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A case of air in the wrong place in the gastrointerstinal tract

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Brief clinical history

We obtained the patient's consent and ensured their full anonymity. An 81-year old female patient was brought into the Emergency Department due to hematemesis. The patient was generally unwell with a chief complaint of abdominal pain and vomiting. The patient was on treatment for arterial hypertension, had undergone femoral osteosynthesis due to a right femoral pertrochanteric fracture and has since been bedridden. She was on oral anticoagulant therapy and had a sacral decubital wound. Her appetite was normal, she suffered from urinary and bowel incontinence. Medications: warfarin, quetiapine, and diazepam and no known drug allergies.

Upon physical examination, the patient was conscious but with an inability to adequately communicate, immobile, afebrile, blood pressure 110/60 mmHg, pulse rate of 91bpm, normal breath sounds, her abdomen showed no distension, peristalsis was auscultated, painless on palpation with no guarding or rebound tenderness. A sacral decubital ulcer was present. A digitorectal examination revealed normal coloured stool. A nasogastric tube was placed which produced 400 ml of a dark brown content. An abdominal radiograph showed no signs of pneumoperitoneum, but there were multiple air-fluid levels.

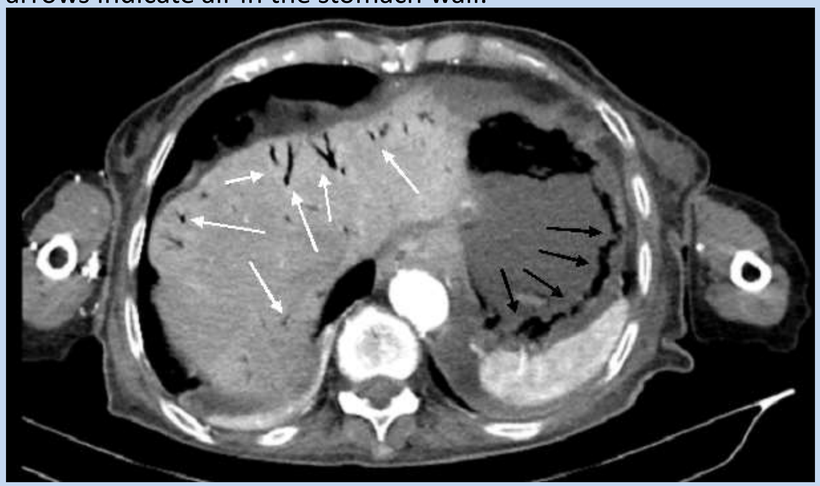
Misleading elements

The patient had haematemesis and was on anticoagulant therapy, which may lead to a misdiagnosis of iatrogenic coagulopathy, pulmonary embolism, upper GI bleeding from a peptic ulcer or even an esophageal tear. The patient did not show signs of an acute abdomen which may have mislead us from any lower gastrointestinal pathology. The decubital ulcer could have been the seat of infection and as a potential site for occult sepsis.

Helpful details

The only helpful detail in the patient's history and examination was haematemesis. Helpful diagnostic investigations included an abdominal X-Ray with multiple air-fluid levels which led to an emergency MSCT scan of the abdomen. The MSCT scan showed intrahepatal air in the portal vein and its branches, the umbilical vein and surrounding the gastric fundus with significant narrowing of the superior mesenteric artery and celiac trunk. Laboratory studies revealed a mild elevation of the patient's C-reactive protein, a normal complete blood count and elevated d-dimers. PV/INR were within reference ranges for anticoagulant therapy use.

Figure 1: An axial contrast enhanced computed tomography of the abdomen showing air within the stomach wall and the portal venous system. White arrows indicate portal venous air. Black arrows indicate air in the stomach wall.



Differential and definitive diagnosis

Differential diagnosis in this case report include, peptic ulcer disease, upper gastrointestinal bleeding, pulmonary embolism, sepsis, gastric emphysema, acute abdomen, mesenteric ischemia. Gastric emphysema is when gas is present within the stomach wall without signs of infection, due to a rise in intragastric or intrapulmonary pressures combined with mucosal damage. It has a benign course, usually asymptomatic and resolves spontaneously without treatment. In our patient the definitive diagnosis was emphysematous gastritis, a rare and potentially fatal inflammatory disease caused by gas-producing bacteria and is characterized by the presence of gas surrounding the gastric wall as seen in a CT scan, which in our case was a result of gastric ischemia. She was treated accordingly.

Educational and clinical relevance

It is important to take a detailed patient history, do a thorough physical examination and use a broad differential diagnosis. Although rarely seen, it is also important to note the difference between emphysematous gastritis and gastric emphysema and to treat emphysematous gastritis accordingly.

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