

Synopsis of Causation

Traumatic Hip Dislocation

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September 2008

Disclaimer

This synopsis has been completed by medical practitioners. It is based on a literature search at the standard of a textbook of medicine and generalist review articles. It is not intended to be a meta-analysis of the literature on the condition specified.

Every effort has been taken to ensure that the information contained in the synopsis is accurate and consistent with current knowledge and practice and to do this the synopsis has been subject to an external validation process by consultants in a relevant specialty nominated by the Royal Society of Medicine.

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1. Definition

- 1.1. Traumatic hip dislocation is a specific term used to describe complete loss of contact between the articular surface of the femoral head and that of the acetabulum. The hip joint is of “ball and socket” type. Under physiological circumstances, the head of the femur is constrained within the acetabulum. When no contact exists between these two structures, dislocation is said to have occurred. It is an uncommon injury. It represents only 5% of all traumatic joint dislocations.¹ Traumatic hip dislocation occurs, almost without exception, from high-energy injury.
- 1.2. Congenital hip dislocation also occurs. This term, however, has now been superseded by “Developmental hip dysplasia” and is a chronic condition with a very different aetiology and presentation. There is no published work available on the effects of trauma on the developmentally dysplastic hip.

2. Clinical Features

- 2.1. Hip dislocation is usually unilateral; very rarely it may be bilateral. After dislocation, the femoral head can either lie anterior (10%) to the acetabulum or posterior (90%) to it.² The hip is commonly held in adduction and either internal rotation (in posterior dislocations) or external rotation (in anterior dislocations). Anterior dislocations may be associated with a palpable lump in the groin. In either case, the leg is usually shortened. The patient experiences extreme pain when any attempt is made to move the affected leg.
- 2.2. The patient presents as an emergency to hospital. In around 70% of cases, the patient will have multiple injuries.² The diagnosis is usually made once more serious, life-threatening injuries have been dealt with. Hip dislocation itself is unlikely to significantly threaten a patient's life. However, as it is a high-energy injury, there may well be associated chest, abdominal or neurological injuries which may result in an unstable patient. The sciatic nerve lies just behind the hip joint and is at risk from damage when the hip joint is dislocated. This is nearly always associated with posterior dislocation and occurs in between 8% and 19% of posterior dislocations.²
- 2.3. Dislocations can be of simple type or associated with fractures of the femoral head, the femoral neck, or the acetabulum. Central dislocation is a term used to describe the migration of the femoral head into the pelvis that would occur as the result of complete disruption of the acetabular floor (socket of hip joint).

3. Aetiology

- 3.1. Traumatic hip dislocation is a high-energy injury. Between 62% and 93% of all hip dislocations occur in drivers or passengers of motor vehicles involved in road traffic injuries.³⁻⁵ Other causes include motorcycle accidents, pedestrian versus vehicle accidents, falls, and high impact sports.⁶ In particular, football is a major sporting cause of hip dislocation.⁷ Mountainous regions of the world see hip dislocation as the result of alpine sports, in particular alpine skiing and snowboarding. It has been shown, interestingly, that alpine skiing is more likely to precipitate anterior dislocation whereas snowboarding is more likely to produce posterior dislocation and associated femoral head fracture.⁸
- 3.2. Around 35% of dislocations occur in patients in their third decade of life, and 75% occur in men.¹ There is no published work describing particular risk factors in association with traumatic hip dislocation, other than the mode of injury. Theoretically it may be reasonable to assume a congenitally dysplastic hip would be at greater risk of dislocation following trauma. Furthermore, one could postulate that if the acetabulum were slightly backward facing (retroverted), this may predispose to a posterior dislocation and any anterior deficiency in the acetabulum could result in anterior dislocation. As indicated earlier, however, there is no literature available to support or refute this.

