Traumatic Anterior Hip Dislocation in Elderly Male: An Atypical Case Report

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Learning Point of the Article:

Anterior dislocation of hip is a rare entity and surgeons should be quite vigilant to diagnose anterior dislocation of hip joint and immediate reduction should be planned. One should also be vigilant regarding associated fractures and appropriate follow up to rule out risks of AVN of femur head.

Abstract

Introduction: Anterior dislocation of the hip joint is a rare presentation accounting for around 15% of all hip dislocations. Obturator (inferior) type traumatic anterior hip dislocation in adult is rare of all types of hip dislocation. Here, we described a case with same description. It can occur as a result of a high-energy trauma in circumstances such as a motor vehicle accident or a fall from a significant height. A delay in relocation of more than 6 h has been associated with a high risk of avascular necrosis of the femoral head.

Case Report: We reported the case of a 70-year-old man who suffered an anterior dislocation of his hip joint who was brought to the emergency room with a history of fall from the bicycle hit by a motorcyclist from his back. After examined clinically and radiologically, the patient was diagnosed with obturator type of anterior right hip dislocation. Closed reduction under short general anesthesia was planned.

Conclusion: Inferior hip dislocations are very rarely seen injuries with severe high-energy trauma. The reduction must be done as soon as possible because it involves the functional prognosis of the hip by the risk of necrosis of the femoral head and subsequent osteoarthritis requiring long-term monitoring.

Keywords: Femoral head, hip dislocation, obturator injury.

Introduction

Traumatic hip dislocation is serious injuries that are associated with significant long-term morbidity, most notably avascular necrosis (AVN) and post-traumatic osteoarthritis [1]. Given the inherent stability of the hip due to its osseous, labral, ligamentous, and muscular anatomy, dislocations require significant force and are typically associated with fractures of the acetabulum or femoral head [2]. They typically occur in young patients in the setting of high-energy trauma and are increasing in incidence, predominantly due to motor vehicle crashes, which cause between 62% and 93% of all hip dislocations [3]. In contrast, fractures of the femoral neck are more common in older patients [4], unless there is a concomitant systemic disease in younger patients [5]. Traumatic hip dislocation can be divided into posterior, anterior, and inferior types. Posterior accounting for 85–90% of cases, anterior comprising 10–15%, and inferior comprising 2–5%. Obturator (inferior) type traumatic anterior hip dislocation in adult is rare of all types of hip dislocation. In the present case, reported to the hospital plane radiograph revealed obturator type of anterior right hip dislocation; on the basis of limb presentation and radiological findings, closed reduction was carried out under low duration general anesthesia and followed up after 6 weeks.

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Case Report

We reported the case of a 75-year-old male who was brought to emergency room with a history of fall from the bicycle hit by a motorcyclist from back. After examined clinically and radiologically, the patient was diagnosed with obturator type of anterior right hip dislocation. Clinically, the patient was found to have apparent limb lengthening and hip flexion and external rotation. Plane radiographic examination (Fig.1) revealed the right anterior hip dislocation on the basis of these findings closed reduction under short general anesthesia was planned within 8 h.

In the operation theater, the patient was put in a supine position under the effect of anesthesia and muscle relaxant. The pelvis was fixed by an orthopedic surgeon and applied a lateral traction force to inside of the thigh while another surgeon performed a longitudinal axial traction of the right leg and hip is slightly flexed till the femoral head was relocated into the acetabulum, which was checked by fluoroscopy (Fig. 2); it is referred to as Allis maneuver. At that moment, the hip was flexed and internally rotated and the fluoroscopic examination showed accurately relocated hip.

Following reduction, the patient was transferred to orthopedic ward with limb in abduction and was examined carefully for any neurovascular injuries. X-ray taken 1 day after the reduction revealed a congruent right hip and no fracture signs (Fig. 3).The patient had an uneventful post-operative course and was immobilized for 3 weeks with progressive weight-bearing for 6 weeks. At 6–8 months follow-up, the patient is out of any complaints with a full range of motion of the right hip. X-ray in two planes shows a congruent right hip without signs of AVN or osteoarthritis and the patient is still under follow-up and advised follow-up after every 6months to rule out AVN/ osteoarthritis.

