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A rare cause of fever and abdominal pain

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Conflicts of interest:

The authors hereby state no conflict of interest

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Gina Treichler: Drafting the manuscript, critical revision of the manuscript

Antonia Töpfer: Providing the histological pictures

Bernhard Morell: Drafting the manuscript, critical revision of the manuscript

Question: A previously healthy 41-year-old female presented with upper abdominal pain, nausea, vomiting and fever for 4 days. On admission, the patient was febrile (40.1 °C) whereas blood pressure, heart rate and peripheral oxygen saturation were normal. Laboratory findings were notable for a C-reactive protein of 190 mg/l (reference range, < 5 mg/l) along with a white cell count of 21600 per cubic millimeter (reference range, 4500 to 10500). Liver enzymes, pancreatic lipase and bilirubin were within normal limits. CT of the abdomen revealed wall thickening of the gastric antrum (figure A). Gastroscopy showed a heavily distorted gastric antrum with a fistula (figures B and C). Consecutively, endoscopic ultrasound was performed confirming circumferential thickening of the antral wall up to 20 mm with inhomogeneous hypoechogenic areas within the submucosa (figure D). Deep endoscopic forceps biopsies were obtained. Histopathologic examination revealed extensive infiltration of the mucosa and submucosa by neutrophils (figures E and F) and microbial cultures were positive for *Streptococcus* spp. (*S. pyogenes*, *viridans* group streptococci) and *Rothia mucilaginosa*.

What is the diagnosis?

Answer: Phlegmonous gastritis

The patient was treated with intravenous antibiotics (amoxicillin/clavulanic acid 6.6 g/day) and a proton pump inhibitor (esomeprazole 80 mg/day). Within a few days, the clinical status improved and abdominal ultrasonography documented regression of gastric wall thickening. Laboratory screening for predisposing factors such as diabetes mellitus, infection with HIV or immunoglobulin deficiency were negative and there was no clinical evidence for crohn's disease. Antibiotic treatment was stopped after two weeks of treatment. 6 months later, follow-up gastroscopy was performed confirming complete resolution of the inflammatory changes in the stomach.

Phlegmonous gastritis is a rare but potentially life-threatening bacterial infection of the gastric wall. Since its first description in 1862, about 500 cases have been reported worldwide. Whereas the original reports dating back to the pre-antibiotic era suggest very high mortality rates in the range of 90%, phlegmonous gastritis still represents a life threatening condition^{1,2}. In about half of the cases, acquired immunodeficiency states such as diabetes mellitus, HIV or alcoholism are identified as predisposing factors. In addition to that, gastric biopsies may herald the development of phlegmonous gastritis. *Streptococcus spp.* account for the majority of the cases, which can be isolated in about 70% of the patients¹. Other organisms such as *Staphylococcus spp.*, *E. coli*, *H. influenzae*, *Proteus* or *Clostridium spp.* have been described as pathogens associated with this uncommon condition. Affected patients typically present with unspecific symptoms such as abdominal pain, fever, nausea, vomitus, hematemesis or diarrhea. In light of the devastating natural course of phlegmonous gastritis, timely preemptive administration of broad spectrum antibiotic along with a high index of suspicion are paramount. CT scan and transabdominal ultrasound are useful as initial tests, whereas endoscopic ultrasound typically demonstrates a diffusely thickened, hypoechogenic submucosal wall layer that is not commonly found in patients with other submucosal lesions such as carcinoid or leiomyoma. The diagnosis can be confirmed by endoscopic forceps biopsy provided that sufficient submucosal tissue is included¹. Surgery should only be considered for cases refractory to conservative treatment.

1. Kim G., Ward J., Hennessey B. et al. Phlegmonous gastritis: case report and review. *Gastrointest Endosc* 2005;61:168-74.
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