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UP-TO DATE REVIEW AND CASE REPORT • HIP - SPORT

Posterior hip dislocation in a non-professional football player: a case report and review of the literature

Matthaios Bakalakos[1] · **Ioannis S. Benetos**[1] · **Meletios Rozis**[1] · **John Vlamis**[1] · **Spiros Pneumaticos**[1]

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Abstract
The majority of injuries during a football game are contusions, sprains and/or strains in the thigh, knee and ankle. Hip dislocations account for 2–5% of total hip dislocations, and they can be posterior or anterior. Major complications of traumatic hip dislocation include avascular necrosis of femoral head, secondary osteoarthritis, sciatic nerve injury and heterotopic ossification. On the occasion of a case of a 33-year-old football player, who suffered a posterior hip dislocation, associated with a posterior wall fracture of the acetabulum, while playing football, we review the literature and analyze the various mechanisms of injury, the possible complications and the management including surgery and rehabilitation.

Keywords Hip dislocation · Acetabular fracture · Football player · Football

Backround

Football is one of the most popular sports in the world. Injuries during a football game are quite frequent, but in the majority of them are contusions, sprains and/or strains in the thigh, knee and ankle [8]. On the other hand, fractures during the game are quite rare ranging from 4 to 9%, while the probability of a fracture-dislocation of the hip is extremely rare [9].

Hip dislocations during sporting activities account for 2–5% of total hip dislocations [2], and they can be posterior or anterior. Most hip dislocations are posterior, caused by impaction of the femoral head upon the acetabulum from direct force to the distal femur. Anterior dislocations are less common and of two main types: superior, where the femoral head is displaced into the iliac or pubic region, and inferior, where the head lies in the obturator region [4].

Motivated by the case of a 33-year-old football player, who suffered a posterior hip dislocation while playing football, we will review the literature.

Case presentation

A 33-year-old male was brought to the emergency department with right hip pain, weakness and inability to walk. The patient was injured during a football game while falling on his knee with his hip flexed. At the time of the injury the patient felt a pop and immediately after he could not move his hip. Clinical examination of the injured extremity suggested posterior dislocation of the hip. The hip was flexed, adducted and internally rotated. Neurological evaluation was normal with no signs of sciatic nerve injury.

Plain radiographs of the pelvis confirmed a posterior hip dislocation, associated with a posterior wall fracture of the acetabulum (Fig. 1). Within 6 hours past the injury, and with appropriate analgesia, the dislocation was reduced in the emergency room using traction and external rotation of the right lower limb (Fig. 2). Post-intervention radiographs confirmed successful reduction. A computed tomography (CT) scan of the pelvis confirmed the posterior wall fracture of the acetabulum (Figs. 3, 4).

Two days past the injury, the patient underwent surgery where an open reduction and internal fixation of the acetabular fracture with two lag screws was performed using Kocher-Langenbeck approach (Fig. 5). The patient had an uneventful postoperative course and was discharged with instructions for non-weight bearing for 6 weeks.

✉ Matthaios Bakalakos
mbakalakos@gmail.com

[1] 3rd Orthopaedic Department, KAT General Hospital, University of Athens, Nikis 2, 14561 Kifissia, Greece

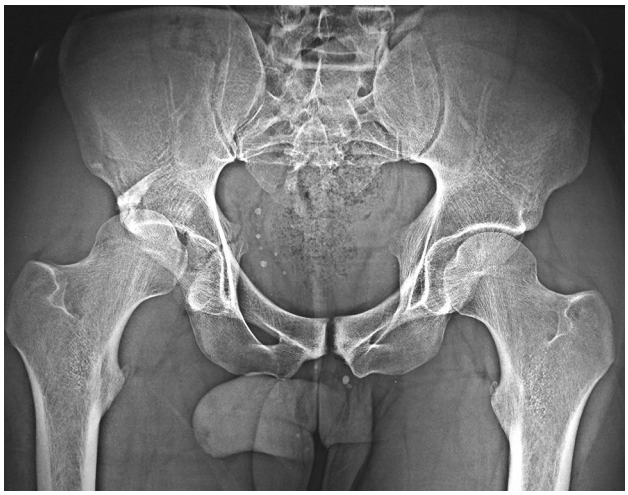

Fig. 1 Pre-reduction radiograph: anteroposterior plain radiograph of the pelvis showing dislocation of the right femoral head and fracture of the posterior wall of the acetabulum

