Diagnosis: Emphysematous gastritis.

This patient with uncontrolled diabetes and acute-on-chronic osteomyelitis developed fever and abdominal pain with leukocytosis during his hospitalization for limb amputation. Radiographic imaging revealed gas accumulation in the posterior stomach wall and within the portal vein (Figure 1) that was highly suggestive of emphysematous gastritis. Empiric treatment was started with imipenem, and the patient underwent emergent explorative laparotomy, which showed extensive tissue necrosis and edema of the greater curvature of the stomach. A partial gastrectomy was performed, and Gram stains prepared from necrotic tissue sections revealed gram-positive rods with enclosed endospores most consistent with Clostridium species (Figure 2). Further speciation was obtained by immunohistochemistry and identified Clostridium septicum as the underlying microorganism (Figure 3). Antimicrobial therapy was tailored accordingly and continued with ampicillin and clindamycin for a total course of 14 days. The patient responded well and was discharged 18 days after his surgery.

Emphysematous gastritis is a rare entity of gas gangrene characterized by necrotizing infection of the stomach wall with gas-producing microorganisms. Mortality rates up to 60% have been reported in multiple reviews [1, 2]. Common isolates are Streptococcus species, Enterobacteriaceae, Pseudomonas aeruginosa, and Clostridium perfringens [1, 3]. In our patient, C. septicum (Figure 2) invaded the stomach wall and caused gas gangrene. To our knowledge, C. septicum has not been isolated in any case of emphysematous gastritis in humans so far. Although difficult to grow in blood or tissue cultures, we identified the organism by using immunohistochemistry on paraffin sections of surgical specimens (Figure 3).

Intramural microbial infections of the stomach do not occur commonly given the bactericidal environment, the presence of a protective mucosal barrier, and the rich blood supply this organ receives. In patients with emphysematous gastritis, these protective mechanisms are altered in the setting of pre-existing conditions. Prior abdominal surgeries, alcoholism, diabetes, high-dose steroid therapy, and a prior ingestion of corrosive substances have all been described in patients with emphysematous gastritis and are recognized as predisposing factors [1, 4, 5]. Our patient had uncontrolled diabetes as his primary risk factor.

There are no standardized recommendations for management of emphysematous gastritis available in the literature, and both operative and conservative approaches have been reported with good outcomes [3, 6]. It is crucial for clinicians to consider this diagnosis in a patient with abdominal pain and a history of diabetes, alcohol abuse, prior abdominal surgeries, or corrosive injuries of the stomach mucosa to enable early recognition and intervention.
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