Case Report

Emphysematous gastritis: Impressive radiological findings

Myeong Ja Jeong, MD

Department of Radiology, Sanggye Paik Hospital, Inje University College of Medicine, 1342 Dongil-ro, Nowon-gu, Seoul 01757, Korea

ABSTRACT

Emphysematous gastritis is a rare form of phlegmonous gastritis, characterized by the formation of air in the gastric wall by gas-forming microorganisms. Early diagnosis and treatment are important because of its fatal consequences (high morbidity and mortality). A 64-year-old woman presented to our emergency department with abdominal discomfort, nausea, and general weakness. An abdominal examination revealed severe epigastric tenderness, and laboratory findings revealed elevated inflammatory markers. A computed tomography scan revealed gas within the gastric wall and marked gastric wall thickening. Herein, we present a case of early diagnosed emphysematous gastritis, which was successfully treated conservatively without surgery.

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Introduction

Emphysematous gastritis is a rare disease, with high mortality ranging from 55% to 61% [1,2]. This condition usually occurs in immunocompromised patients [3]. Early diagnosis and prompt management are important for the survival of patients with emphysematous gastritis [3]. Herein, we describe a case of emphysematous gastritis that was successfully managed with medical treatment only.

Case report

A 64-year-old woman presented to the emergency department of our hospital with a 7-day history of abdominal discomfort, nausea, and general weakness. She had atrial fibrillation and severe mitral stenosis and therefore was undergoing treatment with warfarin. The patient did not undergo surgery. Upon physical examination, she appeared acutely ill and the abdomen was generally soft; however, only the epigastric area displayed severe tenderness. We observed hypotension (97/50 mm Hg). Laboratory examinations revealed elevated inflammatory markers (white blood cells, 13.15 × 10^9/μL [reference range: 4.0-10.0 × 10^9/μL]; segmented neutrophils, 78.2% [reference range: 50.0%-75.0%]; and serum C-reactive protein, 23.1 mg/dL [reference range: 0.0-0.3 mg/dL]). The patient underwent a radiograph and computed tomography (CT) examination. Abdominal radiograph obtained with the patient supine showed mottled and irregular collections of gas within the stomach wall (Fig. 1, arrows). Axial and coronal CT revealed diffuse gastric wall thickening and extensive intramural air (Figs. 2 and 3). No perigastric infiltration or pneumoperitoneum findings suggestive of gastric perforation were noted. Subsequently, the lesion was diagnosed as emphysematous gastritis. Therefore, we performed an endogastroduodenoscopy (EGD); we were
able to enter the esophagus but were unable to proceed further because of the risk of perforation owing to severe necrosis. Following admission, we initiated intravenous fluid resuscitation and broad-spectrum intravenous antibiotic therapy (tazocin: piperacillin-tazobactam). During hospitalization, the patient had hematemesis at once and the hemoglobin levels declined (15.1 g/dl to >8.6 g/dl [reference range; 12-16 g/dl]. Thereafter, there was no further hematemesis, and the hemoglobin levels gradually recovered. Upon serial follow-up EGD tests, the gastroesophageal mucosa gradually recovered and no symptoms developed after a normal meal. The patient was discharged and reserved for follow-up EGD examinations as an outpatient.

Discussion

Emphysematous gastritis is a rare variant of phlegmonous gastritis and a lethal (life-threatening) infection. It is caused by the disruption of the gastric mucosa and the subsequent invasion of the gastric wall by gas-forming microorganisms. *Streptococci*, *Escherichia coli*, *Enterobacter* species, *Pseudomonas aeruginosa*, *Clostridium perfringens*, and *Candida* species are the most frequently involved organisms [3]. Generally, the gastric wall is well protected from bacterial infection owing to the close connection among cells, an acidic pH, and a good blood supply [4]. However, alcohol abuse, the ingestion of corrosives, diabetes, gastroenteritis, recent abdominal surgery, non-steroidal anti-inflammatory drugs (NSAIDs), and immunocompromised conditions are risk factors for the disintegration of defenses [4].

Its clinical presentation is usually fulminant, with severe epigastric pain, nausea, vomiting (including hematemesis), and fever. Resulting from the disruption of the gastric mucosa, necrotic tissue in the emesis, or nasogastric aspirate are its major findings.

Radiologically, emphysematous gastritis displays characteristic findings. CT is the best imaging modality for diagnosis as it reveals gastric wall thickening and intramural gas [4]. Clinicians should consider 2 conditions upon detecting intramural gas in the stomach, namely gastric emphysema and emphysematous gastritis. They have different clinical symptoms, radiological findings, treatments, and prognoses. Gastric emphysema is characterized by the absence of abdominal symptoms and linear gas distribution in the gastric wall on CT (irregular and mottled gas in the gastric wall in emphysematous gastritis). The patient’s condition resolved spontaneously without treatment [5].

The role of EGD in emphysematous gastritis is to monitor its severity, identify gastric necrosis, and exclude other pathologies [3].
Recently, medical treatment was first of all considered in patients with emphysematous gastritis. In our case, the patient was managed conservatively, without surgery. However, the role of surgery in the acute phase is unclear. Nonetheless, emergency surgery is indicated in patients with deterioration, despite optimal medical treatment, the involvement of a large portion of the stomach, the presence of gastric infarction, or perforation [4,5].

This case highlights the importance of CT findings in diagnosing emphysematous gastritis. Moreover, medical treatment is preferred to surgical treatment in such cases.

Conclusion

Experience and knowledge regarding the CT findings of emphysematous gastritis are important because it is a rare condition, and an early diagnosis can improve its outcomes (survival rates). Moreover, medical treatment plays a major role in the treatment of this disease.

Patient consent

Consent for publication has been obtained.

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