

Anteroinferior Hip Dislocation: A Case Report

Víctor A. Avendaño Arango, Ricardo Londoño García, Camilo González, Miguel Ángel Cano

Emergency Department, Trauma Unit, Hospital "Pablo Tobón Uribe", Medellín, Colombia

ABSTRACT

We report the case of a man with an anteroinferior hip dislocation who presented to the emergency department with severe pain, functional limitation, and external rotation and flexion of the left hip. Anteroposterior pelvic and lateral hip radiographs obtained during the initial evaluation confirmed the dislocation and ruled out associated fractures. An initial attempt at closed reduction in the procedure room was unsuccessful, but closed reduction was subsequently achieved under general anesthesia. A post-reduction noncontrast computed tomography (CT) scan confirmed joint congruity. **Conclusions:** Anteroinferior hip dislocation is a rare injury associated with high morbidity and requires urgent diagnosis and reduction to prevent complications such as avascular necrosis. This case underscores the need for post-reduction CT imaging, consideration of surgical management if the initial closed reduction fails, and close clinical follow-up, as time to reduction is the main prognostic factor. Early, progressive rehabilitation is essential for adequate functional recovery.

Keywords: Hip; dislocation; anterior.

Level of Evidence: IV

Luxación traumática anteroinferior de cadera: reporte de un caso

RESUMEN

Se presenta el caso clínico de un hombre con luxación anteroinferior de cadera, que acude al servicio de urgencias por dolor intenso, limitación funcional, rotación externa y flexión de la cadera izquierda. Durante la evaluación en urgencias, se tomaron radiografías anteroposterior de pelvis y lateral de cadera, que confirmaron la luxación, y se descartaron fracturas asociadas. Se intentó la reducción cerrada en la sala de procedimientos, que fue fallida, por lo cual se procedió a la reducción cerrada bajo anestesia general, con éxito. Una tomografía computarizada simple después de la reducción mostró la congruencia articular.

Conclusiones: La luxación anteroinferior de cadera es una lesión rara, pero de alta morbilidad, que requiere diagnóstico y reducción urgentes para evitar complicaciones, como la necrosis avascular. El caso presentado destaca la necesidad de realizar una tomografía computarizada después de la reducción, considerar el manejo quirúrgico si la reducción cerrada inicial falla y asegurar un seguimiento clínico riguroso, ya que el tiempo hasta la reducción es el principal factor pronóstico. La rehabilitación temprana y progresiva es clave para una recuperación funcional adecuada.

Palabras clave: Cadera; luxación; anterior.

Nivel de Evidencia: IV

INTRODUCTION

Hip dislocation is a traumatic injury in which joint congruity between the femoral head and the acetabulum is lost, compromising joint stability and function. These injuries typically result from motor vehicle collisions, falls from height, or sports-related trauma.¹

Hip dislocation is a medical emergency that requires immediate attention because of the serious associated complications, including vascular, nerve, and muscle injuries, as well as the risk of long-term posttraumatic osteoarthritis and avascular necrosis if treatment is delayed.² However, the hip joint is inherently stable owing to its bony, ligamentous, and muscular structures, and substantial force is required to dislocate it. Hip dislocations are therefore often associated with femoral head or acetabular fractures.³

Received on February 8th, 2024. Accepted after evaluation on September 8th, 2025 • Dr. VÍCTOR A. AVENDAÑO ARANGO • avendano7245@gmail.com  <https://orcid.org/0000-0002-2976-3269>

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Hip dislocations may be classified as congenital or acquired, simple or complex, involving native or prosthetic hips, and according to the direction of dislocation.⁴

This report describes a rare case of simple anteroinferior dislocation of a native hip in a young adult. It aims to highlight this unusual clinical entity and emphasize the importance of prompt recognition and reduction, as well as timely exclusion of associated fractures.

CASE REPORT

A 23-year-old man with no comorbidities presented to the emergency department accompanied by his partner. He reported that, earlier that morning, the motorcycle he was riding had collided with a car. He stated that he had been under the influence of alcohol and psychoactive substances and could not describe the mechanism of injury to the limb.

At presentation, he reported direct trauma to the left hip, causing severe pain and restricted range of motion. On review of systems, he denied any other injuries or symptoms.

