

PAPER DETAILS

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"Frog-Legged Trauma Patient". Bilateral Anterior Hip Dislocation

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Abstract

Anterior hip dislocation is rare (10-15% occurrence) compared with posterior dislocation. Bilateral simultaneous anterior hip dislocation is even extremely rare. Most of the previously reported case were either a unilateral or combination of anterior and posterior dislocation. We present a case of bilateral anterior hip dislocation post motor vehicle accident. Patient brought in the Emergency Department in "frog-legged" posture, unable to straighten the lower limbs. Even the Pre-Hospital Care (PHC) team had a tough time to load the patient onto the ambulance stretcher. On examination, both lower limbs were held in abduction, external rotation and in flexion position. Neurovascular assessments were intact. Pelvic x-ray shows bilateral anterior hip dislocation, right iliac bone fracture and left greater trochanteric femur fracture. Closed manual reduction of both hip were performed under procedural sedation analgesia. CECT pelvic done later confirmed right iliac bone fracture extending to and comminuted fracture of the left greater trochanteric. Bilateral avascular necrosis of both femoral head was also noted. Traumatic hip dislocations are a true orthopedic emergency. Early reduction (within 6 hours) is required as soon as appropriate x-rays have been obtained to exclude associated injuries since avascular necrosis of the femoral head increases in direct proportion to delay in reduction. If this fails, closed reduction under general anesthesia is indicated.

Keywords: bilateral, anterior, hip dislocation

Introduction

Traumatic dislocations of the hip are common nowadays with the rising incidence of motor vehicle accident (MVA) involving motorcycles (Akinyoola & Abiodun 2005). Anterior hip dislocation is rare (10-15% occurrence) compared with posterior dislocation. Bilateral simultaneous anterior hip dislocation is even extremely rare. Previously reported cases were either a unilateral or combination of anterior and posterior dislocation. We present a case of bilateral anterior hip dislocation following MVA.

Case Presentation

A 45-year-old man was involved in MVA; head on collision between motorcycle versus car from opposite direction. Patient brought in the Emergency Department after 2 hours post MVA in "frog-legged" posture, unable to straighten the lower limbs (**Figure 1**). Even the Pre-Hospital Care (PHC) team had a tough time to load the patient onto the ambulance stretcher. PHC team reported no sign of head injury or any external bleeding at the scene. For a brief moment we are captivated by the odd posture; nevertheless, we proceeded with trauma resuscitation. Primary survey was performed and life-threatening conditions were ruled out. Patient had full GCS, stable vi-



Figure 1: Patient presented with bilateral hip in abduction, external rotation and in flexion position.

tal signs and only complaint of pain over both hips (pain score 8/10). Examination of the bilateral hip: both lower limbs were held in abduction, external rotation and in flexion position. Neurovascular assessments were intact. Pelvic x-ray shows bilateral anterior hip dislocation, right iliac bone fracture and left greater trochanteric femur fracture (**Figure 2**). After 5 hours post MVA closed manual reduction (CMR) of both hip were performed under procedural sedation analgesia using Allis' manoeuvre with the addition of lateral traction to the proximal thigh as the femoral head is displaced medially and the patient

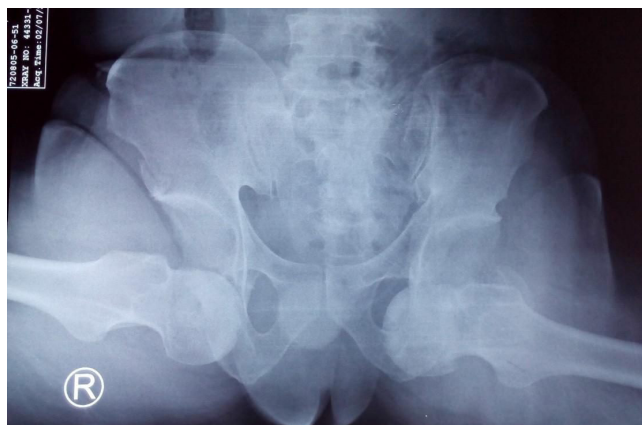


Figure 2: AP pelvic x-ray shows bilateral inferior anterior hip dislocation (Type II or Obturator type).

