Anterior Dislocation of Hip with Ipsilateral Neck of Femur Fracture – A Case Report

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Abstract

Combined fracture neck femur with anterior dislocation of the hip is a very rare and with little resources available in the literature. We hereby report a case condition treated by unipolar arthroplasty with Austin Moore prosthesis with 6-month follow-up showing good radiological and functional outcome. Functional evaluation at the end of follow-up was assessed according to Merle d'Aubigné score modified by Matta JM, which takes into account of the presence of pain, ability to walk, and joint range of motion. The measured functional score was 15 points out of a maximum of 18, signifying a good post-operative result.

Keywords: Anterior hip dislocation, Avascular necrosis

Background

The anatomic features of the coxofemoral joint confer a high degree of stability. Hence, dislocations of the hip usually occur following a high energy trauma, such as road traffic accidents, industrial accidents, sport injuries (e.g., rugby, wrestling, and football), or fall from a height [1]. Moreover, it may also be associated with fractures of acetabulum/neck or shaft of femur posterior dislocation of the hip is approximately 9 times more common than anterior dislocations. The most important factor implicated in the anterior dislocation of the hip is forcible abduction where, in this position, the neck or trochanter impinges on the rim of the acetabulum and this forces the femoral head forward through the anterior capsule. If the hip is in concomitant position of flexion, an obturator-type dislocation may occur. Whereas if the hip is extended, a pubic type dislocation results [2]. If the force is not dissipated, then it causes a complete break in the continuity of the neck. Surgical treatment of these injuries will involve either fixation or prosthetic replacement, and with the limited number of cases described, there remains little in the literature to support a definitive treatment option. The combination between the anterior hip dislocation and the ipsilateral neck of femur fracture is extremely rare, only a few cases (<5) being reported in the literature and hence the relevance of this case report.

Case Report

Case 1

A 65-year-old male patient had a fall while climbing stairs and sustained injury to his right hip and presented to our hospital a week later with complaints of pain in the right hip and inability to bear weight in the right lower limb. On clinical examination, there was severe pain in the groin area with a palpable lump. Popliteal and dorsalis pedis pulses were palpable. X-ray revealed evidence of fracture neck of left femur with anterior dislocation of the femoral head, obturator type (Fig. 1). Computed tomography scan (Fig. 2) shows comminuted transcervical fracture neck of right femur with displaced fracture fragments with dislocation of the head of femur with downward and medial migration of head near obturator foramen. We operated under epidural anesthesia patient in lateral position, using anterolateral approach; we performed hemiarthroplasty with Austin Moore prosthesis (Fig. 4). Post-operative period was uneventful, physiotherapy was started on the next day of surgery, and patient started to bear weight on the 3rd post-operative day. Post-operative X-rays (Fig. 3) were found to be satisfactory, and the patient was discharged on the 6th post-operative day. The patient was followed up on a monthly basis for 6 months; after 6 months, functional evaluation was performed using Merle d’Aubigné score modified by Matta JM (Table 1) which takes in to account the presence of pain, ability to walk, and the joint range of motion, the measure score was 15 out of 18, signifying a good post-operati...
operative result.

Discussion

The hip is a ball and socket type of joint with a good congruence between the femoral head and the acetabulum and reinforced by a thick articular capsule and strong ligaments. All these anatomical features make the hip joint very stable. That is why, hip dislocations usually occur following significant trauma. Hip dislocations can be posterior (most frequent) and anterior (10–15%). The anterior dislocations are described by the Epstein classification [3].

Type I - Superior dislocations
IA: No associated fractures
IB: Associated fracture or impaction of the femoral head
IC: Associated fracture of the acetabulum.

Type II - Inferior dislocations
IIA: No associated fractures
IIB: Associated fracture or impaction of the femoral head
IIC: Associated fracture of the acetabulum.

Anterior dislocations usually result after a high energy trauma, which determines forced abduction and external rotation of the hip. Depending on the position of the hip at the time of the impact, dislocations may be anterior-inferior (if the hip is in flexion) or anterior-superior (if the hip is in extension).

