CASE REPORT

Anterior hip dislocation in conjunction with a stroke: a diagnosis not to miss

Nicholas Furness,¹ Thomas Mendes Da Costa,² Michael Bishay²

¹Department of Trauma and Orthopaedics, Great Western Hospital NHS Foundation Trust, Swindon, UK

²Department of Trauma and Orthopaedics, Royal United Hospital, Bath, UK

Correspondence to

Nicholas Furness,
nickdfurness@doctors.org.uk

SUMMARY

Anterior dislocation of the native hip joint is an uncommon presentation accounting for around 15% of all hip dislocations. It is usually the result of a high-energy impact in circumstances such as a motor vehicle accident or a fall from a significant height. A delay in relocation of more than 6 h has been associated with a high risk of avascular necrosis of the femoral head. We report the case of a 75-year-old man who suffered an anterior dislocation of his native hip following a fall from a standing height, associated with an acute cerebrovascular stroke. There was significant delay in the recognition of the dislocation due to the coexistent signs of the stroke. This case illustrates that hip dislocation can occur following a low-energy mechanism of injury with the possibility of serious long-term consequences if it is not promptly recognised and treated.

BACKGROUND

This is an unusual presentation of a rare yet serious injury that may have been overlooked by dual pathology. This case demonstrates that even after low-energy trauma, failure to perform a secondary survey may lead to serious pathology being overlooked.

CASE PRESENTATION

We report the case of a 75-year-old man who suffered a collapse in his kitchen. The patient reported a loss of balance and falling with his right foot jammed between the wall and a kitchen unit. He lost consciousness for between 10 and 30 min and was discovered by a neighbour who then requested an ambulance.

He was seen promptly on arrival in the emergency department and was found to be confused with a right-sided facial droop and hemiparesis. The patient's medical history featured diabetes mellitus, hypertension and a right diaphyseal femoral fracture from a motorcycle accident 40 years previously. This had resulted in a degree of scarring and hypertonia in the right quadriceps.

A CT brain was arranged and the patient was transferred to the ward under the care of the physicians; however, on arrival on the ward the patient presented with pain in his right hip. He was re-examined and his leg was found to be shortened and externally rotated (figure 1).

A referral was made to the on-call orthopaedic team and radiographs were requested.

INVESTIGATIONS

The CT brain ruled out an acute intracranial haemorrhage.

Plain radiographs revealed an anterior, superior hip dislocation with no obvious occult fractures of the femoral head or acetabulum (figures 2 and 3).

A postreduction CT scan of the hip was performed, which revealed a fracture through the anterior lip of the acetabulum (figure 4).

DIFFERENTIAL DIAGNOSIS

Given the history of a fall with a shortened and externally rotated lower limb the most likely diagnosis would be a fractured proximal femur. A pathological underlying cause would also need to be excluded.

TREATMENT

After the diagnosis was made the patient was transferred back to the emergency department where an unsuccessful attempt was made to reduce the dislocated hip under sedation. The patient was promptly transferred to the orthopaedic ward but due to a lack of theatre availability there was a delay in relocating the hip until the following day on the next trauma operating list. Closed relocation undertaken under general anaesthesia was uneventful and the position of the relocated joint confirmed with fluoroscopy. The total dislocation time was estimated to be 11 h.

Figure 1 Photograph of patient prereduction.

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Figure 2 Radiograph of hip prereluction.

OUTCOME AND FOLLOW-UP

Following reduction the patient was transferred to the acute stroke unit for further investigation of his right-sided weakness, modification of his risk factors and rehabilitation. He was entered into a surveillance programme for regular review of his hip. On review at 1 year he had regained his premorbid level of mobility and no symptoms of avascular necrosis (AVN) were present.

DISCUSSION

Anterior dislocation of the native hip joint is an uncommon presentation accounting for between 8% and 15% of all hip dislocations.¹ Usually resulting from a high-energy impact (such as in a motor-vehicle accident) the classical mechanism is a

substantial force applied from a posterior direction, with the leg in abduction and external rotation.^{2,3} Anterior dislocations can be subdivided into inferior (described as obturator due to the resulting location of the femoral head) and superior where the head lies in the inguinal region.⁴

Anterior hip dislocation is an orthopaedic emergency requiring urgent relocation as delayed reduction has been associated with a high incidence of AVN of the femoral head. One study reported signs of AVN in 52.9% of hips reduced more than 6 h after the injury.⁵ Sciatic nerve injury, damage to the anterior neurovascular structures because of impingement by the femoral head are also a concern and an associated acetabular or femoral head fracture must be ruled out postreduction. Usually further investigations (eg, CT scans) are warranted to rule out incarcerated bone fragments within the hip joint.⁶

As far as the authors are aware this is the first reported case of an anterior hip dislocation associated with a stroke and such a low-energy mechanism of injury as a fall from standing height. Following further investigation, the diagnosis of a lacunar infarct was made. It is impossible to be certain as to whether the infarct preceded the hip dislocation but the features of a stroke on presentation undoubtedly contributed to the hip dislocation initially being missed.

Phen *et al*⁷ reported a case of simultaneous bilateral central hip dislocation in a 69-year-old patient. The authors postulated the cause being due to convulsions relating to a stroke and there have been a number of similar cases reported substantiating this.⁸ The presence of hypertonia in the affected limb combined with a load across an abducted joint may have been the key factors resulting in this dislocation.

There have been a number of reported cases of sportsmen suffering anterior hip dislocations while participating in football, rugby and other activities.^{5,9,10} Recurrent low-energy hip dislocation has been reported in a professional dancer, although there are clearly patient differences that preclude direct comparison with this case.¹⁰ Of note, this patient denied any symptoms of hypermobility.

The patient in this case did not require intravenous thrombolytic therapy to treat his stroke. Had this been indicated however, the administration of recombinant tissue plasminogen activator with its associated risk of bleeding could have presented a

Figure 3 Lateral radiograph of dislocated hip.

Figure 4 Postreduction CT scan showing anterior acetabular lip fracture.

management dilemma had closed reduction failed and open reduction been required.¹¹

Taking this into account, the authors recommend involving a haematologist, stroke physician, anaesthetist and orthopaedic surgeon when treating a simultaneous hip dislocation and ischaemic stroke. This would ensure the use of thrombolytic agents and timing of attempted reduction present the best risk versus benefit scenario for the patient involved.

Learning points

- ▶ This case details an uncommon injury pattern as a result of a low-energy mechanism in conjunction with a stroke.
- ▶ This serious injury can be missed when associated with the more obvious features of a stroke and the consequent delay in reduction can lead to a poor outcome.
- ▶ There is no substitute for a thorough clinical examination when admitting every patient, irrespective of their initial presenting symptom.
- ▶ A multidisciplinary approach is important when managing patients with acute medical and orthopaedic problems.

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