Bilateral Traumatic Hip Dislocation: Simultaneously One Hip Anterior and the Other Posterior-A Case Report

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ABSTRACT

Bilateral traumatic hip dislocation is a very rare condition. While traumatic unilateral hip dislocation has been commonly reported, simultaneous anterior and posterior traumatic dislocation of both hips is even more unusual. Early diagnosis and timely reduction of such dislocations under anesthesia are necessary for prevention of complications. A case report of a bilateral asymmetrical hip joint dislocation with an unusual mechanism for this injury in a 45 year-old pedestrian woman is presented here. To the best of our knowledge, this case report is the first of its kind in a female patient.

Keywords: Hip Dislocation; Trauma; Avascular Necrosis

INTRODUCTION

Traumatic hip dislocations only occur following a high-velocity trauma because hip joint is an inherently stable joint and requires a significant amount of force to dislocate [1, 2]. Simultaneous bilateral hip dislocations occur in 1.2% of all hip dislocations with simultaneous one-side anterior and one-side posterior hip dislocations (asymmetric dislocation) being even less commonly reported [3]. The position of hip joint at the time of injury determines the direction of dislocation and the proposed mechanism is that if the leg is adducted-flexed and internally rotated, posterior dislocation occurs, whereas if the leg is abducted-flexed and externally rotated, anterior dislocation occurs [4-6]. The most important prognostic factor after traumatic hip dislocation is the time period prior to reduction and reduction should be performed within the first six hours as the rates of avascular necrosis head of femur for the cases with early and delayed reduction were reported as 6 to 27% and 48%, respectively [4-10].

In addition, the force of initial trauma and recurrent maneuvers for hip reduction increase the risk of avascular necrosis (AVN) head of femur [11]. Sciatic nerve injury can occur at a rate of 7 to 19% in traumatic hip dislocation [12, 13]. There is no statistical data available in the literature about complication rates of bilateral hip dislocations because of the insufficient number of reported cases, but it is obvious that complications can occur more often with bilateral than unilateral dislocations. Thus, more careful attention should be given to these cases.

CASE REPORT

A 45 year old female presented to the Orthopedic and Traumatology section of Accident and Emergency (A&E) Department of the Lady Reading Hospital (LRH) Peshawar Pakistan with bilateral asymmetric dislocation of hips, right pubic rami fracture, and right mid shaft clavicle fracture. She sustained these injuries when a high speed motor car hit her while she was crossing the road. She fell down on the road initially and then from the road rolled down into a ditch about eight feet below the road.

Figure 1: X-ray pelvis showing right posterior dislocation,pubic rami fracture and left anterior(obturator) dislocation

It was an unusual mechanism of injury as compared to the other cases of asymmetric hip dislocations reported in the published literature. Upon arrival, she was hemodynamically stable, with a Glasgow Coma Scale (GCS) score of 15. There was no loss of consciousness (LOC) or internal injuries sustained during the accident. The patient arrived at trauma room within one hour of the accident and had obvious deformities of both lower extremities. Her left leg was externally rotated, abducted and slight flexed, while the right leg was held in fixed flexion, internally rotated and adducted. The lower extremities had palpable pulses, with sensation and motor function intact bilaterally. The radiograph (Figure I) showed posterior dislocation of the right hip joint (Thompson and Epstein type I) [14] and anterior dislocation of the left hip joint (Epstein type IIA, obturator type) [15]. Multiple small abrasions and contusions were seen over both knees and left trochanteric region. Both hips were reduced within two hours of presentation by closed manipulation under general anesthesia. The patient was laid supine on the operating table. After the patient was properly anesthetized, closed reduction of the posterior dislocation of the right hip was done using the Allis maneuver 16. The affected hip and knee were flexed to 90 degrees; traction was applied in the line of femur with the assistant holding the pelvis firmly on the table by pressing down both iliac crests. For anterior dislocation of the left hip, a similar maneuver was used; the only difference being that an assistant was instructed to give lateral traction on the proximal thigh with the help of a draping towel. After reduction, the patient was immobilized on bed with skeletal proximal tibial traction applied to both lower limbs.

