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Emphysematous esophagitis with gastric perforation: a case report

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ABSTRACT

Emphysematous esophagitis is an extremely rare disease and there are very few previous reports in the literature. We report a case of emphysematous esophagitis and gastritis with complete affectation of the gastric and esophageal wall at diagnosis. Two surgical interventions were performed due to gastric perforation that was treated in both cases with primary closure. The post-operative recovery was satisfactory.

Despite the large emphysematous esophago-gastritis affectation at diagnosis and the presence of gastric perforation, it is safe to perform the same management principles as with emphysematous gastritis. This should be as conservative as possible in case a surgical procedure is required.

Key words: Emphysematous esophagitis. Emphysematous gastritis. Gastric perforation.

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INTRODUCTION

Emphysematous esophagitis is an extremely rare disease with very few previous reports in the literature and an uncertain prognosis. Emphysematous gastritis (EG) is also a rare disease with a poor prognosis. The mortality rate increases to 62% (1) and above 75% (2) in cases with portal gas. The initial management is usually conservative, saving surgery in the case of a failed medical management.

We present a case of emphysematous esophagitis and gastritis with complete affectation of both the esophagus and the stomach, with ectopic gas at the cervical region. What makes this case interesting is the large affected area at diagnosis, with no previous reports of similar cases in the literature.

CASE REPORT

A 53-year-old Chinese female presented with a one-week history of fever, odynophagia and epigastric pain, which was initially treated with traditional Chinese medicine including acupuncture at the anterior cervical region. She did not have any other past medical history of interest. The physical exam showed small bruises on the neck without palpable emphysema and abdominal pain upon pressure in the epigastrium with rebound tenderness in the region. Laboratory test revealed elevated C-reactive protein level reaching values of 48 mg/dl.

Computed tomography (CT) of the thorax and abdomen showed air through the esophageal wall extending up to the pharyngo-esophagic junction, with dissection of the prevertebral space, pharyngeal fat and right vascular space. At the abdominal level, there was diffuse and circumferential thickening of the gastric wall with edema, abundant submucosa ectopic gas and a perforation at the lesser curvature were also observed. An exploratory laparoscopy identified generalized peritonitis and an enlarged but viable stomach with a small necrotic region at the lesser curvature. This region was resected and sutured.

After a proper initial recovery, the patient showed clinical and analytical deterioration on the 6th post-operative day. CT showed a new perforation at the fundus and an urgent laparotomy was performed with a primary closure and feeding jejunostomy placement. Broad-spectrum antibiotics (BSA) and antifungal drugs were started and

the cultures obtained during surgery identified *Streptococcus constellatus* susceptible to penicillin and levofloxacine. Antibiotic therapy was narrowed down according to antimicrobial susceptibility. This particular streptococcus of the Milleri family is usually present in the flora of the digestive system and superior respiratory tract. Hemocultures and fungal cultures were negative.

The patient progress was satisfactory and was asymptomatic at post-discharge follow-up. The jejunostomy was removed without incidents after one month.

DISCUSSION

It is difficult to discuss the optimal treatment strategy of emphysematous esophagitis due to the lack of previous reports. After reviewing the literature, we found only one case describing EG with esophageal affectation, which was secondary to hydrogen peroxide ingestion. A conservative treatment was established and the initial recovery of the patient was satisfactory. No further follow-up was described (3). What is worth mentioning in our case is the large affectation of the emphysema at diagnosis, which is an extremely unique presentation that may generate doubts about the need for a more aggressive approach.

There are also few publications about EG and most are case reports and systematic reviews (3-5). The etiology consists of a gastric wall infection usually generated by gas producing bacteria and fungi. The most common predisposing factors are immunosuppression, poorly controlled diabetes, malignancy and corrosive ingestion. The most common microorganisms involved are *Streptococcus pyogenes*, *Escherichia coli* and *Staphylococcus aureus. Pseudomonas aeruginosa*, *Pseudomonas aeruginosa*, *Clostridium perfringens* and *Klebsiella pneumoniae* involvement has also been described (6,7).

Clinical presentation is highly variable, including nausea, vomiting, fever, abdominal epigastric pain and sepsis. It is important to distinguish between EG and gastric emphysema, which is also diagnosed by the presence of air in the gastric wall.

