

Case Report

Combined bilateral asymmetric hip dislocation and anterior shoulder dislocation

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BACKGROUND: Traumatic bilateral hip dislocation is a rare condition. Anterior shoulder dislocation combined with this condition is even a rare occurrence. A 57-year-old man had bilateral asymmetric hip dislocation with a posterior wall fracture of the left acetabulum associated with right shoulder anterior dislocation caused by falling down from a cherry tree. Traumatic hip dislocation and anterior shoulder dislocation represent a true orthopedic emergency.

METHODS: Closed reduction was performed immediately for three of the dislocated joints. Posterior wall fracture of the left acetabulum was treated with open reduction and internal fixation by screws. Because of the severity of associated complications like aseptic necrosis or posttraumatic osteoarthritis, efforts were made to ensure prompt diagnosis, therapy and prognosis.

RESULTS: The patient was successfully treated by open reduction and internal fixation of the left acetabulum, and discharged from the hospital.

CONCLUSION: Traumatic asymmetric hip dislocation and anterior shoulder dislocation are an orthopedic emergency and early diagnosis with immediate reduction of the dislocation is the key determinants of excellent result of treatment.

KEY WORDS: Trauma; Asymmetric hip dislocation; Shoulder dislocation; Immediate therapy

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INTRODUCTION

Traumatic bilateral hip dislocation is a rare condition. Asymmetric traumatic dislocation of both hips is even more unusual.^[1] Anterior shoulder dislocation combined with this condition is particularly a rare occurrence. Cases of associated fractures attributable to motor vehicle accidents have been reported.^[2-4] To our knowledge, trauma and its injury to joints caused by falling down from a tree have rarely been reported.

Case report

A 57-year-old man was admitted to the emergency department two hours after falling down from a cherry tree. He had no history of epilepsy, shoulder or pelvic

trauma, hip abnormality or ligamentous laxity. He fell down from a cherry tree of approximately 3 meters high. He was landing on his left lower extremity. While he was landing off he hit his right lower extremities to one of the thick branches of the tree. He also tried to catch thin branches to prevent hard falling. The ground was soil so that it was a rather smooth landing. The patient was mechanically and hemodynamically stable. He suffered from pain of the bilateral hip and right shoulder. The patient had "windswept" lower extremities and tenderness to palpation or attempted range of motion of both hips. The right lower extremity was held in an abducted, slightly flexed, and externally rotated position. The left lower extremity was adducted,

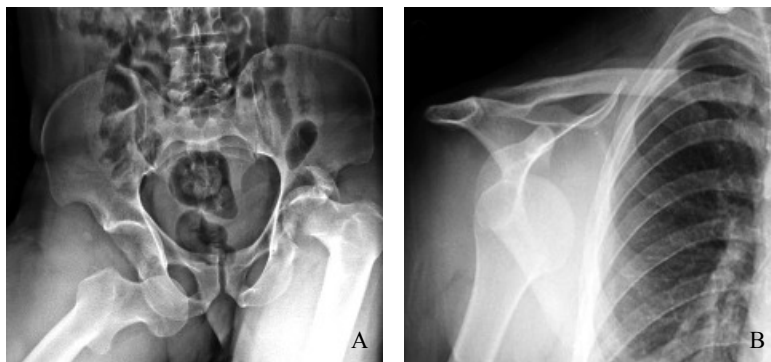


Figure 1. Radiographies of dislocated hips and the shoulder. A: dislocated hips; B: dislocated shoulder.



Figure 2. Radiographies of reduced right and left hips, shoulder, operated left hip. A: reduced right and left hips; B: shoulder; C: operated left hip.

flexed, near neutral rotation, and shortened. The right arm was held adducted and flexed. The patient had intact motor function, sensation, and pulses distally throughout the lower and upper extremities. Routine trauma examination revealed anterior dislocation of the right hip and posterior dislocation of the left hip with posterior wall fracture of the left acetabulum and dislocation of the right shoulder (Figure 1A-B). The pelvis was intact. Computed tomography (CT) showed a posterior wall fracture of the left acetabulum. Orthopedic consultation was done, and the patient was referred to the orthopedic clinic. Subsequently the patient underwent closed reduction of both hips and the right shoulder under general anesthesia. After reduction, the right hip was noted to be stable throughout a physiologic range of motion. The left hip was noted to be unstable posteriorly when a moderate posteriorly directed force was applied. It was subsequently re-reduced and stable through a skeletal traction. Radiographic findings confirmed adequate reductions of both hips and the right shoulder (Figure 2A-C). Open reduction and internal fixation of the left acetabulum were performed by the posterior approach.

