

Emphysematous gastritis associated with severe vascular disease

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Citation

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Abstract

Introduction: Emphysematous gastritis is a rare form of gastritis that results from infection of the stomach wall by gas-forming organisms. Diagnosis of emphysematous gastritis is based on the clinical presentation of an acute abdomen with systemic toxicity and on radiographs/CT scans demonstrating gas bubbles within the stomach wall. Only by prompt diagnosis and treatment can mortality be avoided. **Clinical Picture:** We present a 51-year-old African American female who developed severe abdominal pain following exploration of femoral artery for a repair of pseudoaneurysm. CT scans revealed linear gas densities within the thickened gastric wall and portal venous air. **Treatment:** The patient was started on broad-spectrum antibiotics and taken to the operating room for exploration, and she underwent a total gastrectomy with Roux-en-Y esophageal jejunostomy reconstruction. **Outcome:** She responded well and was discharged home. **Conclusion:** The optimal therapy has not been defined; however, antimicrobial chemotherapy and surgery, when appropriate, may improve survival rates.

CASE REPORT

A 51-year-old African American female, who is a severe vasculopath, presented with progressive claudication and rest pain to both legs. She underwent a CT angiogram which revealed severe atherosclerotic calcification of the aorta and extensive atherosclerotic calcification of the superficial femoral arteries bilaterally with short multisegmental high-grade stenosis. She underwent an aortogram and bilateral run-off with stenting of the stenotic segments.

Unfortunately, she developed a pseudoaneurysm of the left femoral artery which was not amenable for injection of thrombin. So she underwent an exploration of the femoral artery and repair of pseudoaneurysm. Following this, she developed severe abdominal pain, nausea and vomiting. CT scans performed showed linear gas densities in the thickened gastric wall (Fig. 1) and air in the portal venous system. She underwent an emergent explorative laparotomy and total gastrectomy with Roux-en-Y esophageo-jejunostomy. She did very well postoperatively and was discharged home. Pathology revealed acute gastritis, mural hemorrhage and multiple areas of mucosal erosion and ulceration, and marked submucosal edema with emphysematous changes consistent with emphysematous gastritis.

DISCUSSION

Terms used in literature for gas in the wall of the stomach include gastric emphysema, (gastric) pneumatosis

intestinalis and emphysematous gastritis. The term "gastric emphysema" is often used when there is no associated infection, in which gas enters the stomach wall following mucosal breach. Patients with gastric emphysema do not usually present with acute abdomen unlike those with emphysematous gastritis and prognosis is usually excellent.

Emphysematous gastritis is a rare variant of phlegmonous gastritis. It is caused by gas-forming organisms and may arise from local spread through the mucosa or even hematogeneous dissemination from a distant focus. The stomach is a very uncommon site of involvement because of its acidity and efficient mucosal barrier.

This was first described by Frankel in 1889⁽¹⁾, who strongly believed that it was infective in origin and termed it "gastritis acuta emphysematosa". A review by Moosvi et al.⁽²⁾ of 27 cases from 1889 to 1990 showed that, in most patients, there was a prior insult to the mucosal barrier of the stomach, either by ingestion of corrosives such as ammonia, acid (37%) or alcohol abuse (21%). A history of recent abdominal surgery and gastroenteritis was found in 15% each. Isolated reports of phytobezoar, adenocarcinoma, leukaemia, pancreatitis and disseminated strongyloidiasis in

a patient receiving chemotherapy for lymphoma have also been described.

Common organisms detected include *Enterobacter* species, *Pseudomonas aeruginosa*, *Candida albicans*, and *Staphylococcus aureus*.⁽³⁾

Upper GI Endoscopy and EUS⁽⁴⁾ are alternative methods to diagnose gastric emphysema versus emphysematous gastritis if there is a luxury in time. Unfortunately, these procedures can be done only on stable patients.

We believe that our patient would not have responded well with conservative management. She had multiple comorbidities like hypertension, diabetes, peripheral vascular disease, coronary artery disease with stents and hypercholesterolemia. Her abdominal exam also showed guarding with rebound tenderness, demonstrating that her symptoms and signs were more likely from emphysematous gastritis rather than just emphysema. Prompt operative intervention is the key in management of emphysematous gastritis.

Figure 1

Figure 1: CT scan. Linear gas densities in the thickened gastric wall.



CONCLUSION

Emphysematous gastritis is a rare but severe form of the widespread phlegmonous gastritis. It is caused by mucosal disruption characterized by gas in the stomach wall. The most common cause of emphysematous gastritis is corrosive ingestion. Other causes include trauma or gastric infarction.

Our patient who is a severe vasculopath might have developed emphysematous gastritis from gastric infarction secondary to atherosclerotic disease of the aorta and the celiac axis. Prompt diagnosis and early operative intervention is the key in management of emphysematous gastritis. Deferring surgery awaiting clinical improvement with broad-spectrum antibiotics has been tried with high morbidity and mortality.

Emphysematous gastritis has a high mortality. Awareness of emphysematous gastritis is important for clinicians, because early diagnosis and prompt management may improve survival in some patients.

References

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