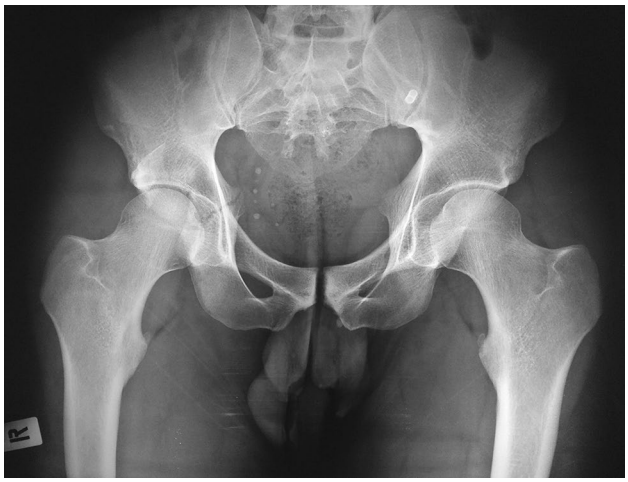

Fig. 2 Post-reduction radiograph: anteroposterior plain radiograph of the pelvis showing successful hip reduction

On the 3-month follow-up, the patient was pain free, had full range of hip motion and was allowed full weight bearing. On the 12-month follow-up, the patient was still pain free and hip range of motion was normal compared to the contralateral hip. The radiologic examination of the pelvis showed no signs of either femoral head avascular necrosis or hip joint degeneration, and the patient was no further withheld from any former daily routine and sporting activities (Fig. 6).

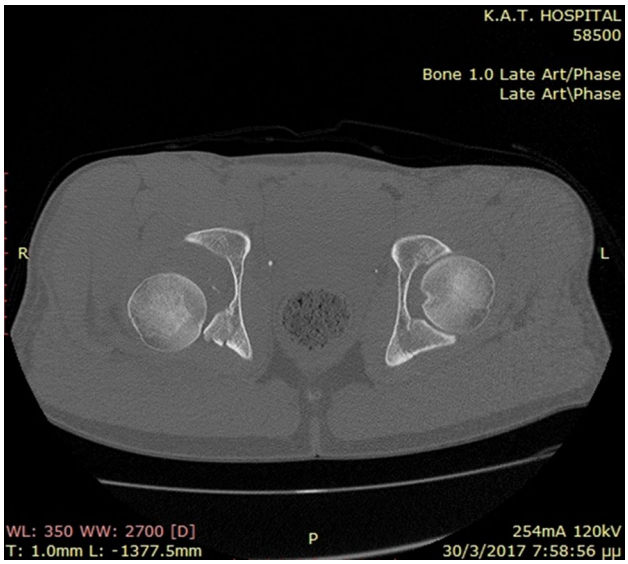

Fig. 3 Computed tomography of the pelvis: axial view showing a fracture of the posterior wall of the acetabulum

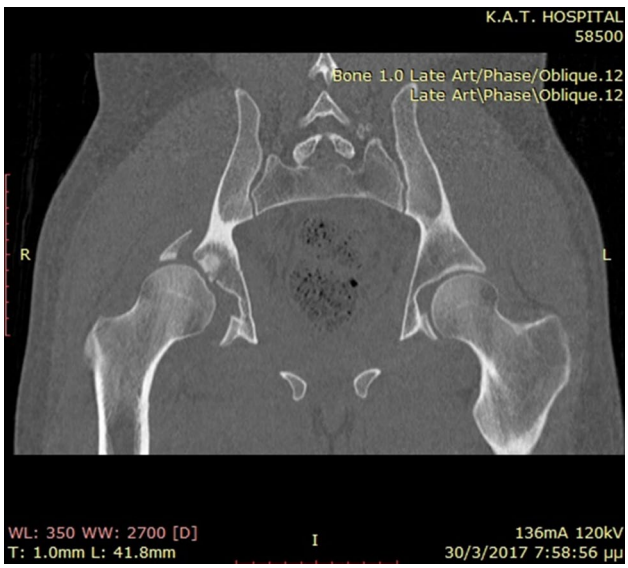

Fig. 4 Computed tomography of the pelvis: coronal view showing a fracture of the posterior wall of the acetabulum

Discussion

Hip dislocations are an orthopaedic emergency, and their immediate recognition and treatment is vital for their prognosis [11]. Traumatic hip dislocations are high energy injuries and most commonly occur during car