placed in bilateral Hamilton-Russell traction. Patient admitted to orthopedic ward after post reduction pelvic x-ray shows reduction of both hips (**Figure 3**). Patient have been advised for wheelchair immobilization for 6 weeks. A CECT pelvic done later confirmed right iliac bone fracture extending to acetabular involving the roof, posterior wall and comminuted fracture of the left greater trochanteric. Bilateral avascular necrosis (AVN) of both femoral head was also noted. Patient have been follow up after 4weeks post trauma, and patient claim that he able to ambulate with minimal pain over the both hips.

Discussion

Anterior hip dislocation is considered rare due to the anterior capsule of the hip is stronger and is further reinforced by iliofemoral ligament (Akinyoola & Abiodun 2005). The hip is a spheroidal type of joint with a good congruence between the femoral head and the acetabulum and fortify by a thick articular capsule and tough ligaments (Radulescu R. et al. 2013). All these features make the hip joint very stable. Mechanism of injury



Figure 3: Post reduction pelvic x-ray shows concentric and congruent reduction of both hips.

ry must involve extreme abduction causing the femoral head to be pushed out through a tear in the anterior capsule as commonly seen in MVA and a blow to the back while squatting. There are several case reports of anterior hip dislocation involving contact sports as well e.g. rugby, American football and soccer.

There are 2 subtypes of anterior hip dislocation namely anterior superior dislocations (Type I or pubic type) whereby the limb is slightly abducted, externally rotated and extended. Another subtype namely anterior inferior dislocations (Type II or obturator type), the limb is abducted, externally rotated and flexed. According to Horner S. et al (2012), inferior dislocation is the most common type of anterior dislocation, comprising more than 92% of anterior dislocations. Our patient sustained Type II anterior hip dislocation. The anterior dislocations are further described by the Epstein classification:

Type I - Superior dislocations

- IA: no associated fractures
- IB: associated fracture or impaction of the femoral head
- IC: associated fracture of the acetabulum

Type II - Inferior dislocations

- IIA: no associated fractures
- IIB: associated fracture or impaction of the femoral head
- IIC: associated fracture of the acetabulum

In our case, the reduction was done within 5 hours after the injury as waiting for the orthopaedic team decision to reduce both hip as it was associated with right iliac bone fracture and left greater trochanteric fracture. In this patient, the risk to develop AVN increases as patient have concomitant pelvic fractures (Sraj & Lakkis 2007). The cause of AVN is thought to be multifactorial; firstly, during dislocation, the vascular network emerging from the trochanteric area is injured together with the joint capsule and the round ligament artery together with the ligament. Other reasons demonstrated a functional disruption of cephalic circulation by a spasm of the large artery or of the cervical branches, with no organic lesion itself. If we take into discussion this mechanism, the early reduction of the dislocated hip able to reduce the risk of AVN by 10-40% (Radulescu R. et al. 2013). Early complications of anterior dislocations involved femoral artery, vein and nerve injury. Late complications (in addition to osteoarthritis and AVN of the femoral head) includes pulmonary embolism as a result from femoral artery/vein thrombosis. It has been recommended that follow up x-ray study at 3–6-month intervals for at least 2 years need to be done to evaluate for AVN (Honner & Taylor 2012).

Conclusion

Traumatic hip dislocations are a true orthopedic emergency. Early reduction (within 6 hours) is required as soon as appropriate x-rays have been obtained to exclude associated injuries since AVN of the femoral head increases in direct proportion

to delay in reduction. The diagnosis should be suspected based on the mechanism of injury and characteristic clinical presentation. The risk of AVN, which is seen in 0-5% if the hip is reduced in less than 6 hours after the injury compared in 50% if the hip is reduced more than 6 hours after the injury (Sultan et al. 2012). If this fails, CMR under general anesthesia is indicated. Neurovascular assessment should be performed and documented prior and post any reduction attempts.

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