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### Emergency presentation of a giant paraoesophageal hernia- A case report

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#### ABSTRACT

An emergency presentation of a paraoesophageal hernia with acute respiratory distress and an acute abdomen is a rare presentation.

Hereby, we are presenting a 73year old female who presented with an acute dyspnoea and acute bowel obstruction, the imaging revealed large paraoesophageal hernia almost collapsing the right lung, she had an emergency surgery, an anterior gastropexy was performed since she was unstable. Despite subsequent surgeries e.g Collis gastroplasty and mesh cruroplasty, patient developed recurrent hiatal hernia. Unfortunately, the patient ultimately passed away from a vancomycin resistant enterococci (VRE) bacteraemia and due to overwhelming medical comorbidities.

As presentation of paraoesophageal hernia with acute dyspnea and acute abdomen is a rare incidence, we discuss this and its management options through a case report.

#### Keywords:

Hiatus hernia, paraoesophageal hernia (PEH), giant paraoesophageal hernia, Bowel obstruction, Acute respiratory distress.

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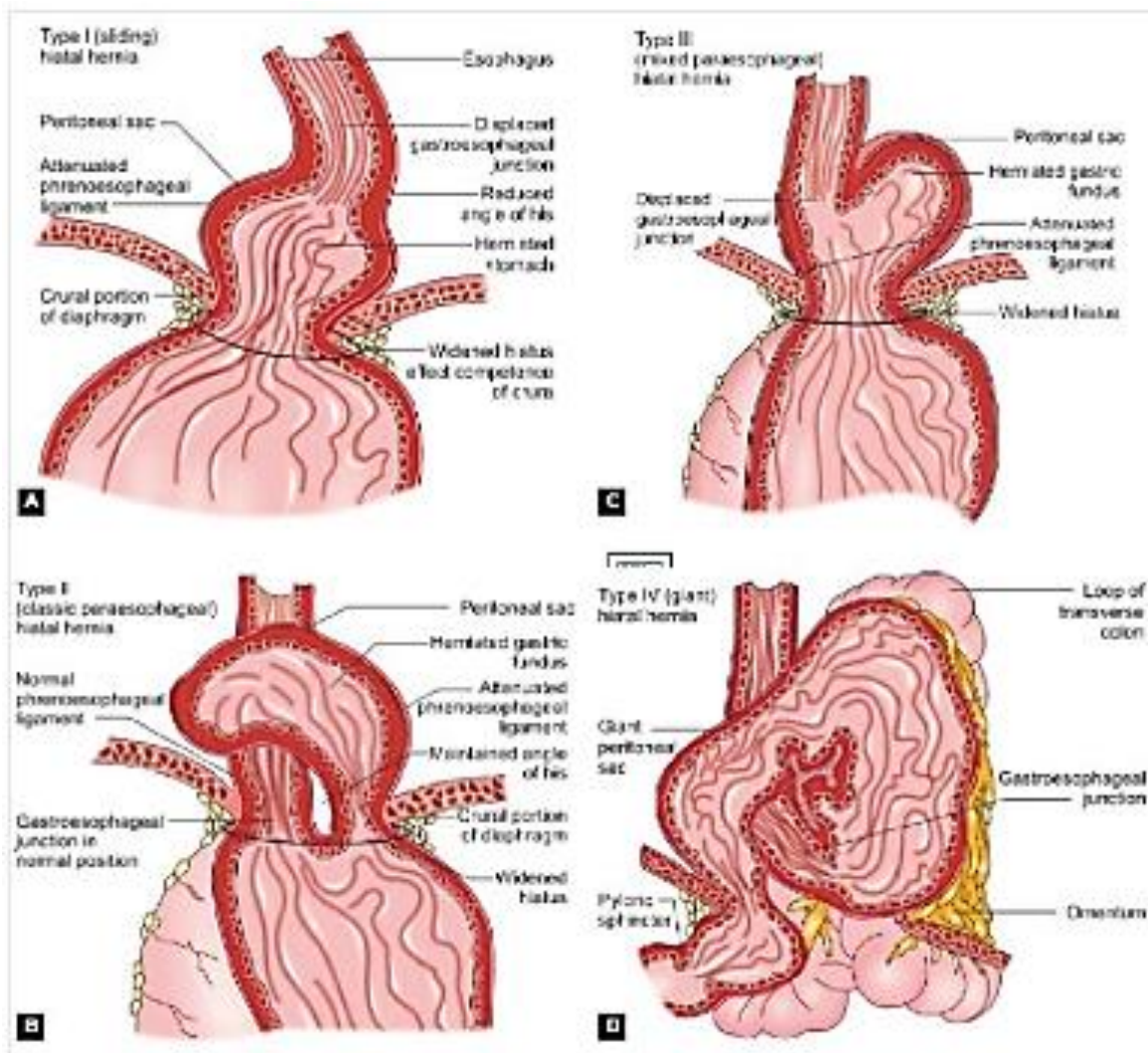
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**INTRODUCTION:**

