



# A Rare Complication of Acute Phlegmonous Gastritis: Right Gastroepiploic Artery Aneurysm and Abdominal Hemorrhage

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## ABSTRACT

**Background:** Acute phlegmonous gastritis (APG) is an unusual disorder characterized by a diffuse suppurative infection of the stomach. Although the clinical features of APG are non-specific, it is a serious condition that may lead to life-threatening complications. Therefore, early diagnosis and treatment are crucial.

**Case Report:** A 67-year-old female presented with severe acute abdominal pain, high fever, vomiting, and clouding of consciousness. She had a history of diabetes mellitus for 18 years and was using insulin therapy. A physical examination revealed diffuse abdominal guarding. An abdominal computed tomography (CT) examination showed diffuse wall thickening affecting the entire stomach, which was suspicious for malignancy. Moreover, the CT revealed a gastroepiploic artery aneurysm and abdominal free fluid with high attenuation, suggesting abdominal hemorrhage. An urgent upper gastrointestinal endoscopy revealed dark-colored and thickened gastric mucosa with several ulcerations, consistent with acute phlegmonous gastritis (APG).

**Conclusion:** APG is a life-threatening condition. Early diagnosis and appropriate treatment are vital. APG should be kept in mind in the differential diagnosis of an acute abdomen, especially in diabetic or elderly patients.

**Keywords:** Abdominal pain, acute abdomen, computed tomography, hemoperitoneum, phlegmonous gastritis

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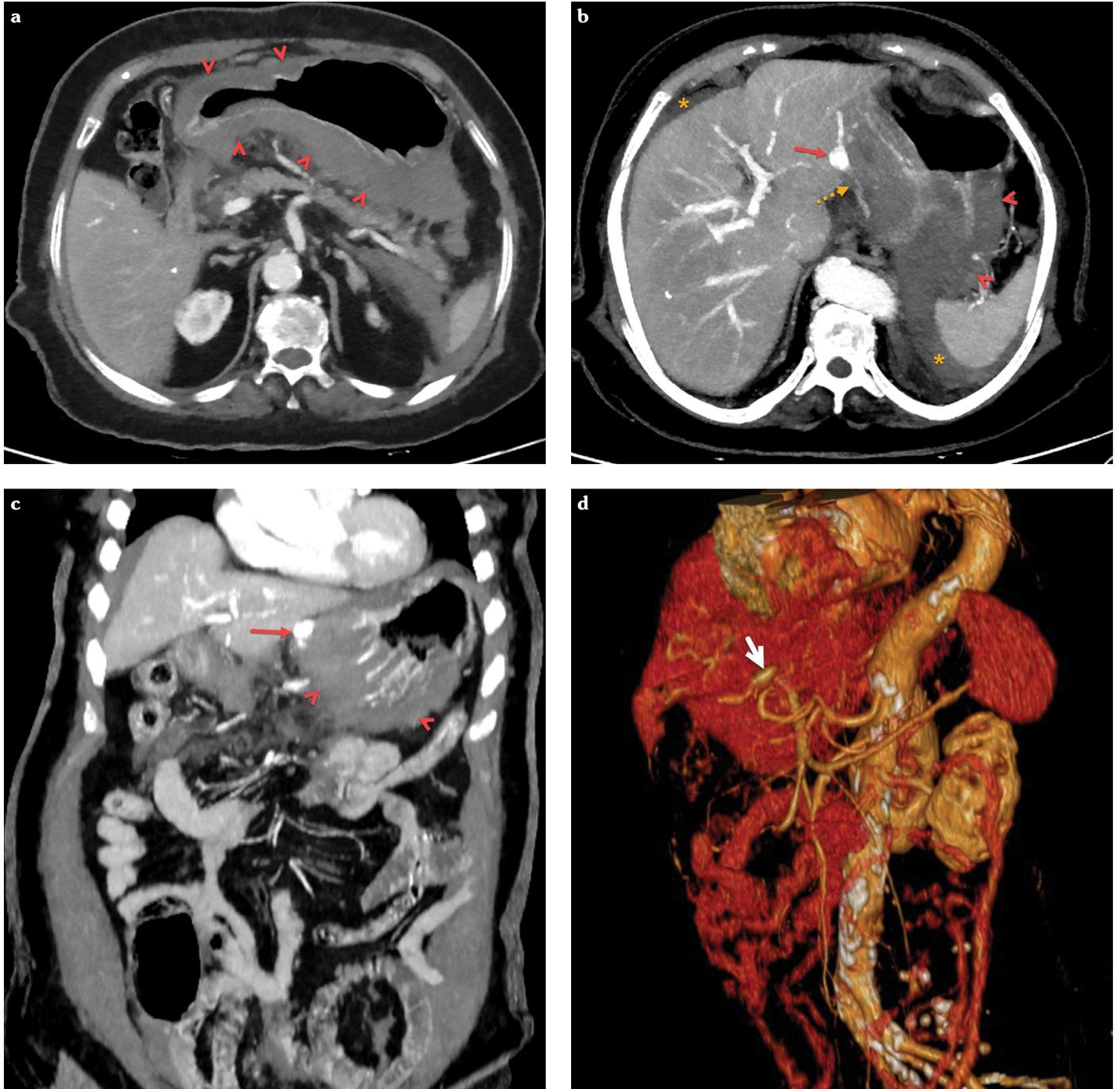
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## INTRODUCTION

Acute phlegmonous gastritis (APG) is a rare, but potentially life-threatening, disorder characterized by a suppurative infection of the gastric wall, and early diagnosis is crucial (1). However, early diagnosis of APG can be difficult due to non-specific clinical and laboratory findings. APG can cause perforation, stomach wall necrosis, and peritonitis (1, 2). APG is a severe clinical entity with a high mortality rate of 18% to 67% (1–3). Prompt diagnosis and rapid antibiotic therapy can reduce the rate of mortality (1). Older age, alcohol consumption, diabetes mellitus, malnutrition, immunosuppression, and gastric ulcers are important risk factors for APG (3). To our knowledge, APG-associated primary vascular complications have not been reported previously. This report describes the case of an 87-year-old woman with APG complicated by a gastroepiploic artery aneurysm and abdominal hemorrhage who presented at the emergency room (ER) with acute abdominal pain.

