



Old Unreduced Post Traumatic Posterior Dislocation of Hip

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INTRODUCTION

Dislocation or 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 also are present that can divert his attention. The longer the hip remains dislocated, the more likely is the possibility of complications, including avascular necrosis of the femoral head and post-traumatic arthritis. Most dislocations of the hip can be reduced by closed manipulation, and this treatment should take precedence over treatment of all other skeletal injuries. Once the dislocation has been reduced, open reduction of any femoral head or acetabular fracture can be delayed for several days.

In adults, old unreduced dislocations of the hip are relatively uncommon. They are usually the result of a motor vehicle accident that also caused head injury, fracture of the ipsilateral femur, or dislocation or fracture of the opposite hip, which drew attention away from the dislocation. In developing countries, unreduced traumatic dislocations are seen frequently.

The various treatment possibilities include closed reduction, open reduction, heavy traction and abduction, subtrochanteric osteotomy, a Girdlestone procedure, arthrodesis, endoprosthetic replacement, and total hip replacement. Unreduced dislocations can be classified as anterior or posterior.

FACTORS

Several factors can be responsible for failure to diagnose a posterior dislocation or fracture dislocation of the hip:

- ◆ failure to examine the hip clinically and radiographically at the time of initial injury;
- ◆ a fracture dislocation, present at the moment of injury, that was unknowingly reduced by ambulance attendants and later subluxates again while the patient is being treated for other injuries;
- ◆ a fracture of the ipsilateral femur or a dislocation or fracture of the opposite hip that diverts attention from the presence of the hip dislocation.

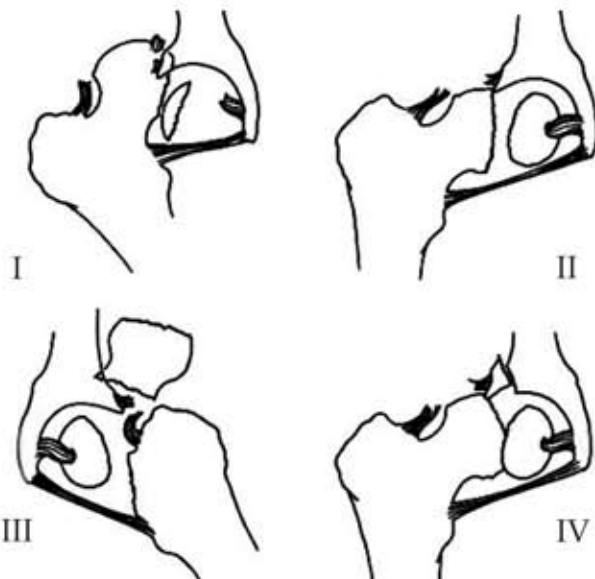
CLASSIFICATION

Unreduced posterior dislocations of the hip are much more common than the anterior type. Garrett et al. classified 39 old unreduced, traumatic, posterior dislocations of the hip, according to Thompson and Epstein into five types:

- ◆ type I is a posterior dislocation with or without minor fractures;
- ◆ type II is a posterior dislocation with a large single fracture of the posterior acetabular rim;
- ◆ type III is a posterior dislocation with a comminuted fracture of the rim of the acetabulum, with or without a major fragment;
- ◆ type IV is a posterior dislocation with a fracture of the acetabular rim and floor;
- ◆ type V is a posterior dislocation with an associated fracture of the femoral head.

Pipkin sub classified Type V as:

- ◆ Type I: Posterior dislocation of the hip with fracture of the femoral head caudal to the fovea centralis
- ◆ Type II: Posterior dislocation of the hip with fracture of the femur head cephalad to the fovea centralis
- ◆ Type III: Type I or II posterior dislocation with associated fracture of the femoral neck
- ◆ Type IV: Type I, II, or III posterior dislocation with associated fracture of the acetabulum.





CLINICAL DIAGNOSIS

- ◆ The involved limb is classically shortened, internally rotated, and adducted.
- ◆ Because of the high-energy trauma responsible for posterior dislocations, associated life-threatening injuries are common and their recognition is essential. Tronzo believes that a patient can be in shock as a result of the hip dislocation alone, and that the shock may be corrected by reduction of the hip.
- ◆ Associated musculoskeletal injuries also are common and must be carefully sought.
- ◆ Posterior dislocation of the hip associated with a femoral shaft fracture frequently goes unrecognized because the classic clinical position of the flexed, internally rotated, and adducted limb is not present.