Hiatal hernias are usually asymptomatic or are minimally symptomatic. In patients with symptomatic hiatal hernia, heartburn and other symptoms of GORD are the most common complaints. However, it can present with life-threatening complications such as obstruction, volvulus, upper GI haemorrhage, and acute respiratory distress. As in our case the patient

had both acute respiratory distress and acute bowel obstruction.

Urgent diagnosis and urgent surgical repair are vital in patients presenting with complicated hiatal hernia. Surgical repair of PEH and the approach taken are often based on the clinical scenario and patient's other medical comorbidities, but anterior gastropexy is recognized to be a simple and effective technique in high risk and unstable patients.



**Figure 1: Diagrammatic demonstration of different types of hiatus hernia**

**CASE REPORT:**

A 73-year-old female presented with acute dyspnea after three days of left sided intermittent non-pleuritic chest pain and a non-productive cough. She also had mid and left lower quadrant abdominal pain and vomiting

and had not opened her bowel for four days. Her past medical history included schizophrenia, depression, gastro-oesophageal reflux disease and type 1 hiatal hernia. On presentation she was severely dyspnoeic, with oxygen saturations of 72% on 15 Litres of

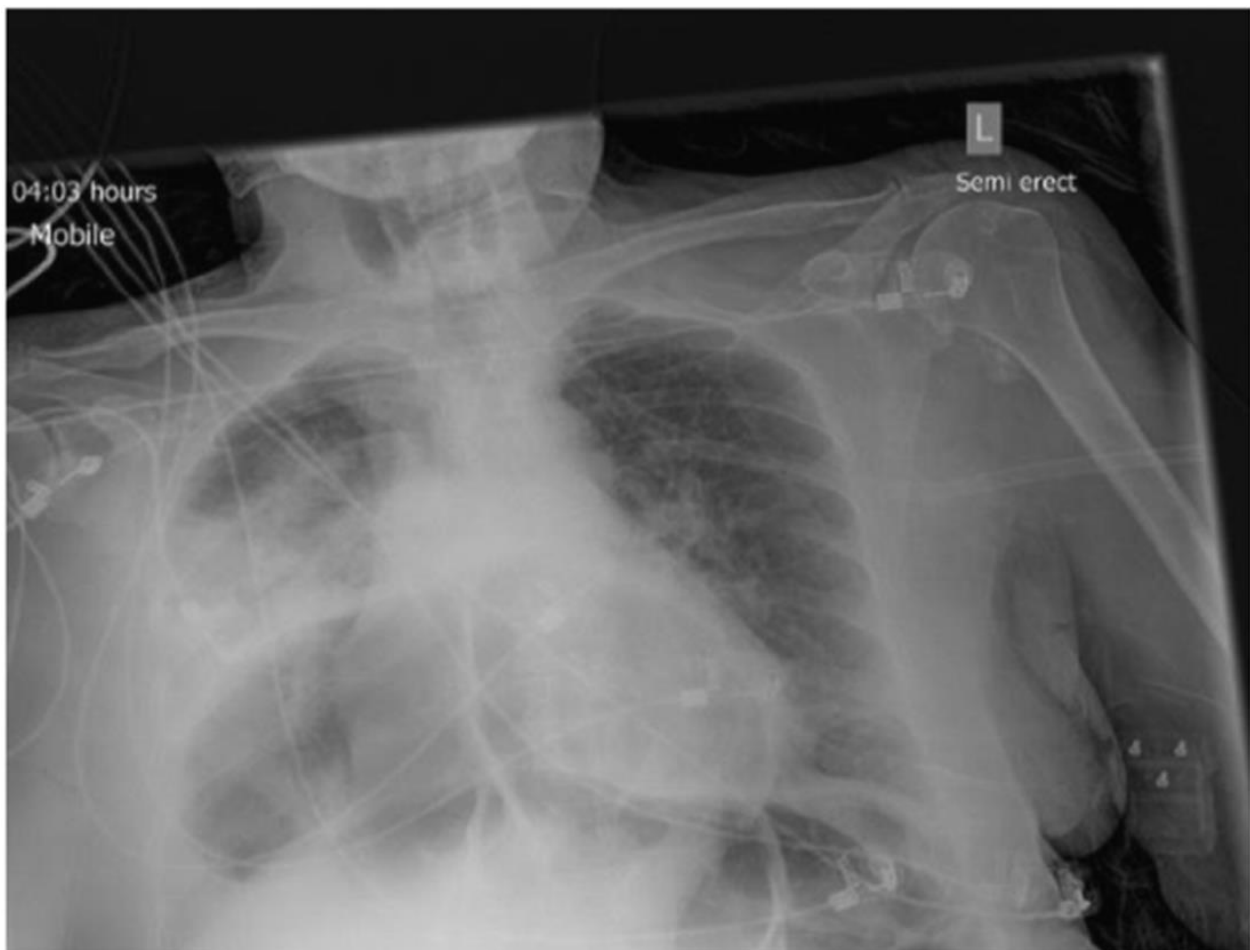
oxygen in a propped-up position. She was tender in the lower abdomen and had tinkling bowel sounds. Imagings (Chest x-ray and Computed Tomography of chest and abdomen) (Figure 2,3,4,5) revealed a large hiatal hernia with an intra-thoracic stomach and a massive loop of large intestine which was thought to be transverse, descending and sigmoid colons had herniated through the oesophageal defect, causing large bowel obstruction, and swirling of sigmoid mesentery (figure 5).

After resuscitation, an attempt to put a nasogastric tube (NGT) failed, therefore, the NGT was placed with gastroscopy guidance but it didn't adequately decompress the stomach and colon.

An emergency laparoscopy was performed, the colon was reduced from the chest, the stomach was inspected by both gastroscopy and laparoscopy and after it was determined to be viable was reduced. Following mobilization of

short oesophagus anterior gastropexy was performed by inserting a percutaneous endoscopic gastrostomy (PEG) tube into the body of the stomach without repair of the hiatal defect, since the patient was unstable and required inotropic support the idea of formal hernia repair was abandoned.

