CASE REPORT

Life threatening stable pubic rami fracture

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Introduction

It is well known that high-energy unstable pelvic trauma is commonly complicated by vascular injuries.\cite{3,6} Concomitant arterial damage carries a high mortality\cite{1} and this is an uncommon complication in low energy stable pelvic fractures. In the latter situation, this potentially life threatening problem can be easily missed. We report a case of a simple, stable pubic rami fracture with concomitant internal iliac artery injury which was successfully treated with embolization.

Case report

A 79-year-old woman sustained a fall on level ground and was taken to the Accident and Emergency Department. On admission, she complained of left groin pain, her blood pressure was 147/77 mmHg, her heart rate was 121/min. Radiograph of the pelvis revealed minimally displaced fractures of the left superior and inferior pubic rami (Fig. 1) but the left hemipelvis appeared rotated suggesting an injury to posterior pelvis which was definitely excluded by subsequent computed tomographic (CT) scan (Fig. 2). She was triaged as a category IV patient (can afford to wait without deterioration) and was admitted to the orthopaedic ward about one hour later. She was clinically stable and was advised to have bed rest. The vital signs including blood pressure and pulse rate were monitored hourly. Routine blood tests including the complete blood picture were performed. Two hours later, her blood pressure dropped to 85/56 mmHg and her pulse rate was 155/min, physical examination revealed her abdomen was soft, non-tender and per-rectal examination was normal. Her haemoglobin level came back was 12.9 g/l. Five hundred millimetres Gelofuscin was infused in full rate intravenously and a Foley’s catheter was inserted to monitor her urine output. Her blood pressure improved to 105/75 mm Hg after the infusion and urine output was 30 ml/h. Her blood pressure stayed on the low side and dropped again nine hours after admission. It was 76/53 mmHg and the pulse rate was 150/min. Physical examination at this time showed left lower quadrant tenderness and guarding. The General Surgeon was consulted urgently. The patient’s haemoglobin level checked at this juncture had dropped to 9.2 g/l. Two units of blood were transfused and urgent CT scan of the abdomen and pelvis were performed later. This showed a haematoma posterior to the rectus abdominis muscle and there was no visceral injury (Fig. 3). An emergency pelvic angiogram showed active bleed-
ing from a terminal branch of the left internal iliac artery, likely the obturator (Fig. 4). Selective arteriography demonstrated the bleeding artery and Gelfoam embolization was performed with successful occlusion of the left internal iliac artery. Her blood pressure increased to 110/60 mmHg and pulse rate was 84/min. She became clinically stable afterwards. Another angiogram was performed two days later because of borderline blood pressure and pulse rate in order to exclude ongoing minor bleeding and it showed no active bleeding. She later recovered well and was discharged home.

**Discussion**

Stable, closed pelvic fractures are often the result of low energy trauma, particularly in the elderly, and are associated with fewer secondary injuries than unstable, high-energy pelvic trauma.

Stable pelvic fractures are usually treated conservatively with bed rest for few days. The patient is then mobilized as much as they can tolerate. Occasionally, they may be associated with other significant conditions such as sacral fracture or arterial damage and these could be life threatening.

Ben-Menachem et al. suggested a logical approach in managing haemorrhage associated with pelvic fractures. They pointed out that the probability of arterial bleeding was a function of the type of pelvic fracture. Whereas arterial injuries were more common in patients with antero-posterior compression (II, III), lateral compression (III) and vertical shear injuries, they were less common in simple pubic rami fractures. The most frequently injured arteries were the superior gluteal and internal pudendal arteries.

Henry et al. found that older patients with pelvic fractures were more likely to haemorrhage and require angiographic studies.
Our patient had a minimally displaced fracture of the superior and inferior pubic rami which resulted from low-energy trauma, yet the fracture tore the terminal branch of the internal iliac artery and caused acute internal bleeding. Meyers et al.\textsuperscript{4} reported two cases of pubic rami fractures with concomitant avulsion of the pubic branch of the inferior epigastric artery. These injuries were different from our patient in that they resulted from a relative high-energy trauma.

Our patient was treated as an ordinary pubic rami fracture in the initial phase of management but she was put on close observation and monitoring. The deterioration in general condition was detected and treated promptly. Learning from this particular case, we would like to emphasize the important of close monitoring at the initial phase after injury even for stable pelvic fractures. Vital signs including the blood pressure, pulse rate, urine output and mental state of the patient should be monitored and this helps to detect hypovolaemic shock early. Patients complaining of abdominal pain, which may signify serious conditions such as internal bleeding, should be assessed promptly. This case report serves to alert clinicians treating patients with pelvic fractures the possibility of such an uncommon complication.

References