

# Clinical Image ‘Emphysematous Gastritis Due to Gastric Mucormycosis in a Patient with Massive Gastrointestinal Bleeding’

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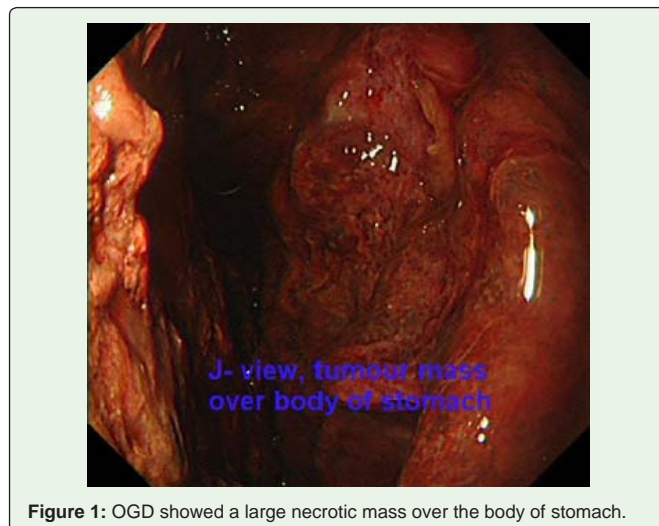
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**Case**

A 75-year-old man, who enjoyed good past health, was admitted for acute coronary syndrome. He was prescribed with double anti-platelet therapy and low molecular weight heparin. He was subsequently complicated with upper gastrointestinal bleeding. Oesophagogastroduodenoscopy (OGD) was performed and found a large ulcer at the incisura of the stomach. Repeated OGD found a large necrotic mass at the body of stomach (Figure 1). Urgent Computed Tomography (CT) scan of abdomen with intravenous contrast showed markedly distended stomach with thickened gastric mucosa and presence of gas in the gastric wall (Figures 2 and 3). A diagnosis of emphysematous



**Figure 1:** OGD showed a large necrotic mass over the body of stomach.



**Figure 2:** CT Scan of abdomen.



**Figure 3:** Coronal view of CT scan of our patient showed grossly distended stomach with thickened gastric mucosa and multiple irregular mottled gas bubbles in the gastric wall.

gastritis was made. Gastric mucormycosis was confirmed by the biopsy of the gastric wall. The patient developed multi-organ failure and eventually succumbed despite intensive care and aggressive anti-fungal therapy.

## Discussion

Gas within stomach wall is an alarming radiological finding. The differential diagnoses are gastric emphysema and emphysematous gastritis. These 2 conditions must be differentiated as there are differences in the management and prognosis. Gastric emphysema is a benign condition and is caused by barotraumas in the absence

of bacterial infection in which air enters the stomach wall from the gastric lumen, peritoneal surface or junctions between esophagus and duodenum. Radiologically, gastric emphysema is characterized by more linear distribution of air in the gastric wall. On the contrary, gas in the stomach wall appears as irregular mottled bubbles or spots in emphysematous gastritis [1].

Emphysematous gastritis is a rare form of gastritis caused by invasion of gas-producing organisms resulting in necrotizing inflammation of the gastric wall. Organisms commonly involved are *Escherichia coli*, *Streptococcus* species, *Enterobacter* species and *Pseudomonas aeruginosa* [2]. Fungal infections have also been rarely reported [3]. The risk factors for emphysematous gastritis include diabetes, alcohol abuse, malignancy, ingestion of corrosives, abdominal surgery, treatment with non-steroidal anti-inflammatory drugs and underlying immune compromised conditions [4].

Mucormycosis is an uncommon opportunistic fungal infection caused by the members of Mucorales. It is an aggressive and highly destructive infection occurring predominantly in patients with severe underlying immune suppression (e.g. hematological malignancies and prolonged severe neutropenia), uncontrolled hyperglycemia, patients with iron overload resulting from frequent blood transfusion and occasionally healthy patients who are inoculated with fungal spores through traumatic injuries. Tissue necrosis due to invasion of blood vessels and subsequent thrombosis are the hallmarks of invasive mucormycosis [5]. Both the large necrosis tissue of the gastric ulcer and the proton pump inhibitor therapy for the gastric ulcer bleeding which broken the acidic environment in the stomach may predisposed to the invasion by mucormycosis in our patient. Emphysematous gastritis due to invasive gastric mucormycosis was associated with very poor prognosis and the reported mortality rate was above 98% despite aggressive treatment [3,6].

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