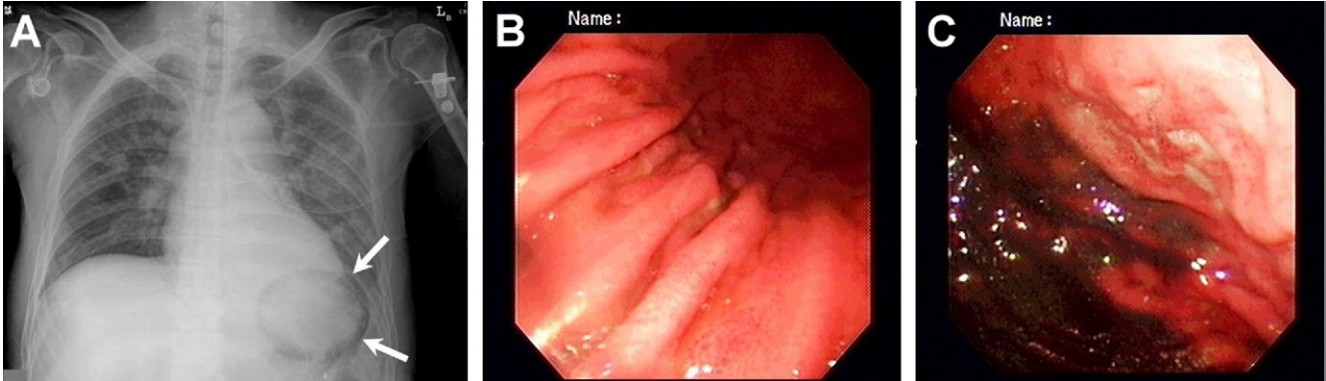


# Electronic Clinical Challenges and Images in GI

David A. Katzka and David L. Jaffe, Section Editors

## A Rare Complication of Chemotherapy in a 56-Year-Old Patient



**Question:** A 56-year-old man was admitted to our hospital because of a 1-day history of hematuria. He also had a medical history of gastric ulcer and renal stone. He denied history of trauma or fever before this admission. Serial surveys, including ureteroscopic biopsy, abdominal computed tomography (CT) scan and positron emission tomography scan, revealed that the patient had ureteral transitional cell carcinoma with liver and lung metastasis. Thereafter, the patient was treated with palliative chemotherapy with a combination of cyclophosphamide, doxorubicin, and methotrexate for his cancer. During the period of chemotherapy, the patient suffered severe nausea and vomiting despite of the use of antiemetic agents. Chest x-ray demonstrated a round linear gas bubble in the left upper quadrant of abdomen (Figure A, arrows). One week postchemotherapy, the patient suddenly experienced epigastric pain and bloody emesis. Subsequently, an emergency esophagogastroduodenoscopy (EGD) demonstrated diffuse edema and erythema of gastric mucosa in the body and fundus (Figure B). In addition, some fresh blood and blood clots were detected in the depen-

dent part of the stomach, but no definite bleeding point was identified (Figure C).

What is your diagnosis of this patient?

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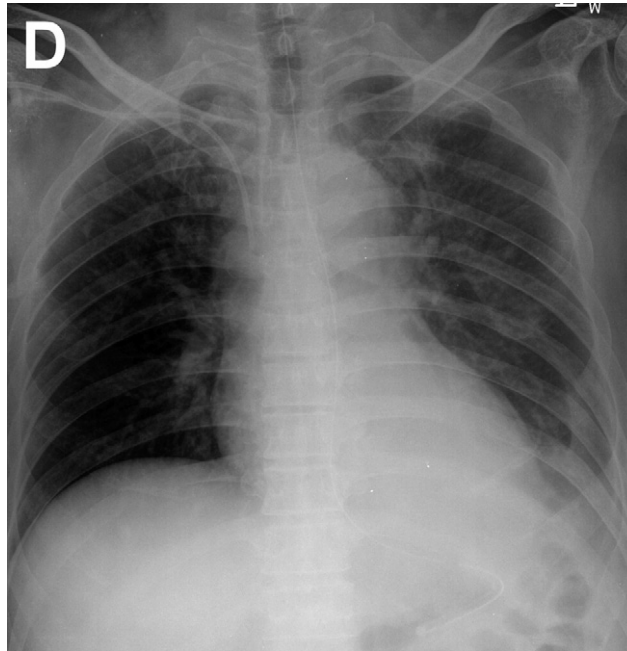
### Conflicts of Interest

The authors disclose no conflicts.

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### Answer to the Clinical Challenges and Images in GI Question:

Image 1: Gastric Emphysema Based on the characteristics of chest x-ray and EGD, a diagnosis of gastric emphysema was made. Conservative treatment with proton pump inhibitor and blood transfusion was given to the patient, and then the gastric emphysema disappeared on follow-up chest x-ray 4 days later (Figure D). However, the patient still died of cancer progression 6 months later. Gas accumulation in the gastric wall is a rare entity. The condition has been classified into 2 types: gastric emphysema, which is the accumulation of intramural gas not associated with infection, and emphysematous gastritis, which is characterized by the presence of gas owing to gas-forming organisms.<sup>1</sup> The predisposing factors of gastric pneumatosis include bacterial infection, increased mural pressure, mucosal damage, and alveolar air leaks via the mediastinum into the gastric wall in patients with obstructive airway disease. Only a few cases of chemotherapy-related gastrointestinal pneumatosis have been reported in the literature; mostly they are pneumatosis intestinalis.<sup>2</sup> In contrast, chemotherapy-induced gastric pneumatosis is extremely rare.<sup>3</sup> The pathogenesis of gastric pneumatosis secondary to chemotherapy is still unclear. In our case, the complication may be related to the side effects of cytotoxic agents—mucosal damage and the increasing mural pressure because of aggravating vomiting. Diagnosis of gastric emphysema is usually dependent on image studies. A plain x-ray is adequate to diagnose this disease and may reveal linear mottled gas bubble in the gastric wall. CT can detect a small amount of air within the gastric wall and the presence of intrahepatic portal venous gas. Ultrasonography, including endoscopic ultrasonography, is a good modality for diagnosing gastric intramural air. The treatment of gastric emphysema should focus on the management of predisposing factors.

### References

1. Kussin SZ, Henry C, Navarro C, et al. Gas within the wall of the stomach report of a case and review of the literature. *Dig Dis Sci* 1982;27:949–954.
2. Candelaria M, Bourlon-Cuellar R, Zubieta JL, et al. Gastrointestinal pneumatosis after docetaxel chemotherapy. *J Clin Gastroenterol* 2002;34:444–445.
3. Zander T, Briner V, Buck F, et al. Gastric pneumatosis following polychemotherapy. *Eur J Intern Med* 2007;18:251–252.

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