

Case Reports

Enough to Bring a Lump to the Throat: Two Emergency Presentations to the Acute Medical Take

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Key Points

- An incarcerated hiatus hernia should be considered in any patient presenting with acute chest or abdominal pain in the absence of a clear alternative explanation and when radiological evidence of a hiatus hernia is present. Emergency surgery may be life saving

Case number 1

An eighty nine year old woman was admitted with a two day history of abdominal pain and vomiting. Two months previously she had undergone a Hartmann's procedure following a sigmoid perforation secondary to diverticular disease. A hiatus hernia had been noted on a CT undertaken prior to her recent surgery (Figure 1).

She described a past history of ischaemic heart disease, paroxysmal atrial fibrillation, and breast cancer resulting in left mastectomy and axillary clearance in 2006. She was on a variety of medications for atrial fibrillation, angina and heart failure, but was not taking any antiplatelet or anticoagulant medication due to previous intolerance.

On examination there was evidence of recent disgorgement of dark brown vomitus. Her respiratory rate was 26/min with oxygen saturations of 97% whilst breathing room air. Her heart rate was irregular at a rate of 80/min. Blood pressure was 140/70. Chest auscultation revealed bibasal inspiratory crepitations. Her abdomen was soft and non tender. An ECG showed atrial fibrillation; chest radiograph (CXR) revealed an elevated left hemi-diaphragm and a large hiatus hernia, but no subdiaphragmatic free air was seen (See Figure 2).

Her full blood count showed a normal haemoglobin (11.6g/dL) with a neutrophil leucocytosis ($15.6 \times 10^9/L$). C-reactive protein was 18.9mg/L.

An initial diagnosis of aspiration pneumonia secondary to gastro-oesophageal reflux from a large hiatus hernia was made. Intravenous amoxicillin-clavulanate 1.2g was administered, along with a single 40mg intravenous dose of omeprazole.

Two hours following this review the patient experienced a pulseless electrical activity cardio-respiratory arrest and further dark brown vomitus was evident. The patient was intubated and endotracheal suction was performed. Although cardiac output was initially restored, the patient did

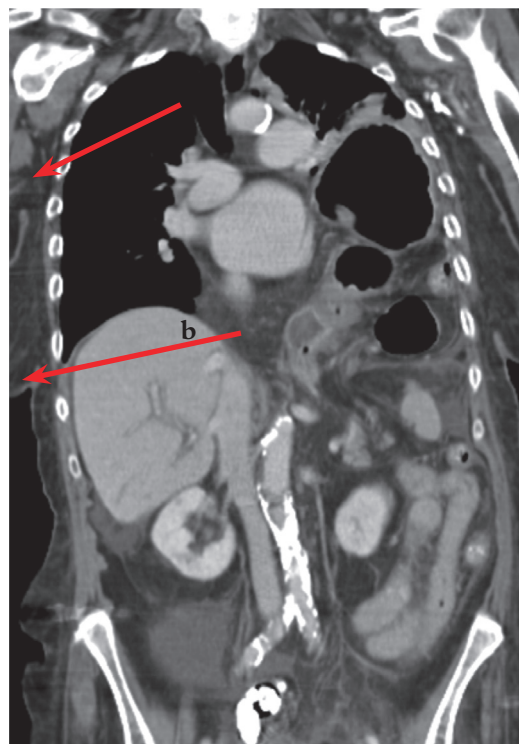


Figure 1. Coronal CT of lower thorax and abdomen of patient described in case 1 at the time of her previous presentation with bowel obstruction secondary to diverticular stricture. The gastric fundus (a) is in the chest cavity and the diaphragmatic hiatus (b) is widened.

not regain consciousness, and a palliative approach was adopted. She died later that day.

A post mortem revealed a large hiatus hernia with the proximal two thirds of the stomach protruding into the left chest cavity. At the level of diaphragm there was evidence of strangulation with infarction and necrosis of the distal stomach. The cause of death was recorded as gastric infarction

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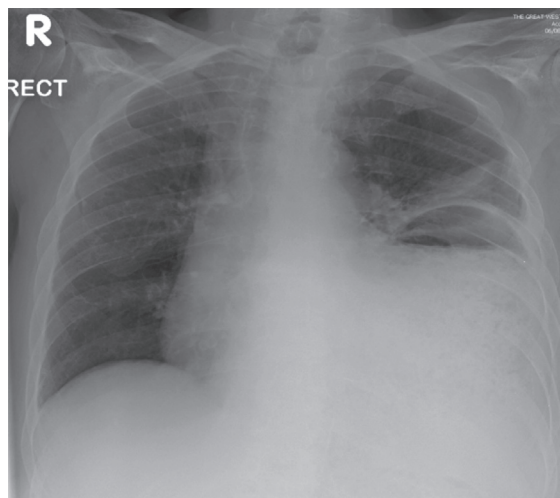


Figure 2. Plain CXR of patient described in case 1. This shows a large hiatus hernia containing a fluid level.

secondary to hiatus hernia and gastric strangulation. Diffuse bronchopneumonia and pulmonary oedema were also noted at the post mortem and therefore bronchopneumonia was recorded as having contributed to the patient's death.

Case number 2

A 74 year old woman presented to the Acute Medical Unit with epigastric, burning pain that had come on after having eaten a meal. It had lasted about eight hours and was associated with nausea and one episode of vomiting. She had a past medical history of hypertension and was also known to have a hiatus hernia and had suffered with symptoms of gastroesophageal reflux for over four years for which she took a proton pump inhibitor. She had given up smoking ten years previously.

