



Bilateral Hip Dislocation in Young Laborer Following 30-Foot Fall without Any Associated Fracture: A Case Report

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Abstract

Rare orthopedic emergency, bilateral hip dislocations are frequently linked to high-energy trauma. We describe the case of a male 22-year-old who fell 30 feet and had bilateral posterior hip dislocations without any related fractures. Within two hours of the injury, the patient was treated with closed reduction while under total intravenous anesthesia (TIVA). This case highlights the significance of early diagnosis, prompt reduction, and meticulous post-reduction management to minimize complications and optimize functional outcomes in such rare presentations.

Keywords: Bilateral Hip Dislocation; Traumatic Hip Dislocation; Closed Reduction; High-Energy Trauma; Avascular Necrosis

Abbreviation

Ft.: Feet; AP: Antero-Posterior; B/L: Bilateral; OD: Once Daily; NSAIDs: Non-Steroidal Anti-Inflammatory Drugs; ROM: Range of Motion; AVN: Avascular Necrosis; RTAs: Road Traffic Accident.

Introduction

Hip dislocation caused by trauma is an orthopedic emergency that requires prompt medical attention [11]. High-energy trauma usually causes hip dislocations, especially in younger people, although proximal femur fractures in the elderly are frequently caused by identical mechanisms [1]. About 90% of all hip dislocations are unilateral posterior hip dislocations, making them the most prevalent form. However, with documented incidence rates of 0.01% to 0.02% of all joint dislocations, bilateral hip dislocations are extremely unusual [2,4].

These type of injuries are commonly associated with concomitant fractures, increasing the complexity of management and po-

tentially worsening the prognosis [4]. High-energy hip dislocations can lead to long-term complications such as avascular necrosis (AVN), sciatic nerve injury, post-traumatic osteoarthritis, and heterotopic ossification [3]. To mitigate these risks, prompt reduction of the dislocated hip is crucial, ideally within six hours of the injury. Closed reduction is generally considered the first-line treatment, with open reduction reserved for cases where closed methods fail or when there are associated intra-articular fractures or incarcerated fragments [1]. This case report describes a rare instance of bilateral posterior hip dislocations without associated fractures in a young adult following a high-energy fall. We aim to emphasize the diagnostic and therapeutic strategies employed, as well as the importance of timely intervention to achieve a favorable outcome.

Case Presentation

A 22-year-old male laborer presented to our trauma center approximately two hours after sustaining a fall from a height of 30 ft. onto a sandbank. The patient presented to us with severe pain

and deformity in both hips, along with the inability to move his lower limbs. His past medical history was unremarkable, and he denied any prior hip problems. On initial examination, the patient was conscious and alert, with stable vital signs. Local examination of the lower extremities revealed a characteristic posture indicative of bilateral hip dislocations: both lower limbs were shortened and flexed, adducted, and internally rotated (Figure 1). Palpation of the gluteal regions revealed palpable globular masses bilaterally. Range of motion was severely restricted in both hips due to pain and mechanical block. There were no open wounds or signs of external trauma other than a few superficial abrasions on other parts of the body. Distal neurovascular examination was intact in both lower limbs, dorsalis pedis artery and posterior tibial artery were palpable and no sensory abnormality seen.



Figure 1: Image showing typical deformity of posterior hip dislocation, bilateral lower limb appears to be flexed, adducted and internally rotated.

Diagnostic assessment

Given the clinical presentation, plain radiographs of the pelvis and both hips were immediately obtained. These images confirmed the presence of bilateral posterior hip dislocations without any apparent associated fractures (Figure 2).



Figure 2: AP radiograph of the pelvis with both hips showing bilateral posterior hip dislocations without associated fractures.

To rule out subtle fractures or intra-articular pathology that may not be visible on plain radiographs, a noncontrast computed tomography (NCCT) scan of the pelvis was performed following the closed reduction (Figure 4). The CT scan confirmed the absence of fractures and revealed no evidence of intra-articular loose bodies or other significant abnormalities.