Gastric emphysema is a relatively benign radiological finding that is usually caused by the rupture of the gastric mucosa and the consequent entry of gas (8). It has a different origin and is related with gastric wall trauma (endoscopy or traumatic

nasogastric tube placement), tumors or gastric or intestinal obstruction. It is usually self-limited and does not cause septicemia. The prognosis is good with conservative treatment including BSA and bowel rest.

A conservative management is also recommended for EG with BSA and bowel rest with the need for intensive care support, depending on the clinical course (9). Surgery is usually reserved for gastric perforations or transmural necrosis cases (3-5,8), although some authors also recommend a conservative treatment for contained perforations without clinical expression (1). Once surgery is indicated, there are very few references in the literature about the best surgical technique. Satisfactory results have been described, even with total gastrectomy (8). In our case, we performed a conservative surgery due to the absence of generalized ischemia, although there was extensive affectation at diagnosis. Our purpose was to successfully resolve the acute complication with a limited surgical aggression.

Bearing in mind the uncommon and large esophageal affectation at diagnosis, there is reasonable doubt as to whether the infectious disease is caused by an esophageal perforation that occurred during the acupuncture procedure. Nevertheless, there were no further findings supporting this hypothesis.

Despite the absence of published reports, we believe that emphysematous esophago-gastritis should be handled in a similar manner to EG cases with affection limited to the gastric wall. We consider both entities as part of the same disease, with a similar etiology and prognosis and esophageal affectation as the result of a progressive submucosa dissection.

Even though the initial prognosis was severe, the final recovery was satisfactory, despite the need for two surgical interventions. Thus, we can advocate for conservative surgery in order to avoid extensive resections, even with esophageal and gastric affectation of the emphysema.

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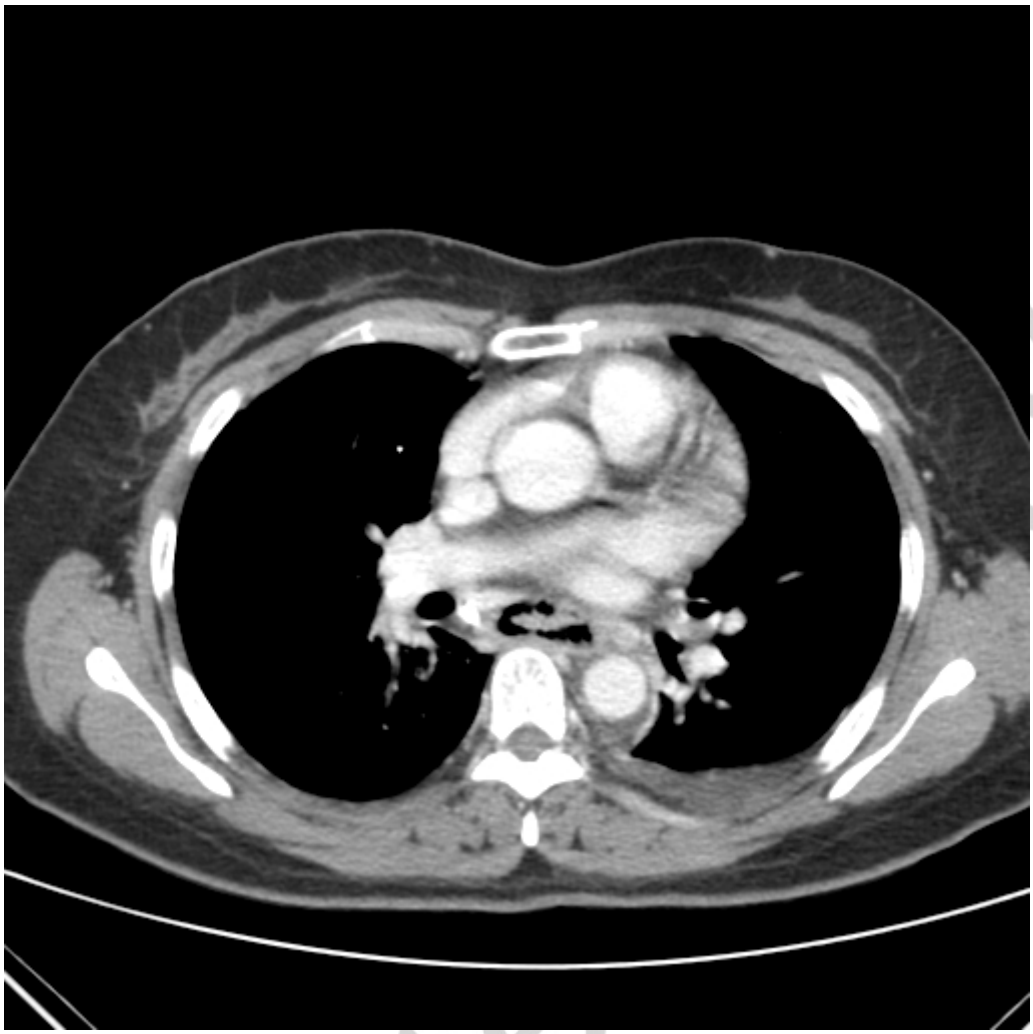

