H52 Emphysematous Gastritis: A Rare Disease With a Fulminant Course

Melissa E. Toeller-DeSimone, BS, University of Wisconsin Madison School of Medicine, Madison, WI 53074*

Learning Overview: After attending this presentation, attendees will understand features and clinical history distinguishing emphysematous gastritis from common mimics at autopsy.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing insight into the risk factors, casual organisms, and mortality associated with emphysematous gastritis. This presentation will assist the community overall by increasing awareness of and aiding in the diagnosis of this infectious condition at autopsy.

Background: Emphysematous gastritis is a gastric wall infection with intramural pneumatosis suspected to arise due to microbial gas production. It has a fulminant course and significant mortality. Due to the relative rarity, limited published literature exists. Additionally, the disease may be underreported as it can be mistaken for other entities, such as gastric emphysema (i.e., gastric pneumatosis without underlying infection) or postmortem decompositional change.

Methods: Autopsy reports from the University of Wisconsin Madison School of Medicine's electronic database between 2003 and 2018 were searched utilizing the term "emphysematous gastritis." All retrieved cases were reviewed. A systematic PubMed® literature search utilizing the same search terms with limits "English language" and "human subjects" between 2000 and 2018 was also conducted. Data on patient demographics, causal pathogens, and outcomes were abstracted.

Results: A single case of emphysematous gastritis was diagnosed via postmortem examination at the University of Wisconsin Madison School of Medicine over the preceding 15 years (i.e., a 60-year-old woman undergoing chemotherapy for metastatic mucinous adenocarcinoma suspected to be of gastrointestinal origin). Three days prior to death, she presented with intractable nausea and vomiting that quickly progressed to diffuse abdominal pain. X-ray revealed marked gastric distension with probable gastric pneumatosis but no definitive pneumoperitoneum. She became hemodynamically unstable and expired. Autopsy was performed the day after death and revealed a primary gallbladder carcinoma. The gastric mucosa appeared markedly dusky and hemorrhagic with a palpable crepitance of the wall. No discrete gastrointestinal tear or perforation was evident. Microscopic sections revealed vacuoles consistent with gas bubbles extensively involving the gastric wall as well as admixed bacterial organisms that were predominantly gram-negative rods by gram staining.

Fifty-nine additional cases of emphysematous gastritis were identified in the literature via PubMed® search. Analysis showed a mean age at diagnosis of 50.5 years (range: 2–94 years). There was a slight male predominance (1.3:1). Greater than half of patients were immunocompromised (34/60; 56.7%). Other risk factors included peptic ulcer disease (11/60; 18.3%), history of abdominal surgery (11/60; 18.3%), caustic ingestion (9/60; 15%), and malignancy (7/60; 11.7%). Multiple risk factors were present in nearly half of the cases (28/60; 46.7%), with lesser numbers having a single risk factor (24/60; 40%) or no known risk factors (8/60; 13.3%). Causal pathogens were identified in 45% of cases. Most commonly, these were bacterial only (14/60; 23.3%) or polymicrobial (9/60; 15%); however, a few were fungal only (4/60; 6.7%). In more than half of the cases, infectious disease testing was either not reported (23/60; 38.3%) or else was reportedly negative (10/60; 16.7%). The overall mortality of emphysematous gastritis was 33.3% (20/60). Malignancy (n=7) portended a worse prognosis, with a mortality of 42.9%. No cases of emphysematous gastritis associated with gallbladder carcinoma were reported.

Conclusions: This presentation reports the first case of emphysematous gastritis arising in association with gallbladder adenocarcinoma. As in this case, the clinical presentation with emphysematous gastritis is typically fulminant with symptoms such as nausea/vomiting, abdominal pain, and hematemesis. Gastric emphysema, conversely, is typically asymptomatic, arises due to disruption in gastric mucosal integrity leading to air entry, and resolves spontaneously. Given its high mortality, pathologists should become familiar with the epidemiologic and histopathologic features of emphysematous gastritis, as well as how to distinguish it from common mimics. Autopsy should be encouraged in all suspected cases to improve understanding of the disease pathogenesis.

Forensic Autopsy, Emphysematous, Gastritis