4. Treatment

- 4.1. Traumatic hip dislocation is a true orthopaedic emergency. It is widely held that the sooner hip dislocation is reduced, the better the prognosis. There is a fourfold increase in the rate of osteonecrosis if reduction is delayed beyond 12 hours.¹
- 4.2. In the absence of a fracture, closed reduction under general anaesthetic should first be attempted; it is often successful. Once achieved, CT scanning of the hip is mandatory to look for bony fragments within the joint.
- 4.3. If a dislocation cannot be reduced, despite adequate sedation and/or muscle relaxation, it must be opened and reduced. Although unusual, the most common finding is that the femoral head “*button-holes*” through the joint capsule.
- 4.4. Where dislocation is associated with an acetabular fracture, reduction should still be achieved but may need to be maintained with traction until definitive reconstruction can be organised.

5. Prognosis

- 5.1. The outcome following traumatic dislocation of the hip is dependent on its association with other injuries, the management of the dislocation and the severity of the injury. The functional outcome is described in accordance with the functional evaluation system developed by Merle d'Aubigné and Postel,⁹ which has been subject to subsequent modification.¹⁰
- 5.2. If hip dislocation is an isolated injury then there is an 88% chance of a very good or good-to-medium long-term outcome, compared to just 54% in those with multiple injuries.¹
- 5.3. If hip dislocation is reduced within 12 hours then this carries a significant improvement in the prognosis.¹
- 5.4. On the whole, an anterior dislocation carries a better prognosis than a posterior one. One study demonstrated a fair or poor outcome in 25% of anterior dislocations compared with 53% in posterior dislocations.¹¹
- 5.5. The Stewart and Milford classification of hip dislocations is widely used, particularly in attempting to assess prognosis following injury.
 - Grade I - simple dislocation without fracture, or with fragment from acetabulum so small as to be of no consequence
 - Grade II - dislocation with one or more large fragments, but with sufficient socket remaining to ensure stability after reduction
 - Grade III - explosive or blast fracture with disintegration of the rim of the acetabulum, which produces gross instability
 - Grade IV - dislocation with a fracture of the neck or head of the femur
- 5.6. In Grade I injuries, long term complications are still quite common. Avascular osteonecrosis occurs to some degree in up to 4% of patients and early (secondary) osteoarthritis can be either moderate (4%) or mild (14%).¹¹
- 5.7. In contrast grade III and IV injuries carry a very high risk of developing avascular osteonecrosis¹² which would almost certainly require total hip replacement at some future stage. In most circumstances, if it is going to develop, then osteoarthritis will become evident within 5 years of injury. The most potent risk factor for this is delay in reduction. If after 5 years it has not developed, it is unlikely to do so.^{1,6,12}

6. Summary

- 6.1. Traumatic hip dislocation results almost exclusively from high-energy injury. It can result in disturbance to the blood supply of the femoral head and this can lead to avascular necrosis and secondary osteoarthritis.
- 6.2. The dislocation may also be associated with a fracture, either of the femoral head or the acetabulum. This tends to carry a worse prognosis.
- 6.3. Following dislocation, if the patient has normal radiographic appearances of the hip at 5 years, they are unlikely to develop serious sequelae from it.

7. Related Synopses

Osteoarthritis of the Hip

Pelvic Fractures

Fractures of the Lower Limb

8. Glossary

acetabulum	The cuplike socket in the pelvis into which the head of the femur fits.
adduction	Movement of the limbs towards the middle of the body.
anterior	Towards the front or in the front of the body.
closed reduction	The manipulation of a joint or bone externally (i.e. without making a surgical incision) to realign a dislocation or the broken ends of bones into their correct anatomical position.
CT scanning	A diagnostic technique that uses computer technology to assimilate multiple x-rays into a two-dimensional cross sectional image.
fracture fixation	The use of metallic devices inserted into or through bone to hold a fracture in a set position and alignment while it heals.
osteonecrosis	Bone death resulting from poor blood supply to a particular area.
posterior	Towards the back or in the back part of the body.
sequela (-ae)	A condition following as a consequence of a disease or injury.
traction	The application of a pulling force to the distal part of a fracture in order to allow the fracture to heal with the bone in correct alignment. There are many different methods for applying traction, usually involving weights and pulleys, which may be mediated by pins or wires inserted into the bones.

9. References

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