## CASE REPORT

A 67-year-old female presented at the ER with severe acute abdominal pain, a high fever (38.6°C), vomiting, and clouding of consciousness, which had been present for a few hours. She had a history of diabetes mellitus for 18 years and used insulin therapy. A physical examination revealed diffuse abdominal guarding. The patient was hypotensive (blood pressure: 95/50 mmHg) and tachycardic (122 hpm). Laboratory test results revealed a reduced hemoglobin value (9.8 g/dL; reference range: 12–14 g/dL), and an elevated white blood cell count (16.5 K/uL; reference range: 4–10 K/uL) and C-reactive protein level (22.5 mg/L; normal value: <0.5 mg/L). An abdominal computed tomography (CT) examination demonstrated diffuse wall thickening affecting the entire stomach, which prompted suspicions of malignancy. Moreover, the CT showed a gastroepiploic artery aneurysm and abdominal free fluid with high attenuation, compatible with abdominal hemorrhage (Fig. 1). An urgent upper gastrointestinal endoscopy revealed dark-colored and thickened gastric mucosa with several ulcerations, consistent with APG. Immediately after the endoscopy, the patient was taken to emergency surgery. However, the patient died early in the surgical procedure. A histopathologic examination of the gastric mucosal biopsy specimens revealed neutrophilic exudates and mucosal necrosis, and the culture of gastric biopsy specimens was positive for *Escherichia coli*.



**Figure 1.** Contrast-enhanced computed tomography (CT) angiography images. (a) Axial CT image at the stomach level shows diffuse wall thickening affecting the entire stomach, suggesting malignancy (arrowheads). (b) Axial CT image at the level of left liver lobe demonstrates gastroepiploic artery aneurysm (red arrow) and abdominal free fluid with high attenuation (\*) compatible with hemoperitoneum. Note the diffuse gastric wall thickening (arrowheads) and wall irregularities in the gastroepiploic artery (dashed arrow). (c) Coronal CT image shows diffuse gastric wall thickening (arrowheads) and gastroepiploic artery aneurysm (red arrow). (d) Three-dimensional volume CT image shows the fusiform aneurysm of gastroepiploic artery (arrow)

## DISCUSSION

APG is an unusual and life-threatening disorder characterized by a suppurative bacterial infection invading the gastric wall (1, 2). APG is common in elderly adults with diabetes mellitus, immunosuppression, or a gastric ulcer (2, 3). Although few case reports have

been published in the literature, it is essential to be aware of this rare, but potentially fatal, condition (3). It is thought that APG may occur as a result of orally ingested pathogenic bacteria that directly enter the stomach wall through the bloodstream or as a result of bacteria reaching the stomach wall from another infection focus via the lymphatic system (1–4).

Although an early diagnosis of APG is of great clinical importance, it is often difficult because the clinical and laboratory findings are nonspecific (1). Patients usually present with epigastric pain, loss of appetite, nausea, vomiting, and fever (2, 3). APG should particularly be kept in mind in the presence of epigastric pain and fever in patients with risk factors such as diabetes and immunosuppression (2). Gastroscopy and biopsy are the gold standard methods of diagnosis, while CT is used as a problem-solving method to diagnose and investigate complications, as in the present case.

Kim et al. (1) reported on a previously healthy young patient with APG complicated by an abdominal abscess who was successfully treated with percutaneous drainage and antibiotics. Schlosser et al. (4) reported a case of a patient with pharyngitis who developed APG after an upper endoscopy and gastric biopsy. Although gastric biopsy is a relatively safe technique, they observed that upper endoscopy and biopsy should be postponed in patients with upper respiratory tract infections such as pharyngitis. The authors noted that the patient completely recovered with empirical antibiotic therapy. Similarly, Yang et al. (5) reported that a patient who presented with abdominal pain, vomiting, and a high fever who was diagnosed with APG completely recovered after empirical antibiotic therapy and gastrectomy. Yakami et al. (6) also reported that 3 patients diagnosed with APG completely recovered with antibiotic treatment. The patient in our case died due to an APG-related gastroepiploic artery aneurysm and hemoperitoneum. The presence of APG complicated by a gastroepiploic artery aneurysm and important comorbidities of advanced age and diabetes that worsened the course of the disease.

APG can progress very rapidly, and patients may present with sepsis at the time of diagnosis. A variety of bacterial agents can cause APG. The most frequently reported pathogens are *Streptococcus* spp., *Enterococcus* spp., and *Clostridium* spp (1, 5). Rarely, mucormycosis, a fungal infection, has also been reported to cause APG (1). *Escherichia coli* was detected in the gastric biopsy sample obtained in the present case. Although antibiotic treatment can be quite effective in treating APG, these patients should be carefully investigated for vascular complications.

## CONCLUSION

The present case report describes a case of APG complicated by gastroepiploic artery aneurysm and hemoperitoneum. Since the early diagnosis of APG and APG-associated complications is crucial, radiologists and emergency physicians should be aware of this unusual disorder in patients who present with acute abdominal pain.

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