Boerhaave's syndrome secondary to epigastric hernia

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INTRODUCTION

Spontaneous oesophageal rupture (Boerhaave's syndrome) is a life-threatening condition. Boerhaave's syndrome is usually precipitated by severe vomiting, resulting in a sudden onset of severe thoracic or epigastric pain. Diagnosis is often delayed as the clinical picture mimics other emergency conditions, such as myocardial infarction, acute gastritis, and acute pancreatitis.

CASE REPORT

A 66-year-old man presented with a 2-day history of worsening upper abdominal pain, vomiting and constipation. He appeared in severe discomfort and was retching profusely. His symptoms had become worse over the past 48 hours, and in this time he had not been able to open his bowels. He had mild learning difficulties since childhood and had previously been diagnosed with an epigastric hernia, which had been asymptomatic.

On examination he was obese, dehydrated and tachycardic, but had oxygen saturations of over 95% and was not tachypnoeic. He had a palpable irreducible epigastric mass, which was very tender to touch, and bowel sounds were noted to be increased. Digital rectal examination was unremarkable as was the remainder of his physical examination. An initial diagnosis of obstructed epigastric hernia was made, and the patient was resuscitated with intravenous fluid and oxygen. Erect chest and abdominal X-rays were performed to exclude a perforated viscus and to confirm the level of obstruction. The abdominal X-ray was unremarkable, but the chest X-ray (*Figure 1*) revealed an abnormally wide mediastinum containing air. There was, however, no evidence of a pneumothorax and, when the patient was re-examined, he had no surgical emphysema.

An urgent computerized tomography (CT) scan of the chest and abdomen was organized but, while being scanned, the patient's condition suddenly deteriorated. He became visibly distressed and short of breath and, as a result, the scan was rapidly completed and the patient sat up and administered oxygen. Review of the thoracic CT scan revealed a right-sided haemopneumothorax, pneumomediastinum, and a left-sided pleural effusion (*Figure 2*). The abdominal CT (*Figure 3*) demonstrated his epigastric hernia containing a grossly distended stomach and several dilated loops of small bowel.

A diagnosis of oesophageal rupture secondary to severe emesis (Boerhaave's syndrome) owing to irreducible epigastric hernia was made, and a right thoracic drain inserted. This immediately drained 2 litres of blood-stained fluid, which was litmus tested, indicating acid content. Following further resuscitation, the patient was taken to theatre for a laparotomy and right-sided thoracotomy.

At operation the epigastric hernia sac was found to contain much of the greater curve of the stomach. The neck of the sac was subsequently widened and contents returned to the abdominal cavity. Formal laparotomy was otherwise unremarkable, and right-sided thoracotomy performed. This revealed a collapsed right lung with gastric contents in the pleural and mediastinal spaces, and a complete tear at the distal oesophagus (approximately 30 cm). Owing to the friability of the oesophageal tissue surrounding the perforation, primary repair was not attempted and a 'T-tube' was inserted into the perforation with the defect repaired over this, in order to produce a controlled fistula. A feeding jejunostomy and drainage entero-gastrostomy tube were also inserted. Finally, the epigastric hernia defect was repaired and the abdomen was closed.

Postoperatively, the patient spent 5 days in the intensive care unit and was then transferred to the ward where he received 6 weeks of intravenous antibiotics. A soluble contrast swallow performed on the 52nd postoperative day revealed that the oesophageal perforation had sealed and the patient was discharged from hospital shortly after.

Figure 1. Chest radiograph showing a widened mediastinum with several vertical linear thin radiolucent stripes representing air accumulation along the fascial planes.

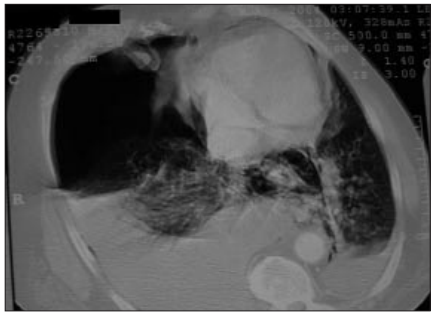

Figure 2. Chest computerized tomography scan showing a right-sided haemopneumothorax, pneumomediastinum, and a left-sided pleural effusion.

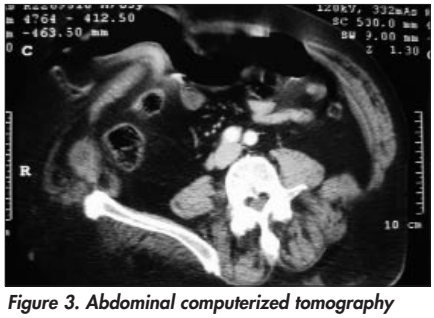

Figure 3. Abdominal computerized tomography demonstrating an epigastric hernia containing a grossly distended stomach and several dilated loops of small bowel.

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DISCUSSION

Boerhaave's syndrome was first described by Herman Boerhaave (1724) in his patient, Baron Jan von Waasener, Grand Admiral of the Dutch fleet, who vomited after a meal and developed left-sided chest pain, dying 18 hours later. Post mortem revealed a perforation of the left posterior wall of the oesophagus with food in the left pleural space (Mamun, 1998). Although vomiting, lower thoracic pain and subcutaneous emphysema often accompany Boerhaave's syndrome, these non-specific symptoms can result in delayed diagnosis. A series found that only 36% of patients with this condition were treated within 24 hours of perforation, with an overall mortality of 24% (Jougon et al, 2004).

The first investigation that draws the clinician's attention to the diagnosis is a chest radiograph, which is abnormal in 91% of patients with this condition (pleural effusion in 63%, pneumomediastinum in 46% and subcutaneous emphysema in 37%) (Wu et al, 1996). Early diagnosis is particularly important because mediastinitis, sepsis and shock frequently follow, having a major impact on survival.

Important early steps include aggressive fluid resuscitation, nasogastric suction, and an accurately positioned chest tube. Broad-spectrum antibiotic therapy, respiratory support and early nutritional supplementation are also important. Definitive surgical management within 12 hours of rupture with primary repair is associated with a more favourable outcome (Bladergroen et al, 1986), but for those that are diagnosed late, T-tube drainage is a well-established alternative (Hill et al, 2003). HM

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Jougon J, Mc Bride T, Delcambre F, Minniti A, Velly JF (2004) Primary esophageal repair for Boerhaave's syndrome whatever the free interval between perforation and treatment. *Eur J Cardiothorac Surg* **25**(4): 475–9

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