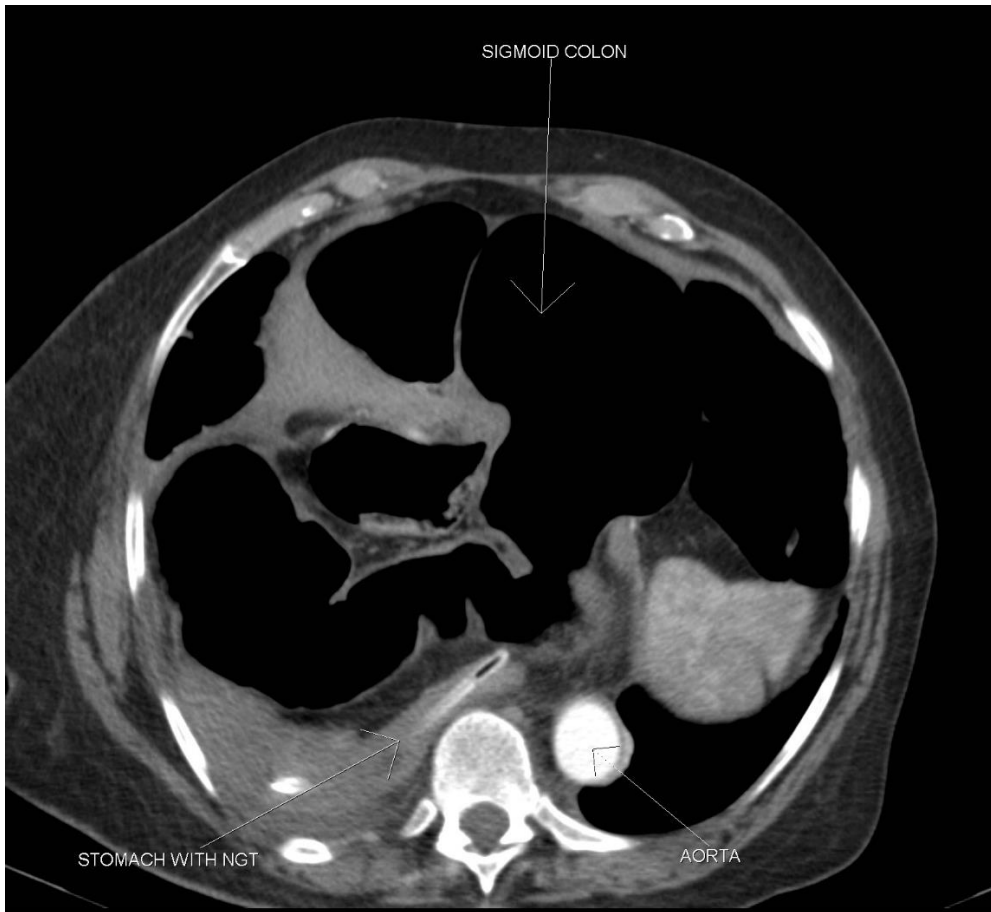
Postoperatively the patient required ongoing inotropic and ventilatory support. The hiatal hernia recurred resulting in collapse of her right main bronchus, warranting further operative management. Given the size of hiatal defect and risk of recurrence of bowel herniation, a formal hiatal hernia repair with a Collis gastroplasty and mesh cruroplasty was performed at a larger tertiary hospital. Unfortunately, the patient's postoperative course was complicated by further recurrence of the hernia and ultimately she passed away from a VRE bacteraemia and due to overwhelming medical comorbidities.



**Figure 2: Chest Xray, denoting intra thoracic colon, and collapsing right lung**



**Figure 3: CT, axial, denoting sigmoid colon in the thorax, arrows point sigmoid colon, stomach and right ventricle**



**Figure 4: CT, axial, at level of hiatus, arrows points to stomach, sigmoid colon and aorta**



**Figure 5: CT, coronal, arrow pointing to sigmoid twist and swirling of mesentery**

## DISCUSSION

Most hiatal hernias are asymptomatic or minimally symptomatic. In patients with symptomatic hiatal hernia, heartburn and other symptoms of GORD are the most common complaints. Clinical estimates of the prevalence of hiatal hernia in western populations range up to 50% [1].

Hiatal hernias are classified into four types (Figure 1). Type I hernias are sliding hiatal hernias, where the gastroesophageal junction migrates above the diaphragm. The presence of cardiac orifice in its normal anatomical position with protrusion of fundus of the stomach through the oesophageal hiatus is constituted as a Type II para-oesophageal hernia (PEH). Concurrent migration of the gastro-oesophageal junction into the chest indicates progression of the disorder to the

more common Type III hiatal hernia. Type IV hernia denotes movement of another organ (often the transverse or sigmoid colon) into the chest alongside the stomach [2, 3]. In our patient, there was herniation of both transverse and sigmoid colons along with the stomach into the chest, constituting a Type IV hiatal hernia (Figure 2,3,4).