On examination she was afebrile and haemodynamically stable with no murmurs. Respiratory examination was also normal with oxygen saturations of 96% on room air.

Full blood count showed a neutrophil leucocytosis of $12.48 \times 10^9/L$. Amylase levels were normal. Electrocardiogram showed T-wave inversion in her inferior limb leads. Troponin I levels were $<0.1 \text{ Ng/ml}$. CXR showed a hiatus hernia. A clinical diagnosis of an incarcerated hiatus hernia, was made and a surgical opinion was requested.

She developed a low grade fever of 37.9°C and remained unable to swallow. An attempt at passing a nasogastric tube, to decompress the hiatus hernia was made but it was unsuccessful. CT scanning confirmed that the nasogastric tube was curled in the oesophagus. A laparotomy was performed approximately thirty hours after she had been admitted.

At operation an upper abdominal laparotomy was performed which demonstrated that the body of the stomach was full and almost gangrenous. Gastric malrotation was evident with the gastric antrum

and duodenum lying within the chest. The hiatus hernia was withdrawn through the hiatus. A small area (1cm^2) showed full thickness ischaemia and this was repaired. The hiatus defect was closed and gastropexy to the abdominal wall was performed. Post operatively the patient made a good recovery. She was finally discharged three weeks after admission.

Discussion

Hiatus hernia is a common finding in patients undergoing upper gastro-intestinal endoscopy, the prevalence ranging from 0.8 to 2.9%.¹ They are more common in patients over 50 years, those with a body mass index (BMI) of $>25\text{kg/m}^2$ and in male patients.² Together with gall bladder disease and diverticular disease, hiatus hernias form Saint's triad – an association which has now been statistically validated.³ These two cases demonstrate that potentially life-threatening complications of hiatus hernia need to be considered when such patients present acutely to the AMU.

Hernias are classified into four types. Type I, also termed 'sliding hiatus hernias', is the most common, accounting for approximately 95% of cases. The stomach adjoining the oesophagus moves into the thoracic cavity through the gastro-oesophageal junction. It is rarely a cause for major clinical concern. In type II hernias the gastro-oesophageal junction remains fixed to the pre-aortic fascia and the median arcuate ligament but a weakness in the phreno-oesophageal membrane allows the gastric antrum to prolapse into the thoracic cavity. Type III hiatus hernias are a combination to Type I and Type II hernias and Type IV hiatus hernia are defined by co-herniation of additional abdominal viscera such as the pancreas, spleen and transverse colon.⁴ Types II, III and IV hernias are also termed para-oesophageal hernias.

Hiatus hernias may be asymptomatic but may be associated with symptoms of reflux and reflux oesophagitis. Iron deficiency anaemia may also result as a consequence of oesophagitis and oesophageal ulceration. Medication such as proton pump inhibitors and H_2 -receptor blockers may alleviate these symptoms and enable healing to occur. Cameron ulcers may form on linear folds of herniated gastric mucosa on the lesser curve of the stomach. They may develop as a consequence of trauma to the lesser curve as a result of diaphragmatic contraction.⁵

These relatively benign complications are common and contrast sharply with rarer complications of para-oesophageal hernia that present acutely and may be an immediate threat to life if not treated. These complications include life-threatening haemorrhage, strangulation, volvulus and perforation, as was evident in the two cases presented here. Incarceration of a hernia and subsequent perforation are of particular interest to emergency doctors and acute physicians as well as surgeons. In view of the presentation with 'cardiac-type'

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chest pain⁶ and altered blood vomit, patients with incarcerated hiatus hernia will frequently be referred initially to the acute medical team. Failure to consider this condition in the differential may delay the diagnosis, which can have fatal consequences as demonstrated by case 1. A high index of suspicion and rapid and specific evaluation is required. The presence of a hiatus hernia on CXR or previously documented paraoesophageal hiatus hernia should not be ignored in patients with an illness consistent with strangulation of a hiatus hernia.

Vomiting and inability to swallow should also highlight the need for further investigation in the absence of an alternative diagnosis. Inability to pass a nasogastric tube is suggestive of strangulation as in case 2. The diagnosis may be confirmed by failure of contrast to enter stomach on contrast swallow.⁶ CT scanning may also help clarify the anatomy and indicate the width of the hiatus and demonstrate additional complications such as haemorrhage or perforation.

Placement of a nasogastric tube can enable decompression of the stomach, which may result in resolution of the volvulus. In this case surgery will likely be needed in the following days after admission. If the episode cannot be treated conservatively then emergency surgery is required as in case two.⁷

For asymptomatic large hiatus hernias the annual risk of requiring emergency surgery has been estimated as 1.1%. A younger age at diagnosis therefore implies that the lifetime risk of requiring emergency surgery for life threatening complications is high compared to older patients who have avoided presentation until the diagnosis is made. The morbidity from elective surgery is estimated to be 5.4% and the mortality 1.4%. The role of elective repair of asymptomatic para-oesophageal hernias remains is thus unclear, especially in frail patients with multiple co-morbidities, in whom the diagnosis may be more common.⁸

Operative approach varies: in the emergency, life threatening setting of incarceration of a hernia, CT can be used to define those in whom acute complications are evident and those in whom nasogastric tube insertion has not adequately decompressed the stomach. In these patients immediate open surgery may be needed.¹⁰ In those patients in whom the stomach has been decompressed and CT does not show acute complications then surgery can be delayed for several days and may even be attempted laparoscopically.¹⁰

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