

# Supradiaphragmatic perforated duodenal ulcer in a giant hiatus hernia

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Small hiatus hernia is a common condition. Most patients are minimally symptomatic, and only a small proportion of them require surgical treatment. Giant hiatus hernia is uncommon and could cause serious morbidity and mortality. Only a few cases of perforation of a duodenal ulcer in a giant hiatus hernia have been published in the literature. We share our experience of one such case associated with peritonitis. A successful outcome was achieved after an emergency laparotomy.

## Case report

A 67-year-old man with a 20-year history of hiatus hernia had been attending a chest clinic for worsening shortness of breath. Chest radiography on his last visit

showed a huge hernia (Fig. 1), and spirometry confirmed a restrictive ventilatory defect. He presented to the emergency department with a 12-hour history of worsening abdominal pain associated with dyspnea. Clinically, his respiratory rate was 24 breaths/min, pulse rate was 124 beats/min and blood pressure was normal. He had a diffusely tender abdomen. He had neutrophilic leukocytosis, and arterial blood gases showed type 2 respiratory failure.

Chest radiography showed free gas in the hernia sac in the chest (Fig. 2). After adequate resuscitation, a laparotomy was performed; it showed free gas and free fluid in the peritoneal cavity. A large paraesophageal diaphragmatic hernia was found (Fig. 3). The hernia sac contained the whole of the transverse colon, stom-

ach and duodenum. There was a perforated ulcer on the anterior wall of the duodenum (Fig. 4). The contents of the hernia were reduced, and the perforated ulcer was repaired with an overlying patch of omentum. The peritoneal sac was excised, and the diaphragmatic hernia was repaired with interrupted non-absorbable sutures. Because of the contaminated peritoneal cavity, prosthetic material was not used for the repair. The patient was extubated after 24 hours. He made an uncomplicated recovery and was discharged home. His shortness of breath subsequently improved.

## Discussion

Hiatus hernia is a common condition, with one estimate suggesting that 15% of



FIG. 1. Chest radiograph showing a large hiatus hernia.

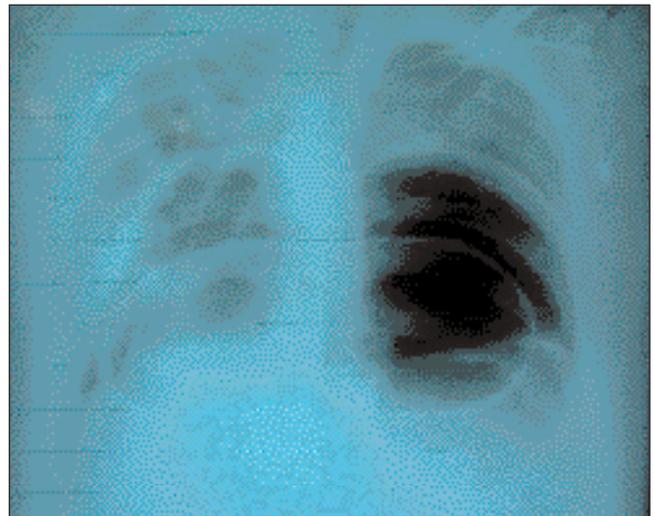


FIG. 2. Chest radiograph showing a large hiatus hernia and free air in the hernia sac.

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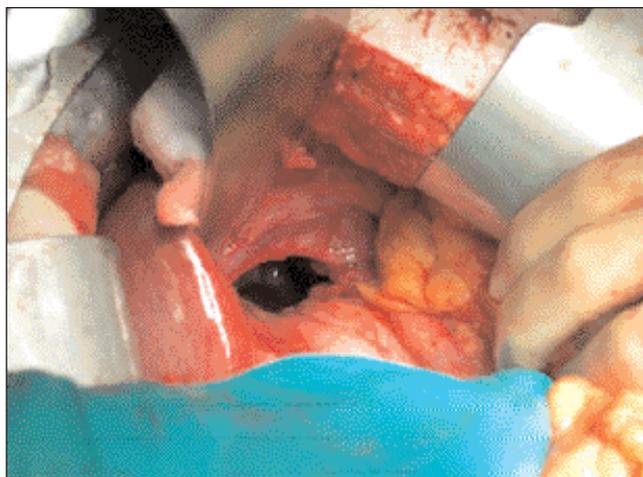


FIG 3. Operative view demonstrates a huge hiatus hernia.

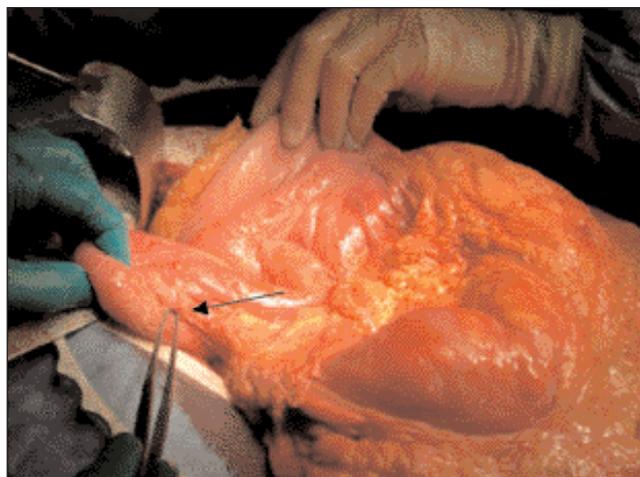


FIG 4. Operative view showing a perforated ulcer in the anterior wall of the first part of duodenum (arrow).

the population may be affected. Most hiatus hernias are small and are either asymptomatic or associated with gastroesophageal reflux only. In a small proportion of patients, the diaphragmatic defect is large enough to allow most of the stomach to enter the thoracic cavity, forming a “giant hiatus hernia” or intrathoracic stomach.<sup>1</sup> Giant hiatus hernia occurs almost exclusively in the elderly and is associated with several presentations, including postprandial chest pain, symptomatic gastroesophageal reflux, dysphagia, vomiting, hematemesis, iron-deficiency anemia, dyspnea caused by lung displacement, aspiration pneumonia, angina and syncope. Symptoms can be successfully treated after elective surgery.<sup>2</sup>

The complications of peptic ulcers have been reduced in the last decade since the introduction and wider use of proton pump inhibitors. Patients with a perforated peptic ulcer commonly present with acute abdominal pain, and the

hernia is usually diagnosed from the appearance of free gas under the diaphragm on plain erect chest radiography. Perforation of the stomach or duodenum within a giant hiatus hernia is rare. In our case, the erect chest radiograph was diagnostic of pneumoperitoneum and suggestive of a perforated viscus; the finding of a perforated duodenal ulcer was unexpected and very unusual. It is associated with a high mortality.<sup>3</sup> Infradiaphragmatic perforated duodenal ulcers in these patients can also be treated with emergency surgery,<sup>4</sup> as in this case.

Owing to the high morbidity and mortality associated with complications of giant hiatus hernia, we recommend early elective repair. Elective laparoscopic repair of large paraesophageal hernia with use of prosthetic mesh as well as an anti-reflux procedure is a safe and effective procedure to prevent hiatus hernia recurrence and postoperative intrathoracic wrap migration.<sup>5</sup>

Competing interests: None declared.

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