Emphysematous gastritis: Case report and literature review

Wissam Al-Jundi*, Ali Shebl

Department of Obstetric and Gynaecology, Pilgrim Hospital, United Lincolnshire Hospitals NHS Trust, Boston, PE21 9QS, UK

Available online 3 March 2007

Introduction

Emphysematous gastritis is a rare lethal infection of the gastric wall caused by gas-producing organisms. The most commonly involved organisms include Streptococci, Escherichia coli, Enterobacter species, Clostridium welchii and Staphylococcus aureus. It was first described as clinicopathological entity by Fraenkel¹ in 1889 while the radiological diagnosis was first made by Weens² in 1946.

This disease has a dramatic clinical presentation of sepsis, shock and abdominal pain and carries a mortality rate of 60%.³ ⁴ Radiology is essential for the diagnosis of the condition with CT scan being the preferred procedure of choice. We present a case of emphysematous gastritis that was successfully treated with antibiotics following total abdominal hysterectomy. Previous abdominal surgery was reported as predisposing factor to emphysematous gastritis; however, to the best of our knowledge, our case is the first that followed pelvic surgery.

Case report

An 81-year-old woman with a history of non-small cell lung carcinoma underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy and omental biopsy under general anaesthesia for benign right ovarian cyst. On day 8 postoperatively she started complaining of abdominal pain, sweating, distension, nausea and vomiting. On physical examination, she looked unwell with blood pressure of 130/90, pulse rate 112/min, temperature of 37.0 °C and O₂ saturation of 94% on air. She had good bilateral air entry with bilateral basal crepitations. Her abdomen was distended all...
Emphysematous gastritis is a rare variant of phlegmonous gastritis in which the invasion is caused by gas-producing organisms. Yalamanchili reviewed the only 41 cases that have been described in English literature since 1889 till 2003. The gastric mucosal barrier has got a rich blood supply and acid PH; therefore, it is fairly resistant to infection. However, several different factors have been described in the literature which disrupt the integrity of the mucosa and predispose to emphysematous gastritis. These include ingestion of corrosive substances, bases and acids, alcohol abuse, recent abdominal surgery, gastric infarction, and ingestion of nonsteroidal anti-inflammatory agents. There is also correlation between emphysematous gastritis and chronic diseases. These may include diabetes, rheumatic diseases and treatment with corticosteroids and cytotoxins.

In our case of emphysematous gastritis, the infective organism was K. pneumoniae-aerogenes isolated from the nasogastric aspirate, however, the most common causative organisms include Streptococci, E. coli, Enterobacter species, C. welchii, S. aureus and Pseudomonas aeruginosa. Other causative organisms include Proteus species and Candida.

The clinical presentation of emphysematous gastritis is variable; however, it is fulminant in most of the cases and includes acute abdominal pain, nausea and vomiting, fever, shock with or without haematemesis and melena. However, a more subtle presentation has been described and is attributed to diabetes, steroids use, renal failure or broad spectrum antibiotics coverage. Passage of necrotic tissue with emesis or nasogastric aspirate is considered a pathognomonic sign. This necrotic cast is due to dissection along the plane of the muscularis mucosa by invading or colonizing organisms. Our patient developed the classic systemic toxicity but did not have this pathognomonic sign.

Abdominal examination usually shows signs of acute abdomen including abdominal distension, decreased bowel sounds and epigastric tenderness. Leukocytosis is usually noted and acidosis due to sepsis may develop.

The definitive diagnosis of emphysematous gastritis can be made by the radiological demonstration of intramural gas with CT scan being the imaging study of choice. However, plain abdominal X-rays usually show intramural gas within a dilated stomach. Gas can also be seen within the portal venous system as was clearly evident in our case. It is also important on plain films to distinguish intraluminal gas from intramural gas. The latter remains in position on erect or decubitus film. CT scan and abdominal ultrasound are more sensitive than abdominal films in detecting small amount of intramural gas and portal venous gas.
Early recognition and treatment of emphysematous gastritis plays an important role in survival from this potentially fatal condition. This is evident in our case as we believe that early diagnosis in the hospital was essential for the successful management and recovery of this patient. Treatments in the acute phase include haemodynamic stabilization with intravenous fluids, nutritional support and broad spectrum intravenous antibiotics effective against gram-negative and anaerobic bacteria. Surgery is not recommended in the acute phase. However, it may be essential in case of perforation or later if strictures developed due to healing.6

Conflicts of interest: None.

Funding: None.

Ethical approval: Not required.

References