

Diagnostic Challenge

Portal venous gas in a patient with abdominal pain

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CASE PRESENTATION

A 77-year-old man with a history of coronary artery disease and paroxysmal atrial fibrillation presented to our emergency department with anorexia, abdominal pain and distension. His abdominal pain had migrated from the periumbilical region to the right lower quadrant. He was passing flatus and had a small, nonbloody bowel movement the day before presentation. He denied any fever. He had undergone no endoscopic procedures within the past year.

On arrival, his temperature was 36.8°C, blood pressure was 183/89 mm Hg and pulse rate was 97 beats/min. His cardiac rhythm was regular. The patient's abdomen was moderately distended and tympanitic, and his right lower quadrant was tender to palpation with

rebound tenderness. He was guaiac negative on rectal examination.

Laboratory values were significant for a white blood cell count of $20.3 \times 10^9/L$, a hemoglobin level of 135 g/L, a hematocrit level of 0.39 proportion of 1.0 and a platelet count of $193 \times 10^9/L$. Results of electrolyte panel and liver function tests were unremarkable. The patient's lactate level was 1.7 mmol/L and his international normalized ratio was 1.4. An electrocardiogram demonstrated normal sinus rhythm.

Abdominopelvic CT was performed without intravenous contrast and with limited oral contrast. This demonstrated portal venous gas, with large amounts of air within the venous system of the liver (Fig. 1A). There was no evidence of portal vein thrombosis or free air. There were multiple loops of dilated small

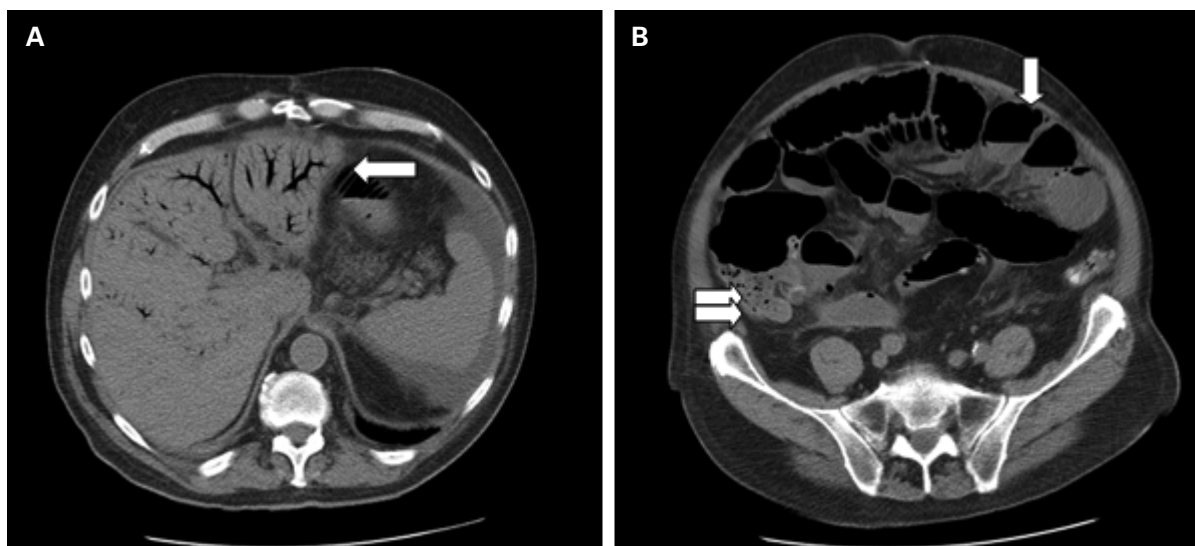


Fig. 1. (A) Abdominal CT scan of a 77-year-old man showing extensive branching air (arrow) within the venous system of the liver. **(B)** CT scan showing moderately dilated loops of small bowel (arrow). The appendix was not clearly visualized at the base of the cecum (double arrows).

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Submitted Dec. 18, 2009; Accepted Jan. 8, 2010

This article has been peer reviewed.

CJEM 2010;12(6):525-6

bowel with no bowel wall thickening (Fig. 1B). The appendix was not clearly visualized at the base of the cecum (Fig. 1B).

QUESTION

What is the most likely diagnosis?

- a) early ischemia of the small bowel
- b) perforated gastric ulcer
- c) diverticulitis
- d) appendicitis
- e) inflammatory bowel disease

For the answer to this challenge see page 538.

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