Hip and Knee Dislocation in the Same Patient : A Case Report

Maj KJ Singh*, Lt Col RDS Ahluwalia†, Col AK Sinha‡

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Introduction

Dislocation and fracture dislocation of the hip and dislocation of the knee are two true surgical emergencies that must be tackled and reduced immediately. They occur primarily in conjunction with severe multiple trauma from high-speed motor vehicle accidents although rarely with trivial trauma as in our case. The physician must have a high clinical index of suspicion that such an injury may be present because frequently other life threatening injuries are also present and may divert his attention. This case is presented as both conditions are individually uncommon, the extreme rarity of these presenting in the same patient following a minor trauma and to highlight the urgency in treatment and likely complications.

Case Report

26 year old serving soldier presented in the night with history of severe pain in the left hip and the right knee. He was walking close to the unit lines in the dark when he slipped and fell into a shallow nullah. He described the fall as fairly trivial. But following that, he had severe pain and was unable to get up on his own. His shouts were responded to by colleagues and he was evacuated to the Medical Inspection (MI) Room from where he was brought to this hospital after administering injectable painkillers.

General examination revealed him to be in pain and smelling of alcohol. His vitals were stable. The left lower limb was shortened and in attitude of flexion, adduction and internal rotation. The shortening was supratrochanteric. The "Vascular sign of Narath" was positive and there was no distal neurovascular deficit. Movements at the hip and knee joint were severely restricted. On the right side, there was an obvious deformity of the knee joint with the tibia much anterior to the femur. He also had a foot drop. Movements at the knee joint were not possible. There was no evidence of any external injury on either side. A clinical diagnosis of posterior dislocation of hip on the left side and anterior dislocation of the knee on the right side was made. Relevant X-rays confirmed the diagnosis. The patient was taken up for closed reduction. Under good and adequate muscle relaxation, the left hip and right knee were reduced without much effort. However, foot drop on the right side persisted. Both sides were splinted. The patient was later transferred

to orthopaedic centre, Command Hospital (Western Command), Chandimandir for convalescence. The foot drop had not recovered till last review which was done by the author at Chandimandir four weeks following the transfer of the patient.

Discussion

Dislocation and fracture dislocation of the hip is an orthopaedic emergency and must be reduced immediately. It occurs primarily in conjunction with severe multiple trauma from high-speed motor vehicle accidents. The physician must have a high clinical index of suspicion that such an injury may be present because frequently other life threatening injuries are also present and may divert his attention. The longer the hip remains dislocated, the more likely are complications including avascular necrosis of the femoral head and post traumatic arthritis. Dislocation and fracture dislocation of the hip may be classified in several different ways. The commonest classification divides them into 'Central', 'Posterior' and 'Anterior'. Central dislocations are generally associated with comminuted fractures of the acetabulum. Posterior dislocation of the hip has been classified by Thompson and Epstein into the following 5 types [1]:

Fig. 1 : X-ray of the pelvis demonstrating posterior dislocation of the left hip joint

Fig. 2 : X-ray of the right knee demonstrating anterior dislocation of the right knee joint

- I - Posterior dislocation of the hip with or without a minor fracture.
- II- Posterior dislocation of the hip with a large single fracture of posterior acetabulum.
- III- Posterior dislocation of the hip with a comminuted fracture of the rim of acetabulum with or without a major fragment.
- IV- Posterior dislocation of the hip with fracture acetabular rim and floor.
- V - Posterior dislocation of the hip with associated fracture femoral head.

In our case it was a Type I posterior dislocation of the hip which is also the commonest. In Type I, the femoral head passes through the postero-inferior joint capsule and comes to lie posterior to the acetabulum. In this dislocation, the treatment consists of closed reduction as soon as possible followed by immobilization in Buck's traction, cast or Thomas splint for a period of two weeks. Various methods to reduce hip dislocations have been described in literature. The superiority of one particular technique has not been shown and the choice of reduction manoeuvre must be tailored to the condition of the patient [2]. If the hip is stable, prolonged immobilization and protection from weight bearing are unnecessary. Open reduction is indicated only when closed reduction is impossible or

when non-concentric reduction is obtained indicating that a loose body or soft tissue is caught within the joint.

Dislocation of the knee has been considered a rare injury but appears to have increased in frequency over the years. Hoover [3] reported 14 dislocations in a review of Mayo Clinic records over a 50 year period. Knee dislocations are designated as anterior, posterior, medial, lateral and rotary, according to the displacement of the tibia in relation to the femur. Knee dislocations are true orthopaedic emergencies. Reported series have emphasized the extensive ligamentous damage and potential for vascular complications associated with these injuries.

Because of the nature and extreme severity of the injury, complications will continue to be a common denominator in traumatic knee dislocations. Prompt recognition and treatment of these complications is of utmost importance to secure functional viability of the extremity [4]. The complications of knee dislocation may be disastrous and must be anticipated. The incidence of vascular injuries in knee dislocations vary from 0% in a series from Conwell and Alldredge to 40% in the report of Shield's et al [3]. When there is a doubt concerning injury to the popliteal artery, a thorough evaluation including arteriography and early surgery is mandatory. The absence of pulsations in the pedal vessels, tenderness, swelling and ecchymosis in the popliteal fossa and a cold cyanotic foot are well known danger signals and should be carefully sought. If the artery is not repaired, the incidence of amputation can be upto 72.5%. The repair must be completed within a 6-8 hour period after injury for optimum results. Late arterial occlusion may occur, which mandates careful serial re-examination in all patients, including those with initially symmetric pressure [5]. Peroneal nerve injuries are common and permanent neurologic damage may result. Nerve injuries occur in 16-43% of all dislocations of the knee [6]. The peroneal nerve is injured most often and the prognosis for return of function after injury is guarded. In the series of Myer's et al [3], 14 of 43 dislocations had associated peroneal nerve injury and 12 of the 14 had no return of function.

Knee dislocations can be reduced satisfactorily by closed methods. Following reduction and in the absence of additional complications aspiration of haemarthrosis using sterile technique and immobilization on a posterior plaster splint with the knee in 15-20° flexion are satisfactory. Circulation should be assessed periodically for 5-7 days. Once it is certain that the circulation is not impaired, treatment may be done for injured ligaments.

The simultaneous occurrence of ipsilateral hip and knee dislocation is a particularly morbid injury. It is usually associated with severe trauma which was not so in our case. Knee injuries often accompany hip fractures and / or dislocations and can be produced by direct or indirect trauma. Additional treatment involving knee ligament reconstruction is warranted to maximize knee function in healthy active patients [7]. A delayed diagnosis may lead to their treatment in the sequelae phase which complicates the final outcome. Therefore exhaustive physical examination is recommended for patients with traumatic hip dislocation to detect injury to the knee [8].

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