

Asymmetrical bilateral traumatic hip dislocation in an adult with bilateral acetabular fracture

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Abstract This case report aims at presenting a unique case of simultaneous bilateral traumatic dislocation with right side anterior and the left side posterior together with bilateral acetabular fracture. Under general anesthesia, closed reduction of both hips was carried out. The case presented represents an unusual, severe combination of injuries resulting from a high-speed motor-vehicle accident. Traumatic hip dislocation represents a true orthopedic emergency. Given the severity of the associated complications, every effort should be made to ensure prompt diagnosis and immediate therapy.

Keywords Bilateral hip dislocation · Acetabular fracture · Closed reduction · Motor vehicle accident

Introduction

Traumatic hip dislocation is a severe injury with the potential for significant complications and long-term patient morbidity. It accounts for two to five percent of all dislocations [12]. Bilateral traumatic dislocation is a rare injury, but 55 such cases have been reported in the literature. Several cases with associated fractures have been reported [1, 4, 7].

We report a unique case: simultaneous bilateral traumatic dislocation with right side anterior and the left side posterior together with bilateral acetabular fracture. Only three cases have been reported with

associated ipsilateral acetabular fracture [5, 8, 12]. However, there is no case of asymmetrical bilateral traumatic hip dislocation with bilateral acetabular fracture in the English literature.

Case report

A 45-year-old man was admitted to our center after being involved in a motor vehicle crash. He was seated next to the driver and wearing no seatbelt when the car crashed head-on, into a wall. He was previously healthy and had no previous history of pelvic trauma, hip abnormality, or ligamentous laxity.

On arrival, the patient was conscious and had a Glasgow Coma Scale score of 15. He complained of severe pain in both hips. There was a thoracic injury (pneumothorax) and he was hemodynamically stable. The vital signs were: blood pressure 130/75 mmHg, pulse 90 beats/min, and respiration 24 breaths/min. The physical examination revealed multiple lacerations on the trunk, and extremities. The pelvis was stable and abdomen was soft and non-tender with bowel sounds. Genitourinary examination was normal, without blood at the meatus. On examination of the extremities, the left limb was found internally rotated, adducted and shortened, with the right limb externally rotated and abducted (Fig. 1). There was no neurovascular deficit. Routine anteroposterior (AP) pelvic radiograph (Fig. 2) showed a posterior-superior dislocation of the left hip joint, and an anterior-superior dislocation of the left hip joint. Plain X-rays also showed right acetabulum fracture. The computerized tomography (CT) showed bilateral asymmetrical hip dislocation with bilateral acetabulum fracture (anterior

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Fig. 1 A 45-year-old man being involved in a motor vehicle crash. On examination of the extremities, the left limb was found internally rotated, adducted and shortened, with the right limb externally rotated and abducted



Fig. 2 Anteroposterior (AP) pelvic radiograph showed a posterior–superior dislocation of the left hip joint, and an anterior–superior dislocation of the right hip joint. It also showed right acetabulum fracture

and middle column on right side-type C; only anterior column on left side-type A) (Fig. 3).

The patient was taken immediately to the operating theatre, and under general anesthesia closed reduction of both hips was carried out without much



Fig. 3 The computerized tomography (CT) showed bilateral asymmetrical hip dislocation with bilateral acetabulum fracture

difficulty. The skin traction was applied to both lower extremities. Postreduction films showed concentric reduction of the hips (Fig. 4). The postreduction CT scan of the pelvis revealed congruent reduction of both hips and associated bilateral acetabulum fracture (Fig. 5).

During his 24-h stay in the intensive care unit and later in the trauma ward, the patient remained stable. Open reduction and internal fixation were offered for right side acetabular fracture. But, as he was a visitor to our country as tourist; he wanted to be transferred to a hospital in another country where he lived. It was learnt from his relatives that the patient, after being removed to another center, had suffered from lung infection and hence could not be operated. He can walk now with the help of crutches.