A radiograph (Figure 2) and computed tomography (CT scan) (Figure 3) after reduction confirmed concentric reduction and excluded any intra-articular fragments. Poly sling was applied for clavicle fracture. She was kept on bed rest for three weeks with skeletal traction. The clinical course and follow-up assessment of the patient was uneventful. Patient was followed regularly and was last seen 12 weeks following injury (Figure 4). She was fully mobilized without crutches or support.

DISCUSSION

Bilateral asymmetric hip dislocations are very rare. In review of literature to date, we found only 58 reported cases of bilateral traumatic hip dislocation [17, 18]. Because of the violent trauma involved in these injuries, these dislocations are often associated with fractures of the acetabulum, head of femur, neck of femur, trochanter, and even shaft of femur [19, 20]. In contrast, our case presented with only right pubic rami fracture and right clavicle fracture. Examining the various modes of injury described in published literature for bilateral asymmetric dislocations of the hip joints, they ranged from pedestrian being hit by a car to head on collision of vehicles, dash board injuries and motorcycle crash [1, 3, 21, 22]. The single common mechanism involved in most of these cases was a sudden deceleration injury. In contrast, the mode of injury in the present case was found to be different and was likely a combination of high velocity initial impact injury when patient was directly hit by a motor car on left anterior thigh

Figure 2: Post reduction x-ray pelvis showing concentric reduction of both hip joints

region that forced her left hip to go into sudden abduction and external rotation, thereby dislocating the femoral head anteriorly followed by a fall from a height of about 8 feet down the road. During the fall, she probably landed on the anterolateral aspect of her right knee with a flexed and adducted left hip, and her bodyweight and the momentum of the fall resulted in dislocation of the right hip posteriorly. This secondary impact involved in this case was probably also responsible for right pubic rami fracture and right clavicle fracture.

In our patient, reduction of posteriorly dislocated left hip joint was done by the commonly used Allis maneuver [16]. For the anterior dislocation, the recommended maneuver is similar to the Allis method, but with an addition of lateral traction by an assistant [23]. This lateral traction dislodges the femoral head from the anteromedial soft tissues around the obturator foramen region. A similar method of manipulation was used in our case, and both hip joints were reduced without much difficulty. To rule out the presence of any intra-articular loose fragment, Dudkiewicz [19] advised a routine post-reduction CT scan, as we did in our case, but fortunately no intra-articular loose fragment was found.

Both skeletal and skin traction methods have been recommended for varied durations (3 to 8 weeks) in literature [1, 24]. Although, there are also opinions against such prolonged immobilization of patients on bed, we kept the patient on bilateral skeletal traction for three weeks before starting mobilization exercises.

Figure 3: Post reduction CT scan showing concentric reduction of both hip joints

Figure 4: X-ray pelvis at 12th week of follow up

Importantly, incidence of AVN of the femoral head is often determined by the delay in reduction of the dislocated hip [1-3, 20]. The risk of AVN may range from 8% to 15% in closed reduction cases and may go up to as high as 40% in cases requiring operative reduction [1]. Agarwal [3] has recommended a routine magnetic resonance imaging (MRI) scan at around three months following injury for early detection of AVN. Incidence of posttraumatic arthritis is approximately 24% in patients of hip dislocations [2, 19, 20].

Our case report illustrated that asymmetric bilateral hip dislocation is an orthopedic emergency and should be reduced under general anesthesia with full muscle relaxation as soon as possible (preferably within 6 hours) followed by post reduction X ray and CT scan. Although rapid deceleration injury is the mechanism involved in most cases, a different mode of trauma may result in a similar injury pattern. It is also essential to follow the patient for evidence of AVN head of femur and posttraumatic arthritis which may develop later.

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