Discussion

The posterior dislocation of the hip is by far the most common type with a reported ratio of anterior to posterior dislocations ranging from 1:10 to 1:19 [3, 6]. Traumatic anterior dislocations, which account for 10–15% of all hip dislocations, are rarely reported in literature. After extensive research of literature, it has been found a paucity of data availability in context to anteroinferior dislocation of hip. An inferior hip dislocation is a rare type of hip dislocation that is not widely reported in literature. Only 12 cases are reported in British literature [7].

Anterior hip dislocation occurs when the knee strikes a dashboard with the thigh abducted or due to fall from a considerable height or from a blow to the back while in a squatting position [3, 6]. Anterior dislocations are of two main types depending on the amount of hip flexion at the time of impact: Superior, where the femoral head is displaced into the iliac or pubic region and inferior, where the femoral head lies in the obturator region. Out of these anteroinferior type is one of the rare presentations that have been reported here. Anterior hip dislocations can be associated with femoral neurovascular injury [8], femoral head fractures [9], and acetabular fractures. The initial treatment for a patient with hip dislocation is gentle and prompt reduction within 6 h and preferably under general anesthesia to prevent and minimize complications [10].

Appropriate management includes prompt reduction of any hip dislocation is imperative. According to literature, methods used for anterior hip dislocation reduction include closed and open methods of reduction. Closed methods for reduction of an anteriorly dislocated hip include various maneuvers which are Allis maneuver, Captain Morgan technique, reverse Bigelow's technique, and Stimson maneuver. Multiple attempts may result in failure and prompt open reduction. Indications for open reduction include a non-concentric reduction (indicating a retained loose body or significant soft tissue injury preventing proper reduction), associated acetabular or femoral head fracture that will require an open repair, femoral neck fracture, and adislocation that is not reducible by closed reduction techniques [11].

An important complication following traumatic dislocation of the hip is prolonged and irreversible ischemia of the head of the femur, leading to osteonecrosis in 10–30% or more of cases, particularly if the dislocation is accompanied by severe bone

Figure 1: Radiographic image showing the right anterior dislocation of hip.

Figure 2: Fluoroscopic image showing anterior dislocation of the right hip joint.

Figure 3: Radiographic image showing post-reduction imaging.

destruction. Rapid identification and reduction arecritical, as prolonged dislocation increases the risk of developing AVN of the femoral head, and post-traumatic osteoarthritis is a common complication, even in the absence of associated fractures. Traumatic hip injuries have high morbidity and mortality rates due to multiple organ damage, primarily of the extremities, chest, and abdomen [12, 13, 14]. In another study conducted by Beebe et al. stated that osteoarthritis, osteonecrosis, heterotopic ossification, and sciatic nerve palsy could be the complications [15].In our case luckily, the situation was not life threatening; in otherwise, it could lead to additional vital organ injuries sustained in the severe high-energy trauma.

Identification and timely management of hip dislocation are highly dependent on imaging, both at presentation and after attempted reduction. It is imperative for the radiologist to understand imaging features that guide the management of hip dislocation to ensure timely identification, characterization, and communication of clinically relevant results. Accordingly, evaluation of hip dislocation requires not only radiographic detection of subtle findings of dislocation and urgent communication to the treating physician but also the inference of potential associated secondary osseous and softtissue injuries that could place the patient at risk for early osteoarthritis[16].

Conclusion

Anteroinferior type of hip dislocations isvery rarely seen injuries with severe high-energy trauma and also paucity of data availability in context to this rare presentation makes reporting such a case necessary to know the risks and benefits involved. Concomitant extremity fractures with additional vital organ injuries may lead to a life-threatening condition. The reduction must be done as soon as possible because it involves the functional prognosis of the hip by the risk of necrosis of the femoral head and subsequent osteoarthritis requiring long-term monitoring.

Clinical Message

Traumatic anterior hip dislocations are all around once in a while observed high-energy trauma. A detailed evaluation of emergency presentation, a multidisciplinary approach, and early assessment with the quick use of imaging modalities could be lifesaving for such patients.

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