Fig. 1. Emphysematous esophagitis.

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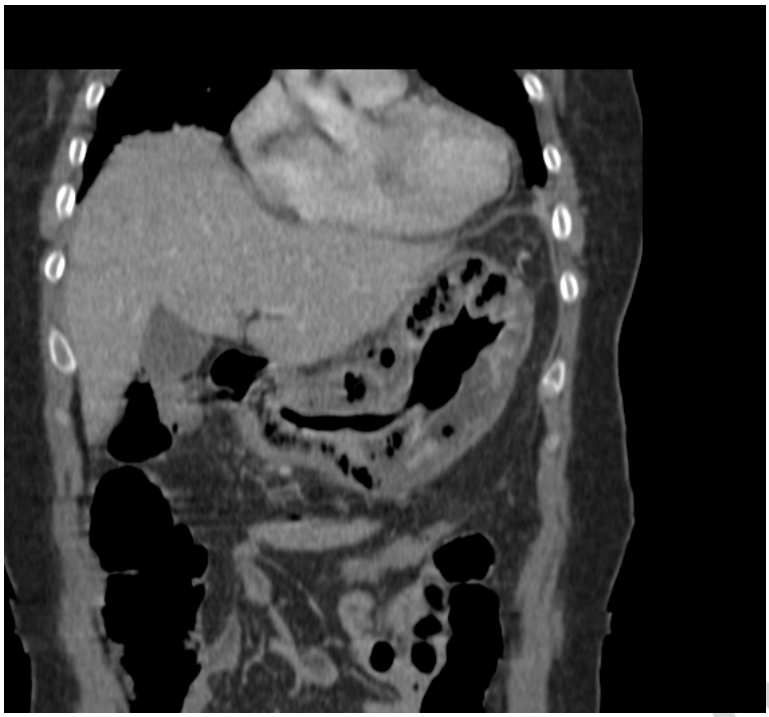

Fig. 2. Emphysematous gastritis.

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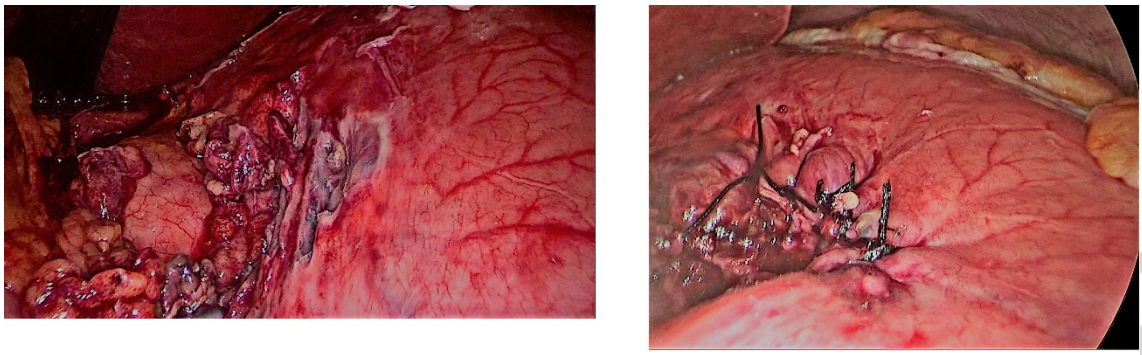

Fig. 3. On the left there is an ulcer in the minor curvature and the repair with loose sutures in the ulcer is shown on the right.