Bilateral hip dislocation with unilateral fractured acetabulum: a possible hazard of sitting crossed legged in a motor vehicle

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Abstract

Bilateral traumatic dislocation of the hips is rare and infrequently reported. Bilateral traumatic hip dislocation with an associated unilateral acetabular fracture is even rarer. A case where a 43 year old lady sustained bilateral hip dislocation associated with a right acetabular fracture when she was sitting with her left leg crossed over the right in a bus which was involved in a collision is reported.

Sitting with the legs crossed somewhat locks lower limbs and the femora in a fixed position with respect to the acetabuli and perhaps enables the impact of the collision to be concentrated. Had the lower limbs not been in this "locked" position this rare injury may not have occurred. Sitting crossed legged facing the direction of travel in moving vehicles may possibly predispose to the injury.

Key words: bilateral hip dislocation; cross legged; motor vehicle accident

Case report

After a bus in which she was travelling in collided with the back of a trailer, a 43 year old lady was brought to hospital because she was unable to walk and had severe bilateral hip pain. When the collision occurred she was sitting in the front seat of the bus directly behind the driver's compartment and with her left leg crossed over the right. Her knees were only 5cm from the wooden partition that separated the driver's compartment and the front seat. The impact of the collision resulted in her knees being thrown against the wooden partition.

On examination both her right and left hips were held in approximately 30 degrees of flexion, 25 degrees of adduction and 10 degrees of internal rotation (Fig. 1). No movement was possible at the hip joints bilaterally. The right and left femoral heads were palpable laterally in the gluteal region. There were no other injuries.

X-rays showed bilateral posterior hip dislocations with an associated undisplaced acetabular fracture on the right (Fig. 2). Closed reduction of the dislocated hip joints was instituted 6 hours after the injury. Subsequent post-reduction clinical examination of the hips depicted stable joints. Post-reduction X-rays showed concentric reduction bilaterally (Fig. 3). She was subsequently treated with bed rest and Buck's traction for 7 days, after which she was very gently and slowly commenced on physiotherapy and skateboard exercises. Twenty-two days after the injury she was discharged with advice not to weight bear on the right lower limb in view of the right acetabular fracture.

Thirteen weeks after the injury her activity level was allowed to progress to unrestricted weight bearing and ambulating with the aid of a walking frame. Eighteen weeks after the injury clinical examination showed that the right acetabular fracture had united and this was confirmed radiologically (Fig. 4). She was able to ambulate satisfactorily and only admitted to occasional pain in the right hip.

Discussion

Traumatic dislocation of the hip is uncommon and accounts for only 2-5% of traumatic joint dislocations. Bilateral traumatic hip dislocation is rare and has been reported to occur in only 1.25% of patients with traumatic hip dislocations and in 0.025% to 0.05% of all patients with traumatic joint dislocations (Thomson & Epstein, 1951; Stewart & Milford, 1954; Epstein, 1973).

The majority of traumatic hip dislocations occur as a result of high-speed motor vehicle accidents (Levin, 1992). In patients who sustain traumatic hip dislocation an associated fracture of the femoral head is common, but an associated fractute of the acetabulum is not as common (Swiontkowski, 1992). Only one case of bilateral hip dislocation with an associated unilateral

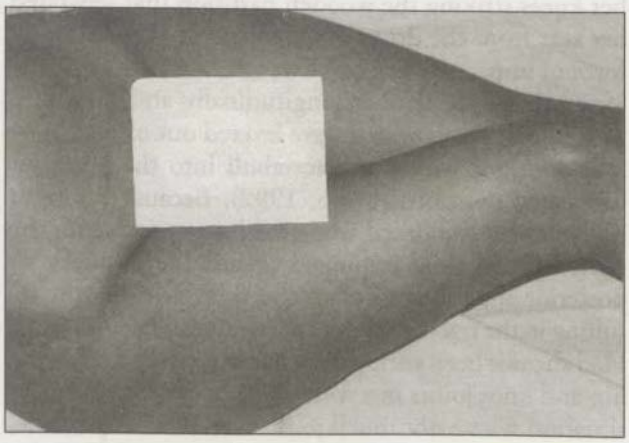

Fig. 1. Position of lower limbs after bilateral hip dislocation.

Fig. 2. Bilateral dislocation of hips and right acetabular fracture.

Fig. 3. Post-reduction after bilateral hip dislocation.

Fig. 4. X-rays at 14 weeks showing union of right fractured acetabulum.

acetabular fracture has been reported (Kuhn & Frymoyer, 1987).

While sitting in the bus with her left leg crossed over the right, the left hip joint was held in a position of greater flexion and adduction than the right hip joint. When the collision between the bus in which she was travelling and the trailer occurred, the sudden deceleration resulted in the patient being thrown forward with her knees striking the wooden partition that separated her seat from the driver's compartment. The resulting force of impact on her knees was transmitted along the long axis of the femora longitudinally and thence to the femoral heads which were levered out of their normal positions within the acetabuli into the posterior dislocated positions (Levin, 1992). Because the right hip was held less flexed when the impact occurred, the right femoral head impinged against the posterior or posterior superior aspect of the right acetabulum resulting in the fracture of right acetabulum (Levin, 1992). Had she not been sitting with her legs crossed, with the hip and knee joints in a somewhat "locked" position, a situation where not much joint movement is possible, this injury may perhaps not have occurred. Had the limbs been free to move at the hip and knee joints, the force of the impact on the knees when the patient's body was thrown forward, may not have been transmitted with as great a magnitude and as intense a concentration, along the line of the longitudinal axis femora to result in the posterior hip dislocation. Also if she had not been sitting with the femora "perpendicular" to the wooden partition separating the drivers compartment and her seat, the force of impact generated by the collision and transmitted to her knees and thence proximally would perhaps have been not as great. Whether any other injuries would have been sustained in this situation is unknown.

The bilateral posterior hip dislocations occurred when she was sitting with her legs crossed and femora almost perpendicular to the wooden partition. Sitting in this position possibly predisposed to the injury. Perhaps sitting in such a position whilst travelling in a motor vehicle especially in a bus is possibly hazardous and should be avoided.

The treatment of traumatic dislocations requires controlled accurate reduction as early as possible so as to minimise complications. Concentric stable joint reduction is essential (Levin, 1992). Occasionally CT scanning of the hip joint has been required to determine

whether joint reduction has been achieved and whether there are intra-articular bone fragments from an undetected fractured acetabulum (Levin, 1992). After appropriate joint reduction, bed rest and traction for 6 to 8 weeks, depending on the severity of the injury, has been recommended. (De Lee, 1991). For hip dislocations with associated acetabular or femoral head fractures longer periods of non-weight bearing have been recommended (Kuhn & Frymoyer, 1987). In our patient, as stable reduction was attained, early mobilisation was attempted in preference to her being wheel chair bound for a longer period, so as to reduce the risk of fracture disease.

Bilateral traumatic dislocation of the hips associated with a unilateral acetabular fracture is rare. Provided reduction is concentric, accurate and stable early gentle mobilisation may be attempted within limits of the tolerance of symptoms. The rarity of the condition, its possible predisposition to, by sitting in a particular position in a motor vehicle and the feasibility of gentle early mobilisation in the treatment has prompted this communication.

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