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Case Report

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A case report: emphysematous gastritis

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ABSTRACT

Emphysematous Gastritis is a rare condition but high mortality rate. This condition usually occurs in an immunocompromised host. The computed tomography (CT) scan shows gas located within the gastric wall. Early recognition and aggressive management is important for survival of the patient. A 54-year-old man presented to emergency department with severe abdominal pain, vomiting, and diarrhea. Abdominal examination showed significant for epigastrium pain with rebound tenderness. The CT of upper abdomen showed abnormal extensive free air along the greater curve of stomach. Perforation of the stomach could not be excluded. The patient underwent for emergency exploratory laparotomy. Intraoperative finding found the anterior stomach wall, from the fundus to the body, appeared abnormal color and necrosis but no perforation. Esophagogastroduodenoscopy (EGD) showed marked swelling and some areas of necrosis of mucosa from the fundus to the body of stomach. No active bleeding or perforation site was found. Intraoperative saline irrigation was performed without gastric resection. Emphysematous gastritis is a rare condition of gastritis due to invasion of gas producing organisms. The CT abdomen with intravenous contrast shows the presence of air bubbles in the stomach wall. The role of endoscopy is to monitor severity and exclude other pathology. At this time, most of the reports suggest medical treatment better than surgical treatment in patient who has no complication. Medical treatment plays a major role in this case, instead of surgical treatment and the results appeared to be well improved accordingly.

Keywords: Emphysematous gastritis

INTRODUCTION

Emphysematous Gastritis is a rare condition but high mortality rate. This condition usually occurs in an immunocompromised host. The computed tomography (CT) scan shows gas located within the gastric wall. Emphysematous gastritis must be differentiated from gastric emphysema to avoid adverse outcomes and plan the management.[1] Early recognition and aggressive management is crucial for survival of the patient.[2] This report is a case study of an emphysematous gastritis managed by medical and surgical treatment.

CASE REPORT

A 54-year-old man with a history of diabetes and alcoholism presented to emergency department with severe abdominal pain, vomiting, and diarrhea. He described the pain as a sharp pain and localized to the epigastrium of abdomen. Seven months prior to hospital, he has experienced epigastrium pain and vomiting several times before. At this time, his wife passed away from a stomach cancer. One day prior to hospital, he went to clinic with these symptoms. He was diagnosed as dyspepsia and received medication, proton pump inhibitors (PPIs), but his symptoms were not improved.

He came to Prakkred hospital in the next day. On physical examination, he had a temperature of 36.9^{0}c, a pulse rate of 98/min, and a blood pressure of 101/68 mmHg. Abdominal examination showed petechiae and purpura at mid-to-left upper abdomen and significant for epigastrium pain with rebound tenderness. Laboratory investigation found leukocytosis with PMN predominance and thrombocytopenia.

The computed tomography of upper abdomen with intravenous contrast was performed. The examination showed a loculate of 10x8x0.6 cm free air bubbles with abscess content in the gastrosplenic ligament. Abnormal extensive free air along the greater curve of stomach was seen. Perforation of the stomach could not be excluded. Diffused extension of free air in the spleen was noted, distributing along splenic sinusoidal pattern and all splenic parenchymal vessels. Normal splenic artery and vein at splenic hilum were not seen (Figure1).

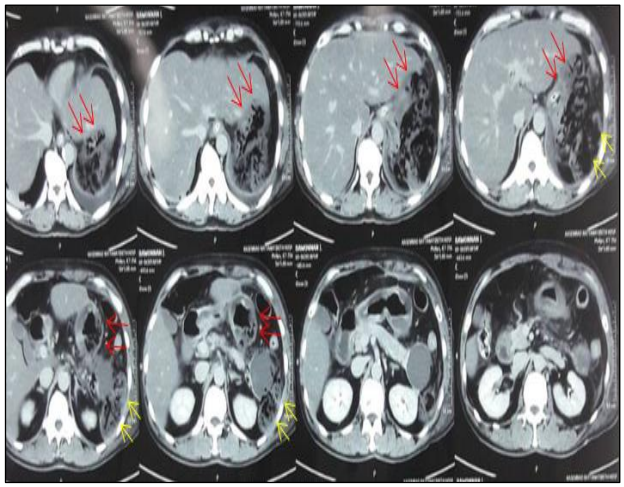

Figure 1: CT upper abdomen showed extensive free air along the greater curve of stomach (red arrow) and diffused extension of free air in the spleen (yellow arrow).

