Ipsilateral hip and knee dislocation

A case report

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A 25-year-old motorcyclist was admitted following a collision with a car. On examination the left leg was shortened and externally rotated: the knee was dislocated with a 10-cm laceration across the anterolateral aspect just inferior to the patella. The pedal pulses were present, but there was a common peroneal nerve palsy.

Radiographs demonstrated a posterior dislocation of the left hip with an associated, minimally displaced, subcapital fracture of the neck of the femur. There was also a posterior dislocation of the left knee with an avulsion fracture of the posterior tibial spine (Figure 1).

Exploration of the knee revealed a rupture of the lateral collateral ligament extending through the posterior capsule to a distal avulsion of the posterior cruciate ligament. In addition, there was a midsubstance tear of the anterior cruciate ligament: the medial collateral ligament was intact. The neurovascular bundle was undamaged in the popliteal fossa. The posterior cruciate fragment and posterior capsule were repaired using drill holes through the tibial plateau, and the remaining soft tissues were sutured directly. Finally, an external fixator was applied to stabilize the knee in 20° flexion.

The fracture dislocation of the hip was then exposed through a posterior approach. There was no evidence of acetabular fracture, and, surprisingly, the capsule was intact. The femoral head was reduced into the acetabulum, and the fracture was stabilized with four Bohlman's pins (Howmedica). Finally, traction was applied to the hip through the femoral component of the external fixator.

The patient made an uncomplicated recovery; and at follow-up 7 years after injury, the left knee remains pain free. However, he has intermittent pain in the left hip, walks with the aid of a cane, and has been unable to return to his previous employment. On examination, his left hip has a 10° flexion contracture and flexes to 90°. His knee flexes to 105°, but has a 10° varus deformity that corrects to 5° valgus. There is no evidence of cruciate instability. Radiographs show degenerative changes in both joints: the knee has marked loss of joint space medially with associated subchondral sclerosis and bone cysts in the tibia. There is necrosis with segmental collapse of the femoral head and loss of joint space superiorly.

Discussion

Posterior dislocation of the hip, with an associated fracture of the neck of the femur, is an uncommon injury, classified as Grade IV according to Stewart and Milford (1954).

Hunter (1969) was the first to report the association of knee injuries with dislocation of the hip. In a series of 58 dislocations of the hip, he reported 24 knee injuries. Gillespie (1975) reviewed 135 posterior dislocations of the hip of which 35 had a concurrent knee injury. He considered these to be the result of two distinct mechanisms: those due to a direct blow on the front of the knee when the hip is flexed and adducted (e.g., fracture of the patella), and those attributable to a valgus, varus, or rotational strain applied to the knee, such as collateral ligament rupture.

Ipsilateral dislocation of the hip and knee has not been previously described, though it would appear to be a final stage of the former mechanism. The position of the laceration suggests that the prime force was from the anterolateral direction. Thus, in a seated motorcyclist an axial component of this force would initially dislocate the femoral head; persistence of this force would result in posteromedial dislocation of the knee with preservation of the medial collateral ligament.

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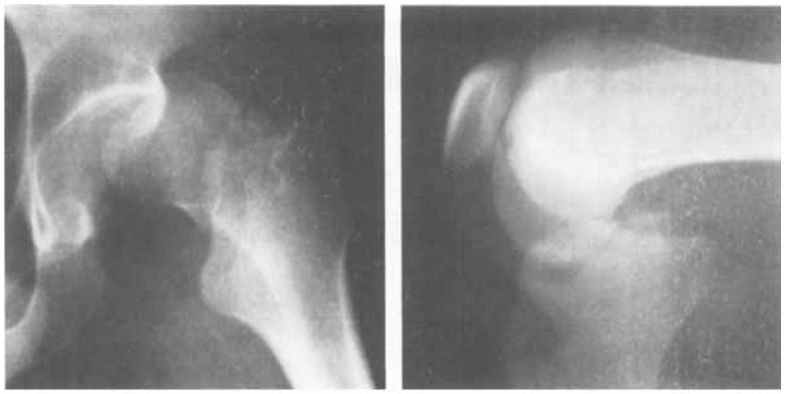

A B

Figure 1. A 25-year-old motorcyclist collided with a car.

A. Posterior dislocation of the left hip.

B. Compound dislocation of the left knee with avulsion of the posterior tibial spine.

References

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