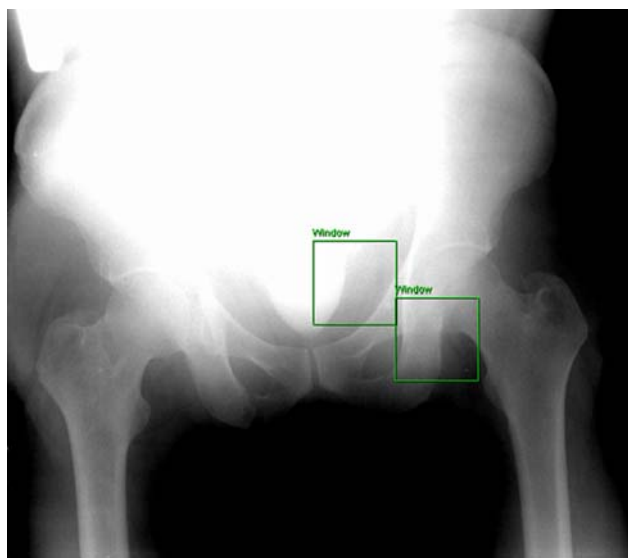


Fig. 4 Post-reduction films showed concentric reduction of the hips



Fig. 5 The postreduction CT scan of the pelvis revealed congruent reduction of both hips and associated bilateral acetabulum fracture

Discussion

Traumatic dislocation of the normal hip joint represents 2–5% of all traumatic joint dislocations, and 90% are posterior [6]. Bilateral symmetric (i.e., anterior bilaterally or posteriorly bilaterally) traumatic hip dislocation is a rare event, and even more unusual is the simultaneous asymmetrical (anterior and posterior) traumatic dislocation of both hips. Our patient was unique with a bilateral asymmetric traumatic hip dislocation with bilateral acetabular fracture.

The most common cause is high-energy trauma such as motor vehicle crash [7]. The most frequent example of a bilateral hip dislocation occurs in an unrestrained driver of an automobile or in unrestrained front seat passengers in the vehicle. During the rapid deceleration of the automobile, body pivots forward on his fixed feet and the knees strike the dashboard, transmitting the dislocating force to the hip joints [7]. Depending on the position of the legs at the moment of the crash, the impact may cause anterior or posterior dislocation [4, 12]. The mode of injury was similar in our case.

Routine AP pelvis radiographs will confirm the diagnosis of a simultaneous bilateral traumatic hip dislocation. Associated injuries must be carefully ruled out. These include acetabular fracture, femur fracture (4% of the patients), ligamentous knee injury or fracture of the patella or proximal tibia (25%), femoral artery injury, venous thrombosis and sciatic nerve injury (7–19%) [10]. CT scan is a good diagnostic method and provides additional information, but may delay treatment.

Simultaneous bilateral hip dislocation is an emergency requiring early reduction to prevent complications. Overall complications of hip joint dislocation include avascular necrosis of the femoral head, post-

traumatic arthritis, and sciatic nerve injury [2]. Other potential complications include heterotopic ossification, deep vein thrombosis, and limitation of hip movements. The rates of these complications depend on the type of dislocation and whether close or open reduction was performed.

Delay in the reduction of the hip increases the incidence of avascular necrosis that develops in as many as 26% of hip dislocations [12]. Several studies [3, 13] have shown that the risk of osteonecrosis occurring after a hip dislocation is related to the length of time the hip remains dislocated. The risk rises after a delay of six hours, or after repeated attempts at closed reduction.

Post-traumatic arthritis is a frequent complication of hip dislocation, reported to occur in 16% of uncomplicated hip dislocations and in up to 88% of patients with severe acetabular fractures [11]. Neurovascular injuries may accompany hip dislocations. Injury to the femoral neurovascular bundle rarely occurs. The sciatic nerve is the most commonly injured nerve, and sciatic nerve injuries have been reported in 10% of adults after posterior hip dislocation [11]. Heterotopic ossification is another important complication of hip dislocations and pelvic fractures. Prophylactic radiation and indomethacin can be used in an attempt to decrease heterotopic ossification.

General anesthesia may be necessary to achieve adequate muscle relaxation for closed reduction when there is no associated fracture. Open reduction and internal fixation is often needed in cases with associated acetabular fractures to prevent recurrence and limitation of function, or in cases with ineffective closed reduction or if the sciatic nerve must be explored [12].

Additional evaluation of the accuracy of reduction by CT scan is highly recommended, because it can disclose bony fragments interposed within the joint cavity that may prevent accurate reduction. In such instances, early exploration and removal of these fragments is recommended. However, magnetic resonance imaging is the safest method to follow-up and identify avascular necrosis [9].

The case presented represents an unusual, severe combination of injuries resulting from a high-speed motor-vehicle accident. Traumatic hip dislocation represents a true orthopedic emergency. Given the severity of the associated complications, every effort should be made to ensure prompt diagnosis and immediate therapy.

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