Hip Dislocations

The hip joint is formed between the 'ball' of the femoral head and the 'socket' of the acetabulum and a cartilaginous labrum. Strong supporting muscles, the fibrous joint capsule and ischiofemoral ligament make this a stable joint.

Hip dislocations are either congenital or traumatic. Congenital dislocation of the hip is caused by dysplasia of the femoral head or acetabulum and is covered in the separate article Developmental Dysplasia of the Hip.

This remainder of this article deals with traumatic dislocation.

Traumatic hip dislocation is an orthopaedic emergency. Large forces are required to cause hip dislocation (except in prosthetic hips) and this means that such injury may be associated with other life-threatening injuries and other fractures. The condition is extremely painful. Accurate and swift diagnosis means appropriate management can reduce morbidity.

Mechanism of injury

Direct trauma, especially road traffic accidents and falls, is the most common cause of hip dislocation.

- A violent force is usually required to dislocate an adult's hip but children may sustain a hip dislocation following relatively minor trauma.
- Most adult hip dislocations are caused by motor vehicle accidents or significant falls from height.
- Hip dislocation can also occur in patients after total hip replacement when dislocation of the prosthesis may occur.
- Milder forms of acetabular dysplasia (shallow acetabulum) may present in adult life and may give rise to recurrent dislocation.
- Hip dislocations are more easily missed if there is an associated femoral shaft fracture.
- Dislocations in children must be reduced gently in order to avoid injury to the femoral epiphysis.
- Traumatic dislocations may be anterior, posterior or central.

Epidemiology

- Posterior hip dislocations account for 90% of hip dislocations.
- Incidence has decreased with the development of passenger air bags and use of seat belts in cars.
- The incidence is higher in young males because of risk-associated behaviour.
- Long-term disability after hip dislocations is very common: half of patients experience ongoing pain or reduced mobility.

Posterior dislocation of the hip

- This is caused by major force to a flexed knee and hip - eg, when knees strike the dashboard in a road traffic accident. Other serious injuries are also often present, including fractures of the posterior acetabular or femoral shaft.
- Posterior dislocations account for the majority of hip dislocations. The frequency has decreased with the increased use of belts and air bags.
- The affected leg is shortened and internally rotated with flexion and adduction at the hip. This appearance may not occur if there is also a femoral shaft fracture.
- Diagnosis is usually obvious on AP X-ray. Lateral views may be needed to exclude a hip dislocation with certainty.

Initial treatment

- Resuscitation and deal with ABC priorities first.
- Analgesia: pain is severe.
- Refer for reduction under general anaesthetic.
  "Allis' technique" for reduction:
  - It is probably easiest and safest to place the anaesthetised patient on the floor.
  - An assistant holds the pelvis down.
  - Flex the hip and knee both to 90° and correct adduction and internal rotation deformities.
  - Grip the patient's lower leg between your knees and grasp the patient's knee with both hands.
  - Lean back and then lever the knee up, pulling the patient's hip upwards.
  - A clunk confirms successful reduction.
  - X-ray to confirm reduction.

Complications

These include:

- Sciatic nerve injury: pain in the distribution of the sciatic nerve, loss of sensation in the posterior leg and foot and loss of dorsiflexion (peroneal branch) or plantar flexion (tibial branch) of the foot.
- Vascular injury: not as frequent as with anterior dislocations.
Avascular necrosis of the femoral head: risk increases the longer the hip is dislocated.\textsuperscript{[1]}
Secondary osteoarthritis.

Anterior dislocation of the hip
- This is much less common.
- It causes pain in the hip and inability to walk or adduct the leg.
- The leg is externally rotated, abducted, and extended at the hip.

Initial treatment
- Provide analgesia.
- Refer for reduction under general anaesthetic.

Complications
These include damage to the femoral nerve, artery and vein:
- Injury to the femoral nerve may occur, resulting in paralysis and numbness in the femoral nerve distribution.
- Injury to the femoral artery may produce arterial insufficiency in the leg.

Central dislocation of the hip
- The head of the femur is driven through the fractured acetabular floor following a fall or force directed along the length of the femur - eg, a car dashboard or a fall from height on to the feet.
- Leg deformity depends on the nature and extent of penetration into the pelvis. The leg is shortened, abducted or adducted, and internally or externally rotated.
- Diagnosis is usually obvious on AP pelvic X-ray.

Initial treatment
- Treat associated injuries and shock, and give analgesia.
- Refer to an orthopaedic team immediately.

Dislocated hip prostheses
- This is relatively common and may follow minor trauma.
- X-ray to confirm posterior dislocation of hip prosthesis.

Initial management
- Provide analgesia (IV opiate).
- Refer to orthopaedics for manipulation, usually under general anaesthetic.
- Replacement of the femoral head with a jumbo prosthesis has been found to be effective in one series. Other options include retaining bands.\textsuperscript{[2]}

Long term management
Includes physiotherapy to strengthen and stretch surrounding muscles.

Complications
- Mortality associated with hip dislocation is mainly due to associated injuries of the pelvis, head, or thorax.
- Local venous injury and prolonged immobilisation lead to a high risk of deep venous thrombosis, pulmonary embolism and pneumonia.
- Osteoarthritis: more common in older patients.
- Avascular necrosis is common. The incidence is increased with delays in reduction beyond six hours, with open reduction and early weight-bearing. It usually requires replacement with a prosthetic hip.
- Injury to either the femoral or sciatic nerve: usually consists of a transient lesion with recovery of function. Permanent injury may occur but is uncommon:
  - Injury to the sciatic nerve: especially posterior dislocations and may occur during the initial trauma or during reduction.
  - Anterior dislocations: occasionally cause injury to the femoral artery or nerve.
- Acetabular fracture often accompanies traumatic hip dislocation following violent injury such as falls or blows to the hip. It is most often transverse or posterior rim fracture and may lead to severe haemorrhage, damage to the sciatic nerve, myositis ossificans and osteoarthritis. Traction and internal fixation may be needed.
- Recurrent dislocation: common because of damage to supporting ligaments.
- Ligament injury to the knee, and/or other fractures.

Prognosis
Varies according to the type of dislocation and presence of associated fractures and other injuries.

Further reading & references

1. Dislocations and Fracture Dislocations of the Hip; Wheeless' Textbook of Orthopaedics

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