. After initial assessment and treatment, definitive treatment was carried out. Hip was approached through Watson-Jones approach. The head and neck was found to be dislocated and lying close to obturator foramen. A button hole through the anterior capsule and medium-sized chondral defect of the femoral head articular surface was noted. An uncemented total hip arthroplasty was performed. Post-operative period was uneventful and the patient was mobilized weight-bearing as tolerated with walker. He was discharged on the 5th post-operative day. He regained pain-free good range of motion over a period of 6 weeks.

Conclusion: Fracture pattern combining obturator dislocation and ipsilateral fracture neck femur is a rare injury. Although both head preservation and replacement methods of treatment are available, the choice of treatment depends on duration of injury, age of the patient, associated chondral injuries of femoral head, and the choice of the patient. The anterolateral or lateral approach helps to deal with the anteriorly lying head in a better way as compared to the posterolateral approach.

Keywords: Obturator dislocation, ipsilateral, neck femur fracture.

Introduction

Traumatic dislocation of the hip with ipsilateral fracture neck femur is a rare injury because the mechanisms of both these injuries are different. Anterior dislocation of the hip is caused by forcible abduction and external rotation. In abduction, the femoral neck and trochanter impinge on the acetabular rim, and as a result, the femoral head is levered out of the acetabulum and is pushed toward anterior part of the capsule resulting in anterior dislocation of the hip. Flexion of the hip during this maneuver results in obturator type of dislocation [1]. If this

abduction force continues, the capsule tears anteriorly and head gets stuck inside the capsule (buttonholing), resisting further movements of the head and leading to fracture neck of femur [2]. The management of such injuries is a challenge as the chances of avascular necrosis of femoral head are very high with fixation methods [2, 3, 4].

We came across a 32-year-old male who sustained head-on collision while driving a two-wheeler resulting in obturator type of hip dislocation with ipsilateral fracture neck femur. He was treated with uncemented total hip replacement.

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Figure 1: 3D computed tomography scan showing the left-sided fracture neck femur with obturator dislocation.



Figure 2: Immediate post-operative X-ray with the left-sided uncemented total hip arthroplasty.

Case Report

A 32-year-old male patient was brought to the emergency department following a road traffic accident. He was driving two wheeler and sustained a head-on collision with four wheeler resulting in sudden halt and fall from the bike. His hip was in flexion, abduction, and external rotation with shortening of the affected leg. After initial stabilization and examination, radiographs were done which showed an obturator type anterior dislocation with fracture neck of the femur. Computed tomography scan was done to rule out for any acetabulum fracture and any other associated injury (Fig. 1). Patient and family members were consulted and detailed discussion was done regarding the type of injury and the possible treatment options. After knowing all the treatment options and their prognosis, the patient was more inclined toward undergoing a single surgery. After admission, definitive treatment was carried out within about 10 h of injury. A lateral skin incision was made starting from distal and lateral to anterosuperior iliac spine and curved distally and posteriorly over the greater trochanter. Interval between gluteus medius and tensor fascia lata was located (Watson-Jones approach). The anterior capsule was incised longitudinally. Acetabulum was found to be empty. A button hole through the anterior-inferior capsule was noted. The head and neck found to be dislocated and lying close to obturator foramen. Head and neck was retrieved and the articular surface of the femoral head showed the medium-sized chondral defect. Keeping in mind the size of chondral defect, the decision was made to perform an uncemented total hip arthroplasty. An uncemented total hip arthroplasty was performed with standard surgical technique (Fig. 2). Post-operative period was uneventful and the patient was mobilized weight-bearing as tolerated with walker. He was discharged on the 5th post-operative day. He regained pain-free good range of motion over a period of 6 weeks.

Discussion

Anterior hip dislocation with ipsilateral fracture neck of femur is a rare injury. An attempt of closed reduction of this type of injuries can further damage the retinacular vessels resulting in definite devascularization [5, 6]. The treatment of such injuries

is essentially surgical because the reduction of the button holed femoral head back into acetabulum by a closed maneuver is almost impossible once the neck has lost continuity with the shaft [2, 7]. The biggest dilemma a surgeon faces after open reduction of the femoral head into acetabulum is whether to preserve the head or replace it. There are no clear recommendations in literature regarding the management of this type of injuries.

The proponents of preserving the head think that it restores the natural bone stock and avoids the future complications of implant loosening and revision arthroplasty. Furthermore, arthroplasty can be carried out any time later if complications such as nonunion, avascular necrosis, or degenerative arthritis occur [8, 9]. While head preservation seems logical for younger patients, but it can lead to increase in morbidity and mortality in elderly patients due to the possible requirement of another surgery if complications such as nonunion, avascular necrosis, or arthritis develop. The proponents of replacing the head think that it is a definitive procedure, especially for elderly patients, keeping in mind the high risk of avascular necrosis of femoral head and nonunion.

