CASE REPORT

Boerhaave's syndrome presenting as an upper gastrointestinal bleed

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SUMMARY

A 64-year-old man without any significant medical history presented to accident and emergency department with haematemesis and melaena, quite similar to an upper gastrointestinal bleed. However, the unexplained left-sided neck pain with a history of overnight vomiting prompted further imaging. Air was visible in the soft tissues on a lateral X-ray of the neck, which led to a CT scan and this showed a proximal-mid oesophageal rupture. The patient was stabilised and transferred to a cardiothoracic unit for observation. An inpatient endoscopy did not detect a perforation and the patient was discharged 5 days later without any further complications. This case report highlights how a high oesophageal rupture can mimic an upper gastrointestinal bleed and also the need for further imaging when there is an incongruent history, so that appropriate care is provided to minimise mortality.

BACKGROUND

This case report shows how a common presentation of upper gastrointestinal bleeding can be caused by an atypical presentation of Boerhaave's syndrome. This was a spontaneous oesophageal rupture with potentially life-threatening consequences if the diagnosis was missed or delayed. If not for the left-sided neck pain provoked by an atypical site of a proximal to mid-oesophageal rupture, which then led to further imaging, this diagnosis could have been overlooked. Interestingly, this patient had a normal chest X-ray, but abnormalities were still detected on the CT scan. This suggests that further imaging is appropriate if there is significant clinical suspicion. However, if this diagnosis is delayed, there is an increasing likelihood of mortality if control of infectious sources and adequate nutrition is not achieved.¹ To our knowledge this is the only case report where Boerhaave's syndrome has presented in this way.

CASE PRESENTATION

A 64-year-old man with no significant medical history presented to the emergency department with haematemesis and melaena. The patient reported overnight retching and vomiting, with a sharp pain localised to his throat after consumption of a boneless tuna salad. The patient denied taking any medications including over the counter medications. The patient had no variceal risk factors.

On admission the patient had a temperature of 38.3°C normotensive (blood pressure 130/72) with a sinus tachycardia of 122 bpm. On examination, the patient had left-sided neck tenderness with no

subcutaneous emphysema and had an unremarkable throat examination. There was mild epigastric tenderness and melaena.

INVESTIGATIONS

Admission blood tests showed that haemoglobin was 12.1 g/dL (12.6–18) and urea was 15.2 mmol/L (2.5–7.8), otherwise the rest of the routine blood tests were normal.

The chest X-ray was unremarkable. A cervical spine radiograph was performed to investigate the patient's reported neck pain, which showed that there was air within the paravertebral soft tissues (figure 1). For this patient, an endoscopy was not performed initially due to the unavailability of this service out of hours. Therefore, a CT scan of the neck and chest was requested, which showed abnormal pockets of air surrounding the trachea. This is indicative of oesophageal perforation (figures 2 and 3). An abdominal CT scan was unremarkable.

DIFFERENTIAL DIAGNOSIS

Important differentials to exclude initially for the upper gastrointestinal bleeding were peptic/duodenal ulcers and malignancy.² However, due to the abnormalities seen on CT, further differentials include a rupture of pulmonary alveoli, barotrauma and organ perforation. Potential sites of perforation are the trachea, bronchi, oesophagus and/or abdominal viscus. The diverticulum at the pharynx and/or oesophagus can also become potential sites of rupture.³ Oesophageal rupture was the most likely diagnosis from the history and the imaging results.

Figure 1 Lateral neck X-ray showing extensive air within the paravertebral soft tissues.

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Figure 2 CT scan of the neck and chest. Multiple pockets of gas surrounding the trachea and adjacent soft tissues.

TREATMENT

The patient received resuscitation and intravenous amoxicillin/clavulanic acid (a β -lactam antibiotic combined with a β -lactamase inhibitor), prior to his transfer to a local cardiothoracic unit.

OUTCOME AND FOLLOW-UP

The patient remained as an inpatient for 5 days under observation at a cardiothoracic unit. A subsequent inpatient gastroscopy, colonoscopy and barium swallow with water-soluble contrast were unremarkable. The patient was discharged with a diagnosis of Boerhaave's syndrome and has not had any further complications.

DISCUSSION

Boerhaave's syndrome was first described in 1724 by a Dutch physician named Herman Boerhaave, who noted the spontaneous oesophageal rupture after vomiting, in a Dutch Grand Admiral who had overeaten.⁴ To our knowledge, this is the only case report where a patient presented similar to an upper gastrointestinal bleed.

Boerhaave's syndrome is defined as spontaneous oesophageal rupture not caused by foreign bodies or iatrogenic instrumentation. It is caused by a sudden increase in intraluminal oesophageal pressure during straining or vomiting with failure of the cricopharyngeus muscle to relax. The left posterolateral wall of the distal oesophagus is most likely to perforate, because of its anatomic weakness.⁴ The Mackler triad of subcutaneous emphysema, chest pain and vomiting is diagnostic, but uncommon.

Ninety per cent of cases have a new pleural effusion on the chest X-ray. Other potential changes on the chest X-ray are pneumothorax, pneumomediastinum and/or mediastinal emphysema.⁵ For similar presentations, a radiography of the neck and/or CT imaging with water soluble contrast is recommended.

Conservative treatment is suitable if there is cervical or thoracic rupture, minimal clinical evidence of sepsis, a non-neoplastic aetiology and the absence of drainage outside of the oesophagus. Conservative treatment can involve total parenteral nutrition, broad spectrum antibiotics and oral hygiene. For

Figure 3 CT scan of the chest show that these pockets of gas extend further down the chest.

patients not suitable for conservative management, the potential surgical interventions include primary closure, surgical drainage, diversion and exclusion, oesophageal stenting and oesophagectomy.^{6–8} Mortality from oesophageal rupture is more than 30% and this rises with delayed diagnosis.⁹

The explanation for this patient's atypical presentation was most likely due to a small high oesophageal rupture that was self-contained, but the earlier injury to the oesophagus led to haematemesis and internal bleeding, which resulted in melaena. Also, the oesophageal perforation would explain the presence of air in the surrounding soft tissue. No further surgical management was appropriate due to an unidentifiable source of the perforation and there was no drainage outside the oesophagus. Furthermore, the patient was clinically stable.

This case report emphasises the importance to consider spontaneous oesophageal rupture as an uncommon cause for upper gastrointestinal bleeding. Also, this case highlights the necessity to identify a single cause for a patient's presentation otherwise this diagnosis would have been missed. A CT scan is useful in confirming this diagnosis when, despite resuscitation, the patient is too critically ill for endoscopy or there is an unavailability of endoscopy, such as at night. Also, to be aware that a normal chest X-ray does not exclude perforation and if there is a strong clinical suspicion, a CT scan is appropriate to establish a definitive diagnosis. Early diagnosis of this condition, with resuscitation, antibiotics for sepsis and adequate nutrition with involvement of cardiothoracic surgeons, will minimise patient mortality, especially for a lower oesophageal rupture that has a mortality approaching 100%, if left untreated.¹⁰

Learning points

- ▶ Boerhaave's syndrome is an elusive diagnosis, which can mimic an upper gastrointestinal bleed. If diagnosed correctly this will allow for an appropriate level of care early on and this will minimise patient mortality.
- ▶ This case highlights that a CT scan is useful in establishing the diagnosis in the acute setting or when endoscopy is not available, such as at night in smaller district hospitals.
- ▶ Endoscopy may not always be able to detect oesophageal perforations especially if the event occurred several days ago.

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Competing interests None.

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