

Bilateral Hip dislocation: unusual injury mechanism.

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Bilateral hip dislocations are rare traumatic injuries considered as an orthopedic emergency. Most of the reported cases were caused by high-energy traffic accidents, a majority of which were along with femoral and acetabular fractures. The case in the present study was a 25-year-old male who had severe pelvic tilt and lumbar lordosis due to the unusual mechanism of falling a heavy object from a high distance on his back. The vital signs were stable and the patient had no underlying disease. On examination, he had lower limb paresthesia, and the pelvic x-rays clearly showed that the patient had right femoral head posterior dislocation with acetabular fracture and left femoral head obturator dislocation. Right after cardiopulmonary monitoring and checking the stability of vital signs as well as applying appropriate analgesia, a reduction was made, following which the patient's lower limb paresthesia gradually reduced. The patient was transferred to the orthopedic ward and the surgical treatment of the right acetabular fracture was performed. He was then discharged from the hospital with a good and stable general condition.

Keywords: hip, dislocation, bilateral, Injury
Short Title in English: Bilateral Hip dislocation

Abstract

Bilateral hip dislocations are rare traumatic injuries considered as an orthopedic emergency. Most of the reported cases were caused by high-energy traffic accidents, a majority of which were along with femoral and acetabular fractures. The case in the present study was a 25-year-old male who had severe pelvic tilt and lumbar lordosis due to the unusual mechanism of falling a heavy object from a high distance on his back. The vital signs were stable and the patient had no underlying disease. On examination, he had lower limb paresthesia, and the pelvic x-rays clearly showed that the patient had right femoral head posterior dislocation with acetabular fracture and left femoral head obturator dislocation. Right after cardiopulmonary monitoring and checking the stability of vital signs as well as applying appropriate analgesia, a reduction was made, following which the patient's lower limb paresthesia gradually reduced. The patient was transferred to the orthopedic ward and the surgical treatment of the right acetabular fracture was performed. He was then discharged from the hospital with a good and stable general condition.

Introduction

Hip dislocations typically develop following high-energy traumatic injuries (1, 2). According to studies, hip dislocations account for about 2% to 5% of total joint dislocations, which often occur at an early age, especially at a young age, following occupational and traumatic accidents (3, 4). However, bilateral and asymmetric hip dislocations are relatively rare and concomitant injuries are frequent, accounting for about 1% to 2% of all hip dislocations (3-5). On the other hand, such injuries can typically be associated with pelvic ring injuries and femoral fractures (6). Although it is difficult to identify the possible mechanisms of the traumas leading to bilateral hip dislocations, in the past decade, researchers identified the factors such as road traffic and occupational accidents and male gender as the most important risk factors for such dislocations (2, 7). In this study, we reported a case of bilateral asymmetric hip dislocation arising from a rare mechanism and occupational accidents which was reduced as soon as possible in the emergency department.

Case Report

The patient was a 25-year-old man living in Mashhad who had been admitted to the emergency department of Shahid Hasheminejad Hospital and was undergoing clinical trials due to the injury caused by a heavy object (a bar) fallen on his back from height while working. The accident has caused him severe pelvic tilt (the pelvic tilt was so severe that his knees were heavily loaded into his abdomen). He had no history of a chronic underlying disease, and was not treated with any specific medication. His vital signs at referral were as follows: Systolic Blood Pressure: 119 mmHg, Diastolic Blood Pressure: 84 mmHg, Pulse Rate: 95 per minutes, O2 Saturation: 100%, and RR: 19 per minutes.

Further examinations revealed no evidence of open wounds in the patient's pelvis, knees, spine and other organs, but his pelvis was deformed and his left lower limb was semi-flexed to laterally abduct. His right lower limb was also semi-flexed and medial-oriented, and was on his left thigh. The perineal examination showed no ecchymosis and hematoma, and no bleeding was observed. In the neurovascular examination, the pulses of the two organs were identical and normal, but the patient was complaining about paresthesia in the right limb from the hip to the toe tips. The pelvic x-ray showed posterior dislocation of the right femoral head with acetabular fracture and left femoral head obturator dislocation (Figure-1). Once the orthopedics on-call was informed the patient was monitored with oxygen therapy and was sedated within 10 minutes of arrival, with 200mcg of Fentanyl and 70mg of Propofol. The reductions were then successfully performed on both sides with allis maneuver. After successful reductions of the dislocations, the patient's vital