DISCUSSION

Bilateral hip dislocation is a rare injury; the incidence is 1.25% for all hip dislocations and 0.025%–0.05% for all dislocations.^[5] Asymmetric bilateral hip dislocation has been reported previously,^[3,6] but anterior shoulder dislocation associated with asymmetric bilateral hip dislocation in this case is rare. Motor vehicle accident is the most common mode of trauma that leads to hip dislocation. In our case the mode of trauma falling down from a tree has not been reported. Bilateral asymmetric hip dislocation is due to forces applied in two different directions simultaneously, i.e. one developed posteriorly and the other anteriorly.^[7] At the time the patient's left leg hit the ground, his left hip was adducted slightly and internally rotated. After his right leg hit the branch of the tree, his left knee and thigh were caught by the branches of the tree, resulting in an anterior dislocation. The patient probably tried to catch one of the branches of the tree with his right arm hyperabducted and externally rotated.

Fracture of the acetabulum and knee injuries occurred after posterior hip dislocation. Anterior dislocation of the shoulder was due to the trauma of

the elbow in an extended position forcing the shoulder to exceed the normal range of motion. The arm of the patient contacted the branches of the tree while falling down and then forced the shoulder move anteriorly. It was also a direct trauma to the posterior shoulder, making the humeral head migrated anteriorly.

Radiographic findings are helpful for early recognition and treatment of the dislocation as acetabular reconstruction may be delayed. In patients with uncomplicated dislocations, clinical assessment and radiography are necessary.^[8] CT is important in designing surgery for complex acetabular fractures, and evaluating intra-articular osteochondral fragments and pelvic hematoma.

Early diagnosis and reduction of hip dislocation is essential because avascular necrosis of the femoral head may occur before reduction of the hip. Reduction of hip dislocation within 6 hours has been recognized as golden time of treatment. Post traumatic arthritis, a frequent complication of hip dislocation, was found in 16% of uncomplicated hip dislocations and in 88% of patients with severe acetabular fractures. Factors associated with development of arthritis include non-congruent reduction, acetabular fractures, femoral head fractures, osteonecrosis and time delay between injury and reduction. Neurovascular injuries may be related to hip dislocation. Injury to the femoral neuro-vasculature is rarely associated with anterior dislocation.^[5] The sciatic nerve is commonly injured with a 10% association with posterior hip dislocation in adults and its peroneal branch is also frequently affected. Early reduction of the femoral head and displaced fracture fragments is essential to treatment and rehabilitation of patients.

Emergency closed reduction for traumatic hip dislocation is indicated for a dislocation with or without neurologic deficit when no associated fracture is present. Open surgical reduction is usually required for a hip dislocation with an associated fracture or neurological deficit. If the hip cannot be relocated after multiple reduction attempts, then emergency operative exploration is indicated. Further closed reduction attempts should not be initiated at this point. For closed reduction of posterior dislocations, the Bigelow maneuver may be performed with minimal assistance with the patient in the supine position. The injured hip is initially held in a position of adduction and internal rotation, with one practitioner applying longitudinal distraction and an assistant applying pressure on the anterior superior iliac spine of the patient so as to stabilize the pelvis. Once the leg is brought out to length, the hip is held to 90° of flexion

while allowing the ipsilateral knee to flex passively. Abduction, external rotation, and extension of the hip are made while distracting the femoral head anteriorly. For the closed reduction of anterior dislocation of the hip, traction forces are applied to get femoral head extension and internal rotation.

In conclusion, in our case, bilateral asymmetric hip dislocation with posterior wall fracture of the left acetabulum was associated with right anterior shoulder dislocation due to the falling down from a cherry tree. There was no neurovascular deficit in either of the lower limbs or the right upper arm, nor a posttraumatic arthritis on the left hip by posterior acetabular fracture. The range of motion of the whole joints was within normal limits. We emphasize that traumatic asymmetric hip dislocation and anterior shoulder dislocation are an orthopedic emergency and that early diagnosis with immediate reduction of the dislocation is the key determinant of excellent result of treatment.

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