We report a case of fatal haemorrhage following a low-energy fracture of the pubic ramus in an 85-year-old woman.

Case report
An 85-year-old woman fell on a patch of ice while walking. She presented to the emergency department complaining of pain in the left groin and difficulty in weight-bearing. There was a past medical history of Alzheimer’s disease, atrial fibrillation and pernicious anaemia. She was taking 75 mg of aspirin daily and vitamin B<sub>12</sub> injections. When first seen she appeared to be pale and a suprapubic mass was found. She was haemodynamically stable (pulse 88, blood pressure 103/63) and fully alert. A radiograph of the pelvis revealed an isolated, minimally-displaced fracture of the left superior pubic ramus (Fig. 1). Blood tests revealed no significant abnormality of clotting or platelets. Her haemoglobin concentration was 10.6 g/dl. She was catheterised for acute urinary retention, and admitted under the orthopaedic team.

Six hours later, she became confused with signs of shock (pulse 150, blood pressure 86/62). The abdomen became distended and tender. An ultrasound scan, promptly performed, showed a large mass in the lower abdomen, extending from the umbilicus to the pubic symphysis. The haemoglobin fell to 3.3 g/dl. She was transfused urgently, receiving a total of four units of blood and two of fresh-frozen plasma. During this treatment, she had a respiratory arrest, from which she was successfully resuscitated. Six hours later she suffered a cardiorespiratory arrest while awaiting a CT scan. This time attempts to resuscitate were unsuccessful.

Subsequent post-mortem examination revealed approximately 3 L of clotted blood in the lower abdomen. No pelvic blood vessel was revealed as a single source of the haemorrhage but there were changes consistent with Paget’s disease in the pubic bone.

Discussion
Fracture of the pubic ramus is a common injury. Typically it is seen in elderly osteoporotic female patients following low-energy trauma but in younger patients, high-energy trauma is usual. It is wise to differentiate between these two groups. An isolated pubic ramus fracture is considered to be stable. Admission of these patients to hospital is followed by an uncomplicated recovery with...
some analgesia and physiotherapy as required. Indeed if the patient is capable of mobilisation unaided, hospital admission may be unnecessary. Poole and Ward\(^2\) have reported that deaths from primary pelvic injury is uncommon, accounting for only 14% of patients who die with a pelvic fracture. The majority of deaths are due to associated injury and all 14% had unstable pelvic ring fractures.

There have been deaths reported from severe hypovolaemic shock due to rupture of the obturator\(^3\) or iliopubic artery\(^4\) but these cases were in young patients with high-energy injuries. Indeed, Herrera Perez and Alcover\(^4\) stress the need to distinguish between fractures in the young and old patients.

Our patient presented after a typical low-energy injury resulting in a common pattern of fracture of a pubic ramus. She was not on anticoagulant therapy, although she was taking a low dose of aspirin. No specific vascular injury was identified although the authors accept the haemorrhage can be excessive from bone affected by osteitis deformans (Paget’s disease). Although this condition was possibly present on her radiographs, the cause of death was most likely because of laceration of an intrapelvic blood vessel. A fatal outcome might be preventable were such pathology suspected early and appropriate imaging (for example CT angiography) performed to confirm the diagnosis. A minimally-invasive technique such as embolisation is preferable to open surgery in the emergency setting.\(^5\)

We advocate hospital admission for every elderly patient with a pelvic fracture for at least 24 hours, during which regular haemodynamic observations should be performed, particularly if the patient is taking anticoagulant medication.

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References