Intervention

In view of the absence of fractures on initial radiographs, closed reduction was planned under total intravenous anesthesia (TIVA). The Allis technique was employed for reduction. Palpable clunk was felt indicating successful reduction which was further confirmed using c-arm images which showed concentric reduction (Figure 3).

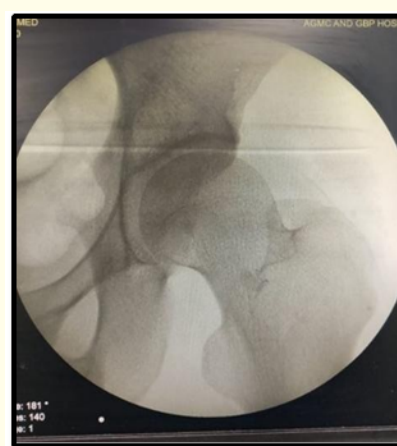
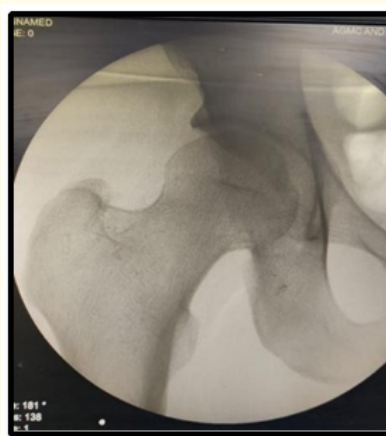


Figure 3A and 3B: Post reduction c-arm images showing reduced hips with congruent joints.



Figure 4: Post reduction CT images showing bilaterally reduced hips joints and no associated fractures.

Post-reduction protocol

Following successful closed reduction, skeletal traction was applied to B/L lower limbs for a period of three weeks to maintain hip joint congruity and prevent re-dislocation. Post-reduction radiographs were obtained to confirm proper joint alignment. The patient was started on a regimen of Indomethacin 75 mg OD (NSAIDs) to prevent heterotopic ossification. After three weeks of skeletal traction, the patient was gradually mobilized with protected weight-bearing, starting with touch-down weight-bearing and progressing to partial weightbearing as tolerated. A structured physiotherapy program was initiated, focusing on ROM exercises, muscle strengthening, and gait training. The patient was advised to avoid excessive hip flexion, adduction, and internal rotation during the early rehabilitation phase.

Outcome

The patient tolerated the closed reduction and post-operative management well. At the latest follow-up (20 months post-injury), the patient reported no pain and had regained a near-normal range of motion in both hips. He was able to ambulate independently without any assistive devices and had returned to his previous level of activity. Follow-up radiographs at 20 months showed no evidence of AVN or post-traumatic osteoarthritis (Figure 5).



Figure 5: Follow-up AP radiograph of pelvis with both hips at 20 months showed no evidence of avascular necrosis or post-traumatic osteoarthritis.



Figure 6: 20 month follow up shows complete ROM and patient can easily squat.

Discussion

Hip dislocations that occur on both sides at the same time are uncommon. According to Agarwal, *et al.* it accounts for 1.25 percent of all hip dislocations that are recorded [4]. These dislocations are frequently linked to acetabular fractures, fractures of femur head, neck, trochanter, and even shaft due to the severe force involved in these injuries [5,6]. However, in our instance, there is no fracture and only a ligamentous dislocation of both hips. The mechanism of injury usually involves axial loading of the femur with the hip joint in a flexed and adducted position, as can occur in RTAs or falls from a height. In our case, the patient sustained the injury as

a result of a fall from 30 feet, after the fall, our patient landed on the anterior aspect of his both knees with a flexed and adducted both hips, and his weight and the momentum of the fall resulted in dislocation of the both hips posteriorly. When looking at the several ways that injuries for bilateral dislocations of the hip joints have been reported in published research, they include head-on collisions between cars and motorbike crashes, as well as pedestrians being struck by cars.