Physical examination revealed external rotation of the left lower limb and tenderness over the left hip. The hip was held in flexion, and the patient could not tolerate passive or active extension. No bruising was observed. The proximal third of the left thigh was tender to palpation, with no pain or signs of trauma elsewhere in the limb. Deep tendon reflexes in the lower limbs were intact and symmetrical. Neurovascular examination of both lower limbs was normal.

Anteroposterior pelvic and lateral left hip radiographs confirmed anterior dislocation of the left hip without associated fractures (Figure 1).



Figure 1. Anteroposterior pelvic and lateral left hip radiographs confirming anteroinferior dislocation of the left hip.

The patient was transferred to the procedure room, where closed reduction of the hip was attempted under moderate sedation but was unsuccessful. A decision was therefore made to proceed with closed reduction under general anesthesia.

During the procedure, the left hip was found to be dislocated anteriorly, with the femoral head displaced medially and entrapped within muscle tissue. Reduction was achieved after several attempts, leaving a stable hip joint with preserved flexion, extension, and rotation. A computed tomography scan of the pelvis obtained after the procedure confirmed joint congruity, with no fracture lines identified (Figure 2).

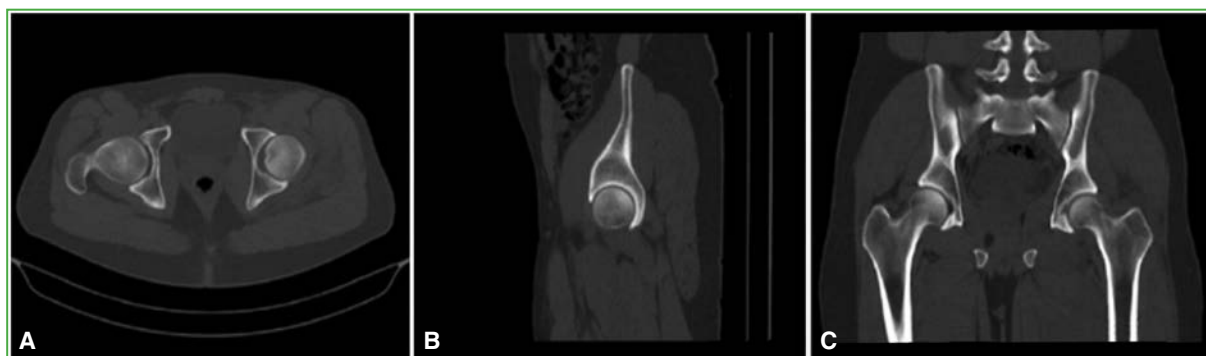


Figure 2. Axial (A), sagittal (B), and coronal (C) computed tomography images of the pelvis showing no associated acetabular or femoral head fractures and preserved joint congruity.

Physical examination ruled out neurovascular compromise. The patient was discharged with a scheduled follow-up appointment.

At outpatient follow-up, both lower limbs were well aligned, with no appreciable asymmetry. Flexion of the affected hip reached 100° , but pain prevented further movement. Hip rotation and full extension were also limited by pain. There was no evidence of a distal neurovascular deficit. Ecchymosis was noted over the posterior aspect of the right thigh, with no associated restriction of movement.

At the 6-month follow-up, the patient continued to report pain and functional limitations with movements involving full flexion and abduction of the affected hip. He reported no limitation or pain when walking and denied joint instability.

On physical examination, he walked without difficulty, both lower limbs were well aligned, and there was no bruising or deformity. Full passive flexion of the affected hip was painful, although the range of motion was unrestricted. Abduction was painful and limited to 40° because of discomfort. Extension and internal and external rotation of the affected hip were unrestricted.

DISCUSSION

Hip dislocation is relatively uncommon compared with other joint dislocations and usually results from high-energy trauma. Approximately 62–93% of hip dislocations are attributable to road traffic collisions.¹ They account for only about 5% of all traumatic dislocations; 85–90% are posterior, and the remainder are anterior or central.² Men aged 16–40 years are the most commonly affected group.