Then, the patient was sent to Bhumibol Adulyadej hospital for emergency exploratory laparotomy. The first differential diagnosis was peptic ulcer perforation. Antibiotic prophylaxis was performed with 1.2-gram Augmentin before the procedure began. General Anesthesia was given to the patient. Intraoperative finding found some blood clots with foul smell at the gastrosplenic area. The anterior stomach wall, from the fundus to the body, appeared abnormal color and necrosis. Some parts of serosa showed superficial tear but no perforation (Figure 2). The spleen appeared normal.

Intraoperative esophagogastro-duodenoscopy (EGD) showed marked swelling and some areas of necrosis of mucosa from the fundus to the body of stomach. No active bleeding or perforation site was found. The antrum and the pylorus appeared swelling and some red spots. The first and the second parts of the duodenum appeared normal (Figure 3). No tissue biopsy was performed because of severe inflammation of the gastric wall.

Intraoperative finding showed no perforation site, so only saline irrigation was performed without gastric resection. One Jackson-Pratt drain was placed in this patient.

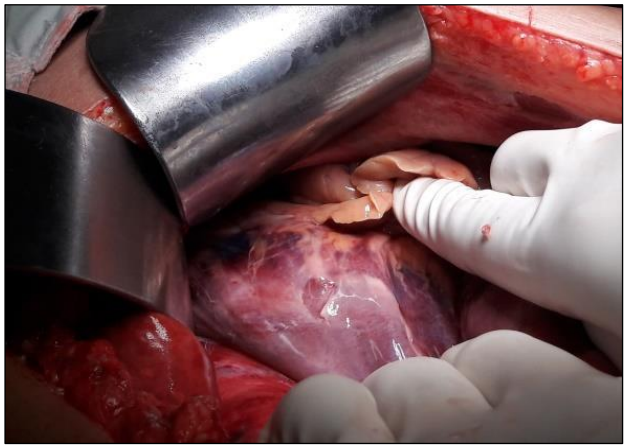

Figure 2: Abnormal color and necrosis at the stomach with a small serosal tear.

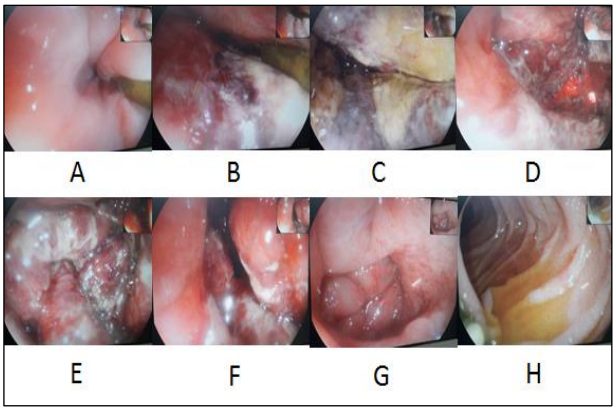

Figure 3: A) Esophagogastric junction (EGJ), B) Fundus, C,D,E and F) Body, G) Antrum, H) duodenum

After the operation, the patient received 1.2 g Augmentin intravenously every 8 hours for 5 days but the clinical sign did not improve. His hemoculture reported no growth. At the time, he had symptoms of alcohol withdrawal and high-grade fever. Then, antibiotic was switched to 1-gram Meropenam intravenously every 8 hours. After received Meropenam for 5 days, his clinical sign improved. He started enteral feeding.

On the 14th post-operative day, he underwent EGD (Figure4) again for biopsy.

The surgical pathology reported the focal superficial mucosal ulceration with acute inflammatory exudates of the stomach. The specimen showed a mild degree of the focal intestinal metaplasia without dysplasia or

malignancy. Few *H. pylori* with numerous yeasts and some pseudoseptate fungal hyphae of Candida species were identified. The patient was discharged on the 15th post-operative day. He received a combination of Clarithromycin, Amoxicillin, and Omeprazole for 14 days for treatment of *H. pylori* infection. However, he received no an antifungal medication.

