Splenic rupture presenting as haemothorax

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INTRODUCTION

It is well recognized that blunt trauma to the left chest may injure the spleen. It is expected that this will in turn lead to signs detectable in the abdomen. When diaphragmatic rupture has occurred it is still reasonable to expect abdominal signs. Rauff *et al.* (1977) go so far as to say that the clinical picture of diaphragmatic rupture is 'dominated by the features of an acute abdomen'. A case of closed abdominal and thoracic trauma is described in which the only important clinical signs were those of a large haemothorax. At operation diaphragmatic rupture was found to have occurred, so that although the sole cause of bleeding was abdominal, the signs were all thoracic.

CASE REPORT

A 61-year-old woman was the front seat passenger in a car which hit a wall at high speed. She was not wearing a seat belt; this incident occurring before the introduction of seat belt legislation. It was reported by the ambulance men that she suffered a grand mal seizure in the ambulance on the way to hospital.

On admission she was complaining of pain in the left wrist and left chest. She was not distressed or short of breath, and she appeared to be well perfused. Examination revealed a regular pulse rate of 96 beats per minute, and she was hypotensive with a systolic pressure of 50 mm Hg. There was bruising over the left lower ribs, with normal respiratory movements but decreased breath sounds. The right side of the chest moved normally with normal breath sounds. In addition she had a clinical fracture of the left radius and ulna at the wrist, and a large scalp laceration over the forehead exposing the periosteum of the skull. Shortly after admission she began to complain of breathlessness, but the respiratory movements on the left side did not decrease at first. Breath sounds became less distinct than on admission, and the percussion note became dull on the left.

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A portable chest X-ray was taken with the patient supine (Fig. 1). The patient was not central over the film, but it could be seen that the left ribs from 2–10 were fractured at the posterior angles, and there was a generalized opaque appearance to the left side of the chest which suggested the presence of blood. There was no pneumothorax. A 28 gauge intercostal chest drain was inserted in the second intercostal space in the mid-clavicular line and a steady flow of blood was obtained. The patient became increasingly short of breath and was asking to sit up. She then had another epileptic fit and was sedated with etomidate, paralysed with suxamethonium and intubated and ventilated with 100% oxygen. There was heavy and continuing blood loss and despite large infusions, also through separate lines, of normal saline, Haemaccel and uncrossmatched blood, her systolic blood pressure did not rise above 50 mm Hg.

She was transferred to the operating theatre for thoracotomy. Blood loss through the chest drain by this time was 2800 ml and total fluid replacement was 1500 ml normal saline, 2500 ml Haemaccel and 2 units of uncrossmatched blood.

Fig. 1 Supine chest X-ray taken on arrival. The left chest contains blood and a suspicious area can be seen at the highest part of the dome of the left diaphragm.

Exploration of the left chest was carried out through a posterolateral incision. The thoracic cavity was found to contain a large quantity of blood and clot and there was a large diaphragmatic rupture. At the time of operation there were no abdominal contents in the chest, but exploration of the abdomen through the diaphragm showed rupture of the spleen to be the major cause of the haemorrhage. The only intra-thoracic damage was a small tear in the lingula. After resection of the spleen and repair of the diaphragm she was transferred to the intensive care unit for ventilation and further management.

In retrospect it was felt that the fits were secondary to hypoxia.

Three weeks after admission she was discharged home. Four weeks after this she was referred back to the hospital and further investigations revealed a subphrenic abscess. This was drained at laparotomy.

DISCUSSION

The diaphragmatic hernia was visible but not recognized on the chest X-ray taken on arrival. It can be seen (Fig. 1) that the quality of the film was not good.

Supine chest films are often misleading and some thought needs to be given to the positioning of the patient if full value is to be obtained. It is important when chest trauma is present to have the films taken with the patient as upright as possible (Rutherford *et al.*, 1980). Any blood will then concentrate in the lower part of the chest and be easier to see. This position also allows assessment of the mediastinum in its true perspective. In this particular case, of course, an upright film would have caused the blood to settle and obscure the diaphragm, and the only position which might have made the lesion more obvious would have been a lateral decubitus film with the patient head down.

Traumatic splenic rupture is common and traumatic diaphragmatic rupture is not rare (Large & Stoker, 1983). It is not remarkable that the two conditions should co-exist. However, a five year retrospective search of the literature has failed to reveal reports of a similar case. It is important that clinicians who deal with major trauma should be aware of the unusual presentations of common conditions, especially those that will require energetic resuscitation and exploratory surgery.

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