Acute presentations of PEHs often manifest as obstruction, cardiorespiratory compromise, gastric volvulus and strangulation with perforation and upper gastrointestinal hemorrhage [4].

A significant problem with paraesophageal hernias is that the herniated stomach can rotate around its longitudinal axis and cause organoaxial volvulus. Rotation can also occur around the transverse axis and cause mesenteric gastric obstruction (thus

strangulation, perforation, ulceration and subsequent haemorrhage). They have been associated with a high risk of both mortality and morbidity [4].

Initial management requires decompression of the herniated organ to reduce respiratory compromise, usually through use of a nasogastric tube [2, 3, 4].

There are a number of different surgical approaches to repair PEH and the approach taken is often based on the clinical scenario. Elective repair of PEH both laparoscopic and open methods are associated with low overall mortality [2, 5]. But the perioperative morbidity and mortality are reduced with laparoscopic repair [6,7] and results from multiple studies are similar, with shorter hospital stay and less morbidity resulting from the minimally invasive approach [8,9].

Our standard method to deal with large para-oesophageal hernias involves a laparoscopic approach with complete sac excision, reinforced closure of the crural defect and use of an anti reflux procedure. Occasionally a gastrostomy tube is placed to act as both gastropexy as well as facilitating postoperative gastric drainage. As the reduced stomach often fails to completely empty in the immediate postoperative period, causing patient discomfort and sometimes leading to vomiting, which can act as a diaphragmatic stressor and results in worsened long-term outcomes. Incomplete stomach emptying can also limit post-operative nutrition.

This standard repair may be contraindicated in an unstable patient [3, 10, 11]. An anterior gastropexy (Boerma operation) can be the preferred method, with the primary intention of reducing the hernia, preventing postoperative respiratory compromise and preventing gastric ischemia [2, 10]. W.J Boerma described the anterior gastropexy procedure first in Holland due to its simplicity and effectiveness in challenging cases. In this procedure reduction of the intrathoracic stomach below the oesophageal hiatus and transfixing the lesser

curvature of the stomach to the anterior abdominal wall is described. Anterior aspect of the stomach is fixed to the anterior abdominal wall by using a percutaneous endoscopic gastrostomy tube or by use of sutures.

As our patient was haemodynamically unstable for formal hernia repair, an anterior gastropexy (Boerma operation) was chosen as the preferred method, with the primary intention of reducing the hernia, preventing respiratory compromise and gastric ischemia.

Unfortunately, re herniation is a common complication of anterior gastropexy, due to combination of a positive intra abdominal pressure and negative intra thoracic pressure. There is a lack of clinical trial data on rates of hernia recurrence when a gastropexy is used as part of a formal repair, but recurrence is certainly higher with gastropexy alone. There is a lack of data on recurrence rates of hernias after Boerma gastropexy. This complication occurred in our patient. The more common complication reported in the literature is the risk of hiatal stenosis; particularly in the paediatric population [10,11]. This did not occur in our case.

## CONCLUSION

Urgent diagnosis and urgent surgical repair are paramount in patients presenting with complicated hiatal hernia. Anterior gastropexy is recognized to be a simple and effective technique in high risk and unstable patients. However, there is a high hernia recurrence rate that can occur as depicted in our case and this may cause early complications. The safety, efficacy and hernia recurrence rate of this procedure should be studied in a large clinical trial.

## CONFLICT OF INTEREST

No conflict of interest

## AUTHOR'S CONTRIBUTIONS

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Group1 - Conception and design, Acquisition of data, Analysis and interpretation of data

Group 2 - Drafting the article, Critical revision of the article

Group 3 - Final approval of the version to be published

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