The peculiarity of this case is that, it was anteroinferior dislocation of hip with associated ipsilateral fracture neck of femur in an elderly, the other cases reported in literature have been found to be in young age group due to high energy trauma, and only very few cases have been reported in literature so far. Another rare aspect of this case is the lack of acetabular fractures. The mechanism of this injury is fall on flexed hip. Although the forces that acted during the trauma were strong enough to lead to dislocation of the hip (a very strong articulation) and fracture of the femur (the strongest long bone in the body), they did not produce any bone lesion in the acetabulum. Frequently, hip dislocation is associated with acetabulum fractures. Forces acting on the head of the femur put high pressure on the walls of the acetabulum, which exceeds their strength, breaking them, thus creating new spaces for the dislocation.

Hip dislocation is an orthopedic emergency that must be addressed to the hospital as soon as possible and its reduction must be accomplished as soon as the patient’s condition allows anesthesia and surgery, to avoid further complications.

The main complications that can occur following hip dislocation are avascular necrosis of the femoral head, osteoarthritis, heterotopic ossification around the joint, and paralysis of the sciatic nerve. In our case, no such complications occurred.

The treatment of such dislocation with the neck of femur fracture is essentially surgical because it is impossible to replace the head into the acetabulum by closed methods once the continuity of the head is lost [4]. The concept of head preservation thinks that it restores the nature bone stock and further avoids the complications of implant loosening and further arthroplasty. Head preservation seems to be logical in younger patients, whereas in elderly, it has been found to increase the morbidity and mortality because of the requirement of revision surgery if any complications such as osteoarthritis, avascular necrosis, or non-union develops. The concept of arthroplasty is found to be logical in the elderly because of the complications such
as avascular necrosis and osteoarthritis [5]. McClelland S J et al reported another case with dislocation of the obturator type with ipsilateral fractures of the femoral head and neck treated with a collarless press-fit bipolar prosthesis [6]. Dummer and Sanzana [7] reported a similar case associated with subcapital fracture which was treated by an uncemented total hip arthroplasty. Sadler and DiStefano reported an anterior dislocation of the hip with an ipsilateral basicervical fracture, which has been reduced and was fixed with a hip screw and plate. Their patient developed avascular necrosis, which was treated with pedicle grafting.

Primary arthroplasty is a good option for patients who are old and elderly whereas it is not ideal given the younger age and expected higher functional demand [8]. Thus, early reduction in the dislocated hip decreases the risk of avascular necrosis [9]. A delay of more than 6 h increases the risk of avascular necrosis from 10% to 40% [4]. In this case, arthroplasty is preferred than neck preserving with osteosynthesis because of the delayed presentation of the patient and then elderly age group of the patient. Total hip arthroplasty is ideal for this patient, but because of financial concerns, we have performed unipolar arthroplasty.

### Reference Table 1: Merle d'Aubigné score modified by Matta J M

<table>
<thead>
<tr>
<th>Points</th>
<th>Pain</th>
<th>Walking</th>
<th>Range of motion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>None</td>
<td>Normal</td>
<td>95–100</td>
</tr>
<tr>
<td>5</td>
<td>Slight or intermittent</td>
<td>No cane, but slight limp</td>
<td>80–94</td>
</tr>
<tr>
<td>4</td>
<td>After walking, but resolves</td>
<td>Long distance with cane or crutch</td>
<td>70–79</td>
</tr>
<tr>
<td>3</td>
<td>Moderately severe, but the patient is able to walk</td>
<td>Limited, even with support</td>
<td>60–69</td>
</tr>
<tr>
<td>2</td>
<td>Severe, prevents walking</td>
<td>Very limited</td>
<td>50–59</td>
</tr>
<tr>
<td>1</td>
<td>Unable to walk</td>
<td></td>
<td>&lt;50</td>
</tr>
</tbody>
</table>

**Clinical grade**

| 18     | Excellent                     |
| 15–17  | Good                          |
| 13–14  | Fair                          |
| <13    | Poor                          |

### References


### Conflict of Interest: NIL

Source of Support: NIL