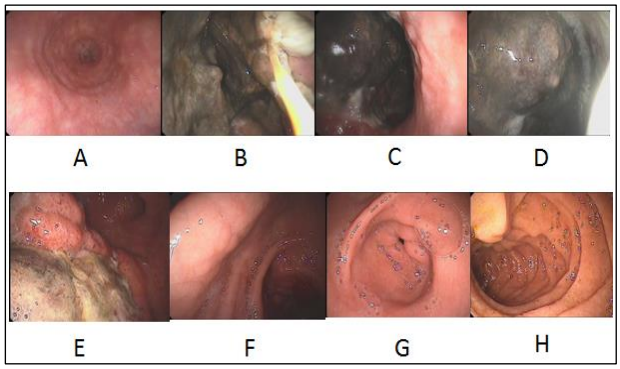

Figure 4: A) Esophagus, B) Fundus, C,D,E) Greater curvature, F) Lesser curvature, G) Antrum, H) Duodenum

One month later, he underwent EGD again (Figure 5). The entire mucosa was recovered, except the greater curvature still had contacted bleeding ulcer with cobble stone appearance. The ulcer was smaller than previous study. Biopsy was performed at its edge. The surgical pathology reported chronic non-atrophic gastritis with intestinal metaplasia. No *H. pylori* or Candida species was seen. No malignancy was seen. Then he received PPIs therapy 4 weeks for his ulcer.

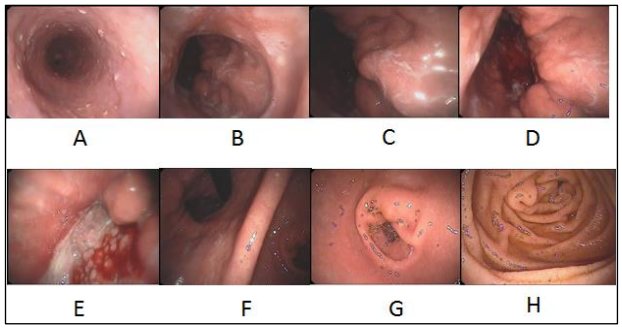

Figure 5: A) Esophagus, B) Fundus, C,D,E) Greater curvature, F) Lesser curvature, G) Antrum, H) Duodenum

DISCUSSION

Emphysematous gastritis is a rare condition of gastritis due to invasion of gas producing organisms.[1] Most frequently isolated organisms are *Streptococci, Escherichia coli, Enterobacter species, Pseudomonas aeruginosa, Clostridium perfringens, and Candida species*.[3,5] It has been associated with alcohol abuse, ingestion of corrosive substances, gastroenteritis, diabetes, NSAIDs, abdominal surgery, gastric infarction, phytobezoar, adenocarcinoma of the stomach, leukemia, pancreatitis, disseminated strongyloidiasis in a patient receiving chemotherapy for lymphoma, all of which can breach the integrity of the mucosa.[3]

The CT abdomen with intravenous contrast shows the presence of air bubbles in the wall of the stomach. Emphysematous gastritis must be differentiated from gastric emphysema.[1-5] The symptom of acute abdomen as seen in patients with emphysematous gastritis is usually absent in patients with gastric emphysema.[5] The role of endoscopy is strictly to monitor severity, identify gastric necrosis, and exclude other pathology.[6]

At this time, most of the reports suggest medical treatment better than surgical treatment in patient who has no complication such as perforation because of friability of the mucosa and the delay in healing of the sutured margins.[1-4]

Our patient was diagnosed and treated as emphysematous gastritis. However, there were some confusions between peptic ulcer perforation and emphysematous gastritis at the first time. During pre-operative CT scan process, the diagnosis was determined to peptic ulcer perforation instead of emphysematous gastritis as massive free air was found in the gastrosplenic area.

So, the exploratory laparotomy was performed. During the operation, no perforation was seen in the stomach but instead severe inflammation of the mucosa and partial necrosis of gastric wall at the greater curvature were seen. Because of fragile stomach wall and possibility of post-operative leakage, stomach resection was not in consideration.

CONCLUSION

Medical treatment then plays a major role to get rid of severe infection and cure ulcer in this case, instead of surgical treatment. And, the results appeared to be well improved accordingly. In this case, EGD plays important role in follow-up and excludes gastric cancer.

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