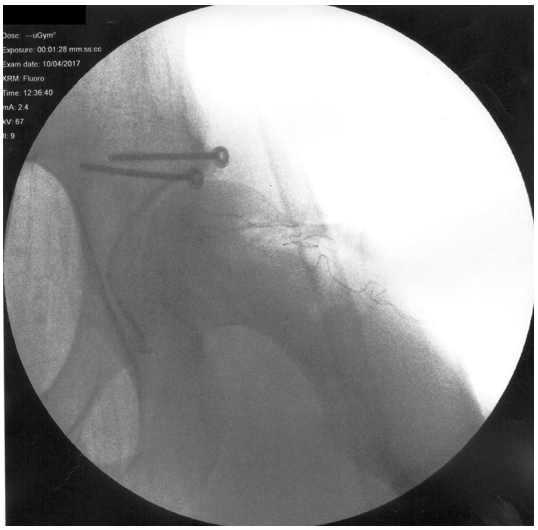

Fig. 5 Post-operative radiograph: anteroposterior plain radiograph of the pelvis showing open reduction and internal fixation of the acetabular fracture

accidents when the knee strikes the dashboard [5]. Hip dislocations as a result of sports injuries are extremely rare, accounting for 2–5% of all hip dislocations [2]. They have been reported in rugby, basketball and biking, while only six cases have been reported in football [7, 10, 12]. The most commonly reported mechanisms for posterior hip fracture-dislocation in sports are either a forward fall on the knee with the hip flexed or a blow from behind when the athlete is down on all four limbs [2]. Despite the fact that minimal force is involved, possible complications remain the same. Major complications of traumatic hip dislocation include avascular necrosis of femoral head, secondary osteoarthritis, sciatic nerve injury and heterotopic ossification. The incidence of avascular necrosis of the femoral head varies from 10 to 20% and increases when the reduction is delayed for more than 6 hours from the time of injury [1]. Delayed hip reduction is also an important factor for the development of post-traumatic osteoarthritis. Upadhyay et al. reported that degenerative hip arthritis occurs in 16% of hip dislocations without a fracture and 88% of hip fracture-dislocations [12]. Sciatic nerve injury is directly associated with delayed reduction with an impact of 0–20%, as reported by Cornwell and Radomisli [3]. A review of the literature by Giannoudis et al. [6] retrieved only one case of sciatic nerve-related complication following an injury due to sports. In the literature, there is no follow-up longer than 1 year for hip dislocation after sporting activities.

Hip dislocation during sports is rare but challenging, as it implicates a long rehabilitation time. In addition, serious complications can emerge in case of delayed reduction or imperfect restoration of the joint surfaces, especially in professional athletes. Operative intervention is often required to achieve anatomic reduction and, hopefully, a favorable outcome. In the presented case, surgical treatment led to a congruent joint reconstruction without any postoperative complications. Considering that femoral head necrosis has not occurred at the 12-month follow-up, the risk of this complication is significantly reduced or diminished. Nevertheless in the fore coming years, post-traumatic osteoarthritis may develop leading to activity limitation or even the need for hip joint arthroplasty.

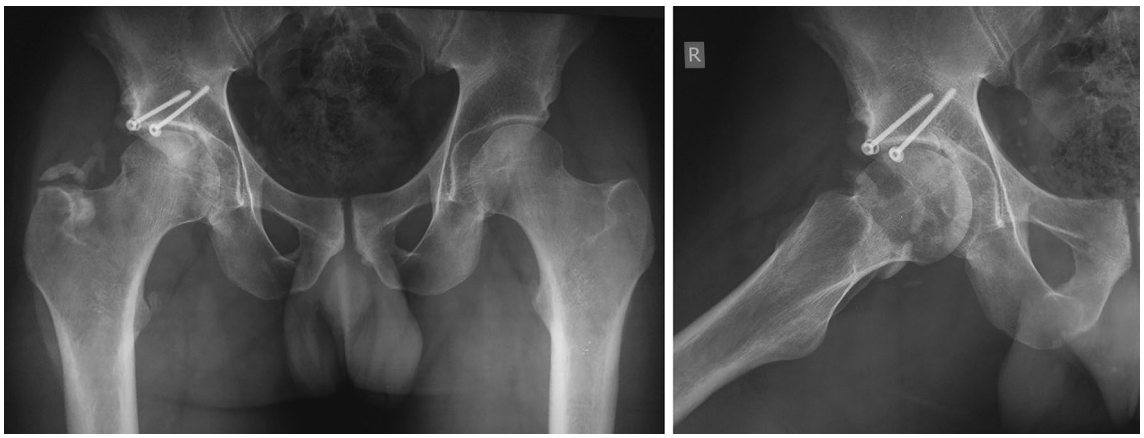

Fig. 6 Anteroposterior and lateral plain radiographs at the 12-month follow-up examination showing no signs of femoral head necrosis or post-traumatic osteoarthritis

Compliance with ethical standards

Conflict of interest The authors declare that they have no competing interests

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