Occult acetabular fractures in elderly patients: a report of three cases

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ABSTRACT

Three elderly patients with acetabular fractures not evident on the initial plain radiographs are presented. All had a fall and were unable to bear weight. Cross-sectional imaging and repeated plain radiography confirmed fractures of the acetabulum. Occult acetabular fractures may occur in elderly patients after a fall and present with persistent discomfort and difficulty walking. When there is reason to suspect such a fracture, further diagnostic studies, including a Judet view radiograph, bone scan, computed tomographic scan or magnetic resonance image should be performed.

Key words: acetabulum; aged; diagnosis; fractures, bone; magnetic resonance imaging; tomography, X-ray computed

INTRODUCTION

Acetabular fractures are usually caused by a force to the femur which is translated to the acetabulum.1–3 They commonly occur in young adults as a result of high energy trauma, but can also be secondary to a trivial fall.3 Acetabular fractures in elderly patients are uncommon, but the incidence is increasing.4 Such fractures are detected only with a high degree of suspicion and after exclusion of proximal femoral fractures.1,3 We present 3 elderly patients with a painful hip following a trivial fall. Plain radiographs failed to show any bony injuries; only further imaging revealed the acetabular fractures a few days later.

CASE REPORTS

Case 1

In 2003, an 85-year-old demented but independently mobile man presented with a painful left hip and inability to bear weight after a fall indoors. On examination there was no associated bruising or swelling. The greater trochanter was tender and the hip was painful during passive movement. A plain radiograph of the pelvis showed an old, healed valgus impacted fracture of the left femoral neck which had been treated conservatively 18 months previously. There was no evidence of any other bony injury.

The patient was treated with pain relief and early mobilisation, but the hip pain persisted. A repeated anteroposterior radiograph failed to show any fracture. Magnetic resonance imaging (MRI)
was requested to rule out a clinically suspected fresh fracture of the femoral neck, but the patient was unable to lie still long enough to obtain any meaningful MR images. Therefore, a Judet view radiograph was obtained, in which a fracture in the obturator oblique view was noted (Fig. 1a). A computed tomographic (CT) scan confirmed an anterior column fracture of the acetabulum with associated anterior and posterior wall fractures (Fig. 1b). There was comminution in the weight-bearing area of the acetabular dome with minimal displacement. He was treated conservatively with bed rest for 6 weeks. At discharge, he was able to mobilise with a Zimmer frame. The patient died of an unrelated cause 3 months later.

Case 2
In 2003, a 69-year-old woman tripped and injured her left hip. She was unable to bear weight and had painful and restricted active and passive hip movements. The greater trochanteric region was tender. The initial plain radiograph did not show any bony injury. MRI was requested to rule out any undisplaced proximal femoral fracture. Instead, it revealed a transverse fracture of the acetabulum. The fracture did not involve the weight bearing part of the acetabular dome. Thus, mobilisation was allowed with a Zimmer frame. A plain anteroposterior radiograph was repeated 7 days later and confirmed the fracture through the acetabulum (Fig. 2). She developed a deep vein thrombosis that was treated with anticoagulation. At the one-year follow-up, the fracture was united and she was able to mobilise with one stick.

Case 3
In 2004, a 69-year-old woman presented with severe pain in her left hip after a fall on ice. She underwent revision hip arthroplasty for aseptic loosening 15 years previously. As the plain radiograph did not show any fracture, she was treated with pain relief and mobilisation. Due to persistent pain, a repeated anteroposterior radiograph of the pelvis was taken and showed a healing medial wall fracture of the acetabulum (Fig. 3).

DISCUSSION
Acetabular fractures are usually caused by high-
energy motor vehicle collisions, but in elderly patients they can be a result of trivial trauma, although femoral neck fractures are more likely. Plain radiographs of occult acetabular fractures may fail to show any bony injuries initially, despite clinical signs indicating the presence of a fracture.

In a series of 25 patients aged over 65 years with acetabular fractures, 14 were caused by a simple fall, and the diagnoses of 3 were missed. Another study reported missed diagnoses of low-energy acetabular fractures in 2 elderly patients due to a lack of clinical signs and normal standard hip radiographs. MRI is as accurate as bone scanning in the assessment of occult fractures of the hip. When an acetabular fracture is suspected, there is no significant difference between plain radiography and CT in effective detection of fractures of the iliac wing, anterior pelvic column, posterior pelvic column, and pubic rami, despite the high sensitivity and specificity of both examinations. Obturator and iliac oblique radiographs, with or without supplemental CT scans, have substantial reliability. A repeated anteroposterior radiograph of the pelvis taken 7 days after injury confirmed the diagnosis in patient 2. A Judet view radiograph and CT scan demonstrated the fracture in patient 1. A missed diagnosis carries a displacement risk if patients mobilise on an unstable fracture pattern, or bed rest complications if patients do not mobilise.

We therefore recommend that occult acetabular fractures be considered in elderly patients with pain around the hip after a trivial fall and normal plain anteroposterior pelvis radiographs. When there is a high index of suspicion, further diagnostic studies including Judet view radiographs, bone scans, CT, or MRI, should be performed to avoid any oversight.

REFERENCES