Imaging Findings in Emphysematous Gastritis

Abstract:

Sir,

Emphysematous gastritis is a rare and often fatal disorder occurring when there is diffuse infiltration of the stomach wall by pathogenic gas-forming bacteria. It is associated with mortality rates over 50%. We present a case of emphysematous gastritis with radiological findings enabling us to distinguish from similar benign conditions such as gastric pneumatosis and interstitial gastritis, which was managed conservatively with a successful outcome.

Case Report

A 73 yr old woman underwent a mechanical mitral valve replacement and tricuspid valve repair this year. She had a difficult postoperative course, developing ischaemic hepatitis and systemic inflammatory response syndrome due to prolonged cardiopulmonary bypass. One week postoperatively she had a respiratory arrest and required re-intubation and ventilation. On day 15 postoperatively, she was noted to be tender in her right upper quadrant. Gastric aspirates were high and she had diarrhoea. An urgent CT abdomen was performed which showed multiple pockets of submucosal air within a distended stomach. Thickening of the posterior stomach wall could be seen on axial imaging (Figure 1) with a focus of low attenuation adjacent to the left portal vein consistent with peri-portal gas. Radiologically the appearance ofsubmucosal gas within the stomach is identical to gastric emphysema- a benign and asymptomatic condition. The associated peri-portal gas is a concerning finding indicative of a sinister underlying pathology. These radiological features are suggestive of emphysematous gastritis and are consistent with those found in patients with underlying infectious, caustic and ischaemic aetiologies.

She was treated with broad spectrum antibiotics, kept nil by mouth and her nasogastric tube was left on free drainage. Total parenteral nutrition was administered. She was found to have avancomycin resistant enterococcus on culturing a stool sample. She improved with conservative management and a CT one week later showed resolution.

Discussion

Emphysematous gastritis occurs when there is diffuse infiltration of the stomach wall by pathogenic gas-forming bacteria. The gas is formed within the stomach wall. It is often a fatal disease with mortality rates quoted as greater than 50%.[1] Causes include ingestion of corrosive substances, alcohol abuse, gastric infarction, trauma and necrotising enterocolitis. Infection occurs with gas forming organisms from local or via haematogenous dissemination[2]. The stomach is usually a very uncommon site of infection due to its abundant blood supply, acidic pH and efficient mucosal barrier[3]. Most frequently isolated organisms are Streptococci, Escherichiacoli, Enterobacter species, Pseudomonas aeruginosa and Clostridiumperfringens[4]. Antibiotic therapy covering anaerobes and gram-negative bacilli, intravenous hydration and appropriate nutrition is the mainstay of treatment.

This condition is distinguished from gastric pneumatosis or gastric emphysema which occurs when there is a disruption of gastric mucosa and air dissects into the stomach wall. This is a much more benign condition, patients are usually asymptomatic and it can be found with gastric outlet obstruction, post gastroscopy, or dissection of air from the mediastinum with ruptured bullae or a pneumothorax. Radiological findings of air in the stomach wall as well as portal venous gas are suggestive of the more sinister emphysematous gastritis.

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