signs were quite stable, and the pelvic CT scanning also showed that the reductions of both sides had been performed correctly and appropriately(Figure -2). Following the reductions, the patient's lower limb paresthesia gradually decreased. Considering the accident mechanism, surgical service consultation was performed, and the results of abdominal and pelvic ultrasound were normal. Hence, the patient was allowed by the orthopedic specialist to be transferred to the orthopedic ward. In the ward, the acetabular fracture surgery was done as a complementary treatment and the patient was discharged in a good and stable general condition. During the one-month follow-up after reduction at the orthopedic clinic, his general condition was good and he was able to walk by himself without pain but with support. Pelvic X-ray revealed evidence of acetabular union.

Discussion

Herein we have reported an interesting case of bilateral hip dislocations due to a rare mechanism which was redacted as soon as possible in the emergency department. These injuries are usually associated with acetabulum, femoral head, and trochanter fractures (2, 8, 9). In our study, the case was not only suffering from bilateral hip dislocation, but also acetabular fracture had occurred to him, which is consistent with the results of other reported cases. However, some studies did not report such fractures in the acetabulum and femoral head. For instance, Kanojia et al (10) reported bilateral asymmetric hip dislocation without any evidence of hip fracture. In their study, Park et al (1) also reported two cases of bilateral hip dislocation with acetabular fractures in two 53- and 36-year-old men who had fallen down from a height and had a road accident, respectively. Patton et al (11) also reported a case of bilateral hip dislocation in a 30-year-old man due to an occupational accident on a farm.

The dislocation directions depend on the hip motion status, direction of force and pressure imposed, and the individual's anatomical position. Bilateral hip dislocations are rare, accounting for about 1.25% of all hip dislocations as stated by and Agarwal et al (4). Various mechanisms have been proposed to cause bilateral dislocation of hip joints, including traffic accidents, excessive anterior and posterior forces, and a load falling on the back in a bent position (2, 12). In none of the reported cases, hip joint dysplasia was considered as a predisposing factor and it seems that the injury could only be caused by the severity of the trauma with a certain mechanism. In this study, the patient was suffering from severe pelvic tilt due to the high pressure from an object fallen from the top. It was also associated with right acetabular fracture and bilateral hip dislocation, which were improved by appropriate treatment.

The incidence of dislocations at an early age (often at youth and working ages) and in males is higher (the number of man working are more than woman) , so that age and gender appear to be two independent risk factors (4, 13). Although hip dislocations are bilateral, treatment does not seem to be difficult and does not differ from unilateral cases. So, treatment results are promising unless reductions are delayed due to the bilaterally of the lesion and it may be cause further complication.

Bilateral hip dislocations are considered an orthopedic emergency, and delayed reduction is associated with an increased risk of avascular necrosis (AVN) (4, 7, 8). In the Beebe et al study sciatica paralysis is also mentioned as a complication of this injury (14). The risk of developing AVN in femoral heads varies from 8% to 15% and may increase up to 40% depending on the duration and type of dislocation and the need for a surgery (15). However, the risk of developing AVN in the cases that are reduced within <6 hours is about 4% to 5%, but it will reach 52.9% if the reduction is delayed for more than 6 hours (3). In this study, the treatment was done as soon as possible in the emergency department and the patients follow up revealed no evidence of AVN.

Conclusion

Like all other reported cases, our patient had bilateral hip dislocations due to a high-energy trauma without a predisposing factor (such as underlying diseases, use of specialty drugs, pathologic point, and hip dysplasia). Despite a severe trauma, there was no concomitant lesion except the acetabular fracture, and lower limb paresthesia was sedated following the timely and proper reduction. The post-treatment follow-ups (1 month after the surgery) well indicated that the reduction was correct and proper, and regardless of some mild movement restriction, the patient could walk without pain.

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Figure 1. Pelvic X ray reveals right femoral head posterior dislocation with acetabular fracture and left femoral head obturator dislocation



Figure 2. Pelvic Ct scanning of post reduction revealed right acetabular fracture with clear posterior arch