Anterior hip dislocations are associated with a 35% likelihood of concomitant bony injuries.³ They are classified as superior (pubic) or inferior (obturator), with the latter accounting for 69% of cases. Pubic dislocation involves hip abduction, extension, and external rotation, whereas obturator dislocation involves abduction, flexion, and external rotation,⁴ as occurred in our patient.

Few studies have addressed this injury because of its rarity. The largest study, conducted by Wojahn et al., included 32 patients with anterior hip dislocation. Only 22% had simple dislocations. The authors concluded that iliac dislocations are more often associated with fractures and more likely to require surgical management than obturator dislocations. Of the 16 patients followed for at least 18 months, only one required conversion to arthroplasty. The remaining 15 had favorable outcomes, with modified Harris Hip Scores >90 .⁵

Traumatic hip dislocation is a medical emergency because delayed treatment increases the risk of complications, including avascular necrosis of the femoral head, neurovascular injuries, and posttraumatic osteoarthritis.⁶ A meta-analysis by Ghalib et al. found a significant difference in the occurrence of osteonecrosis among patients treated within the first 6 hours after injury. Similarly, a meta-analysis by Kellam and Ostrum found that delaying treatment beyond 12 hours increased the risk of avascular necrosis of the femoral head 5.6-fold.⁷ In our case, reduction was performed 8 hours after presentation to the emergency department because of unsuccessful attempts at sedation and subsequent scheduling for closed reduction in the operating room.

Computed tomography is recommended after reduction to rule out associated fractures or other injuries that may require surgery.⁸ Chondral and osteochondral fragments commonly remain in the joint after reduction and may not be visible on radiographs. Computed tomography should therefore always be obtained after reduction to ensure adequate assessment, as these fragments can cause persistent subluxation.^{8,9} In our patient, computed tomography showed a congruent hip joint without fractures or other injuries. He was discharged once his pain had improved.

Early rehabilitation is advised to prevent complications. Partial weight bearing with crutches is recommended, with a gradual increase in weight bearing as tolerated. Movement should be restricted to specific angles until pain and muscle spasm allow a greater range of motion.¹⁰

Our patient was discharged with these recommendations and returned for follow-up at 2 weeks. He reported anterior thigh pain due to a soft tissue contusion. He tolerated weight bearing with crutches and retained hip flexion to 100°, although soft tissue pain limited hip extension and internal and external rotation.

At the 6-month follow-up, he was in good general health and could walk without limitation or pain. Physical examination revealed pain with full hip flexion but no restriction in this range of motion, as well as painful, restricted abduction. Magnetic resonance arthrography of the left hip was therefore requested to rule out complications.

In a study of long-term outcomes, Şahin et al. evaluated 62 patients, 57 with posterior dislocations and five with anterior dislocations. Fifty patients had undergone closed reduction, and the remainder had undergone open reduction. As in our case, partial weight bearing with crutches was permitted during recovery, with progression to full weight bearing between 2 and 10 weeks, as tolerated. Clinical and imaging follow-up over 14 years showed that 71% of patients achieved good outcomes, while 25% developed osteoarthritis or osteonecrosis. The authors concluded that time to reduction was the main factor contributing to complications.¹⁰

Traumatic anteroinferior hip dislocation is an uncommon joint dislocation, with a much lower incidence than posterior hip dislocation. Despite its rarity, early recognition and timely management are essential to prevent serious complications, such as avascular necrosis of the femoral head and posttraumatic osteoarthritis.

This case illustrates that, although closed reduction is the treatment of choice, intervention in the operating room may be necessary when initial attempts fail, particularly in the presence of soft tissue interposition. Routine computed tomography after reduction is also essential to rule out intra-articular fragments that may be missed on plain radiographs. Long-term clinical follow-up, together with a progressive rehabilitation plan, helps identify late complications and guide functional management. The medical literature reviewed consistently identifies time to reduction as the main prognostic factor. All medical personnel should therefore be aware of this orthopedic emergency, including atypical presentations such as anteroinferior dislocation.

Conflicts of interest: The authors declare no conflicts of interest.

R. Londoño García ORCID ID: <https://orcid.org/0000-0002-6568-9166>
C. González ORCID ID: <https://orcid.org/0009-0001-6677-4223>

M. Á. Cano ORCID ID: <https://orcid.org/0009-0002-9832-2085>

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