COMPLICATIONS:

Early Complications

- ◆ **Sciatic Nerve Paresis.**
 - Pre-reduction Paresis. The sciatic nerve, most commonly the peroneal component, frequently is injured in dislocations or fracture dislocations about the hip. These nerve injuries must be recognized early. Nerve tissue does not tolerate pressure, and permanent ischemic changes soon occur.
 - Post-reduction Paresis. Occasionally during treatment, a deficit develops in a patient with no initial neurologic involvement. If this occurs immediately after closed reduction, surgical exploration is indicated to make certain that the nerve has not been trapped in the joint.
- ◆ **Irreducible Posterior Dislocations.** From 3% to 16% of simple posterior dislocations of the hip require open reduction because of irreducibility.
- ◆ **Recurrent Dislocation in Traction.** Even those posterior dislocations or fracture dislocations that are thought to be stable after

reduction have been known to sublunate while being treated in traction. Frequent x-rays demonstrating the relationship of the femoral head to the acetabulum (which may require a true lateral view) are necessary to be certain of the maintenance of reduction.

Late Complications

- ◆ **Recurrent Posterior Dislocation.** Recurrent posterior dislocation of the hip not associated with paralysis, fracture, congenital acetabular dysplasia, or sepsis is uncommon. Liebenberg and Dommissse demonstrated a defect and pouch in the posterior hip capsule in two locations after posterior dislocation. A capsular pouch was found between the piriformis and gemellus superior in one instance, and between the gemellus inferior and quadratus femoris in the other.
- ◆ **Myositis Ossificans.** The incidence of myositis ossificans is reported by Epstein to be in the neighborhood of 2%. The occurrence is related to initial muscle damage and hematoma formation, and seems to have no relation to when range of motion or weight bearing is begun after reduction.
- ◆ **Aseptic Necrosis.** Aseptic necrosis of the femoral head after posterior dislocation of the hip is a well-recognized complication. The incidence varies from 6% to more than 40%.
- ◆ **Post-traumatic Arthritis.** The incidence of posttraumatic arthritis after posterior dislocation and fracture dislocation of the hip is variable. Jacob and associates reported that degenerative arthritis developed in 38% of all patients with posterior fracture dislocations of the hip.

TREATMENT

For a type I posterior hip dislocation (no fracture or only a minor fracture of the acetabular rim less than 12 weeks from injury), with a viable femoral head,

Garrett et al. recommend a closed reduction under general anesthesia.

Technique

- Gravity Method of Stimson.
- The Allis Maneuver.
- The Bigelow Maneuver.

After 12 weeks the acetabulum may fill with fibrous tissue, making a concentric closed reduction impossible. If closed reduction fails, heavy traction and abduction should be considered, as described by Gupta and Shrivat. If the type I posterior hip dislocation with a viable femoral head has been present for longer than 12 weeks, a concentric reduction cannot be obtained with closed reduction or heavy traction and abduction, and open reduction is indicated.



TECHNIQUE (Gupta)

- ◆ Place a tibial traction pin in the region of the tibial tubercle and place the patient in 18 kg of skeletal traction.
- ◆ The patient is kept in traction and under sedation and muscle relaxation during this time.
- ◆ Obtain roentgenograms on alternate days.
- ◆ Usually by the fifth day the femoral head should be at or below the level of the acetabulum.
- ◆ Gradually abduct the limb and reduce the traction 3.6 kg every fourth day.
- ◆ Once the femoral head has been reduced into the acetabulum, maintain 7 kg of traction for the next 2 weeks.
- ◆ Remove the traction and begin non-weight-bearing exercises for the next 4 weeks. Weight-bearing is not allowed for 3 months.



A. Anteroposterior roentgenogram of left hip in 27-year-old man, illustrating posterior dislocation with myositis ossificans, now 37 days after injury.

B. Same hip on fifth day of traction. Head of femur is partially below acetabulum.

C. Same hip on seventeenth day with reduced traction and extremity in abduction.

For type II & type III posterior hip dislocation

- ◆ For posterior hip dislocations with a viable femoral head that are type II (large uncomminuted fracture of the posterior acetabular rim) or type III (comminuted fracture of the posterior acetabular rim), open reduction and internal fixation should be considered if the injury is less than 3 months old.

- ◆ If the head of the femur is displaced superiorly, preoperative skeletal traction is necessary. Since these dislocations are complicated by fractures of the posterior acetabular rim, open reduction is necessary to internally fix the bony fragments and restore stability.

For type IV & type V posterior hip dislocation

- ◆ Garrett et al. recommended total hip arthroplasty for hips with posterior dislocations categorized as type IV (fracture of the acetabular rim and floor) or type V (fracture of the femoral head with or without other (fractures) that have been dislocated for longer than 3 months).

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