In the majority of these cases, an abrupt deceleration injury was the only common mechanism. However, it was discovered that the method of injury in this instance was distinct and not comparable to high-velocity crashes. The exclusively ligamentous nature of the dislocations in this instance was most likely caused by the lesser impact energy [7,8]. The diagnosis of hip dislocation is primarily clinical, based on the characteristic posture of the affected limb and the presence of a palpable mass in the gluteal region. Radiographic imaging is essential to confirm the diagnosis and to rule out associated fractures. While plain radiographs are usually sufficient for initial assessment, CT scans can provide more detailed information about intra-articular structures and subtle fractures. Prompt reduction of the dislocated hip is the cornerstone of management [12]. The timing of reduction is critical, as delays increase the risk of avascular necrosis of the femoral head. Studies have shown that the incidence of AVN is significantly higher when reduction is performed more than six hours after the injury. In our case, the patient was brought to the trauma center within two hours of the injury, and closed reduction was performed immediately, which likely contributed to the favorable outcome. Closed reduction is usually the preferred method of treatment, with success rates ranging from 80% to 90%. The Allis technique, as used in our case, is a commonly employed method that involves gentle traction and manipulation to relocate the femoral head into the acetabulum. We believe that absence of any associated fractures in our patient, contributed to the simple reduction as well. A routine postreduction computed tomography (CT) scan has been recommended by Dudkiewicz, *et al.* to rule out the presence of any intra-articular loose fragment⁵. Open reduction is indicated when closed methods fail, or when there are associated intra-articular fractures or incarcerated fragments. Post-reduction management includes a period of immobilization to allow for healing of the soft tissues around the hip joint. In published trials, both skeletal and skin traction techniques have been recommended for varying lengths of time (3 to 8 weeks),

while some people are opposed to such lengthy bed rest [7,9]. Prior to beginning mobilization exercises, we opted to maintain the patient on bilateral skeletal traction for three weeks. Skeletal traction, as used in our case, can help to maintain joint congruity and prevent re-dislocation. However, prolonged immobilization can lead to hip stiffness and muscle atrophy. Therefore, early mobilization and a structured physiotherapy program are essential to restore hip function. The majority of studies believe that the delay in reducing the dislocated hip is a common indicator of the incidence of femoral head avascular necrosis (AVN). In instances requiring operational reduction, the risk of AVN can reach 40%, while in closed reduction cases, it can range from 8% to 15% [2]. For the early identification of AVN, Agarwal, *et al.* advise a routine magnetic resonance imaging (MRI) scan approximately three months after damage [1].

Posttraumatic arthritis affects around 24% of patients with hip dislocations [3-5].

The prognosis for bilateral hip dislocations without associated fractures is generally good, provided that prompt reduction is achieved and appropriate post-reduction management is followed. However, complications such as avascular necrosis, post-traumatic osteoarthritis, and sciatic nerve injury can occur, particularly in cases with delayed reduction or associated fractures [11].

Conclusion

Bilateral posterior hip dislocations without associated fractures are rare injuries that require a high index of suspicion and prompt management. Early diagnosis, timely closed reduction, and meticulous post-reduction rehabilitation are crucial to minimize complications and optimize functional outcomes. This case highlights the importance of a systematic approach to the management of these complex injuries.

Patient Perspective

The patient was very satisfied with the treatment he received. He was grateful for the prompt attention and care provided by the medical team. He expressed his appreciation for the successful reduction of his hip dislocations and the rehabilitation program that allowed him to regain his mobility and return to his previous level of activity.

Clinical Message

An extremely rare presentation of a B/L posterior hip dislocation with any associated fractures, along with its diagnostic outline

and treatment plan are summarized in this article. It is important to have prior knowledge, literature, and experience in order to manage such rare presentations appropriately, prevent complications, and enhance the quality of life.

Ethics Approval and Consent to Participate

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. Approval for the study was taken from Yashoda Hospital and Research Centre, Nehru Nagar, Ghaziabad ethical committee (institutional). The patient understands that his names and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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