Literature (Table 1)

On literature search, we could identify 8 articles on obturator dislocation with ipsilateral neck femur fracture reporting 5 men and 3 women with average age of the patient was 31.4 (17–48) years. The majority of the cases were treated with open reduction (7 out of 8) and various type of head preservation or head replacement procedures were carried out. Only one case was reduced with closed reduction method aided with Schanz pin and dynamic hip screw fixation was done. This observation clarifies the fact that closed reduction is almost impossible once the neck has lost continuity with the shaft [2, 7]. The single case where the closed reduction was done with the aid of Schanz pin had associated intertrochanteric fracture with comparatively large proximal fragment as compared to neck femur fracture in rest of the cases, which could have made the closed reduction possible. Any attempt of closed reduction in cases of fracture neck femur with obturator dislocation could have disrupted the remaining retinacular vessels resulting in definite devascularization and poor outcome [5, 6].

Another point of debate in obturator dislocation and ipsilateral fracture neck femur is the approach to be used. Review of literature shows that majority of the cases cited were approached through anterolateral or lateral exposure [2, 4, 7, 10, 11, 12] and very few were approached through posterolateral approach [13]. The possible reason to use anterolateral or

Table 1: Review of Literature

Author	Age/Gender	Fracture Configuration	Approach	Associated hip injury	Surgery	Results	Follow-up
Sadler and Distefano 1985 [2]	27/M	Basicervical neck femur fracture with obturator dislocation	Watson-Jones	No injury to head	1.DHS 2. Judet-Meyer muscle pedicle grafting	1.Initial AVN then patchy sclerosis of head and neck after Muscle pedicle grafting 2. Good functional outcome	49 months
McClelland et al. 1987 [13]	28/F	Obturator type fracture and dislocation hip joint	Posterolateral	Deep osteochondral impression fracture of head	Bipolar	Pain-free full range of motion	6 months
Izquierdo and Harris 1994 [4]	17/ F	Subcapital neck femur fracture with obturator dislocation	Lateral transtrochanteric	Small crushed fragment on the posterosuperior aspect of the head-neck junction	Long cancellous screw fixation	AVN but pain-free full range of motion	22 months
Dummer and Sanzana 1999 [10]	48/M	Subcapital neck femur fracture with obturator dislocation	Anterolateral	Indentation lesion of the femoral head	Uncemented THR	Return to work in 8 months	8 months
Esenkaya and Görgeç 2002 [11]	39/F	Subcapital neck femur fracture with obturator dislocation	Lateral	Articular cartilage defect of femoral head	Uncemented THR	-Restricted internal Rotation - Able to carry out all activities unassisted	5 years
Singh et al. 2006 [16]	35/M	Intertrochanteric fracture with obturator dislocation	Closed Reduction aided with Schanz pins		DHS	Full recovery	2.5 years
Allagui et al. 2013 [7]	40/M	Basicervical neck femur fracture with obturator dislocation	Watson-Jones	Not Mentioned	DHS	No evidence of AVN	3 years
Jain et al. 2015 [12]	17/M	Femoral head and neck fracture with inferior dislocation	Anterolateral (modified Hardinge)	osteochondral fragment from the femoral head	DHS	-Full range of motion -moderate heterotopic ossification	4 years

DHS: Dynamic hip screw

lateral approach by most of the authors could be due to the anteriorly lying femoral head and neck fragment. It is easier to approach anteriorly lying head through anterolateral or lateral approach rather than going through posterolateral approach and disturbing the posterior structures also. Tannast et al. [3] described head preserving surgery based on the structural integrity of medial femoral circumflex artery (MFCA) through posterolateral approach by performing trochanteric flip osteotomy and a Z-shaped capsulotomy. However, the lack of any intraoperative modality to confirm the intactness of MFCA can result in avascular necrosis.

Five out of 8 reported cases of obturator dislocation with associated neck femur fracture had osteochondral injuries. 3 out of these 5 cases underwent head replacement surgery while two underwent head preserving surgery. One patient with head preserving surgery developed avascular necrosis of femoral head at 22-month follow-up and while other was doing good functionally except the formation of moderate heterotrophic ossification of the affected hip at 4-year followup. The three patients who underwent head replacement surgery were functionally well from 6 months to 5-year follow-up except one

patient had restriction of internal rotation but was able to carry out all the activities unassisted. Associated femoral head osteochondral injuries may result in degenerative arthritis. DeLee et al. [14] noted that an indentation fracture of more than 4mm in femoral head results in degenerative arthritis. Fissures and indentations of femoral head have been implicated as a cause of avascular necrosis of femoral head [5,15].

In the case mentioned above, because there was a medium-sized chondral defect and patient was not willing to take any chance to undergo another surgery in the near future, the uncemented total hip replacement was performed.

Conclusion

Fracture pattern combining obturator dislocation and ipsilateral fracture neck femur is a rare injury. Although both head preservation and replacement methods of treatment are available, the choice of treatment depends on the duration of injury, age of the patient, associated femoral head chondral injuries, and the choice of the patient. Anterolateral or lateral approach help to deal with the anteriorly lying head in a better way as compared to the posterolateral approach.

Clinical Message

Obturator dislocation of the hip with ipsilateral neck femur fracture is a rare injury. The treatment of such injuries depends on multiple factors such as time since injury, age of the patient, associated injuries, and patient's choice. It is easier to approach anteriorly lying femoral head and neck through anterolateral or lateral approach.

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