

CASE NOTE

An unusual case of free air

Kelly N. Vogt, MD, BSc*

Shona E. Smith, MD*

Roya Etemad-Rezai, MD, BSc†

Shiva Jayaraman, MD, BSc*

Ward Davies, MD*

From the *Division of General Surgery and the †Department of Radiology, Schulich School of Medicine and Dentistry, the University of Western Ontario, London, Ont.

Correspondence to:

Dr. W. Davies

339 Windermere Rd.

London ON N6A 5A5

ward.davies@lhsc.on.ca

CASE REPORT

A 61-year-old woman with metastatic breast cancer was transferred for evaluation of free air. After receiving a diagnosis of breast adenocarcinoma in 1989, this patient underwent lumpectomy and axillary node dissection with postoperative radiation. A solitary brain metastasis was excised in 2001. In 2007, repeat craniectomy and excision was required for brain metastasis recurrence. Ten days after transfer to her home hospital, she experienced a sudden onset of abdominal pain, distension and constipation. An abdominal radiograph revealed free air, which prompted her transfer to another hospital for surgical assessment. Owing to her comorbidities and lack of physical findings consistent with perforated viscus and sepsis, the clinicians at that time decided to proceed with nonoperative management.

The patient returned to her home hospital, and about 8 days after the first presentation, her caregivers contacted our hospital owing to her increasingly uncomfortable abdominal pain. On arrival, she was afebrile and hemodynamically stable. Although she had diffuse mild abdominal tenderness, we noted no signs of peritonitis on examination. Blood work results were normal. A repeat plain radiograph demonstrated free air. A computed tomography (CT) scan of her abdomen and pelvis confirmed the presence of a large amount of intra-abdominal free air and the presence of numerous small cystic-appearing pockets of gas along the bowel wall. These findings were most consistent with a diagnosis of pneumatosis intestinalis cystoides (Fig. 1 and Fig. 2), as there were no other signs of perforation such as bowel thickening or free fluid.

Given her benign clinical appearance, we treated her conservatively and monitored her condition while slowly advancing her diet. Her abdominal discomfort completely resolved, and repeat plain film imaging before transfer back to her home hospital showed diminished free air.

DISCUSSION

Pneumatosis intestinalis cystoides is an uncommon presentation of free air. It is a benign condition, characterized by air-filled submucosal cysts.¹ The etiology may be related to mechanical migration of gas from the lumen or mediastinum into the bowel wall and the presence of gas-producing bacteria.² It is often identified incidentally on plain film radiographs or CT scans. The presence of numerous cysts coating the outer layer of bowel wall has a typical appearance described as “sea foam” on the surface of water. Patients are typically asymptomatic, but may present with abdominal pain or distension, diarrhea or, rarely, bowel obstruction.¹ Associated medical comorbidities

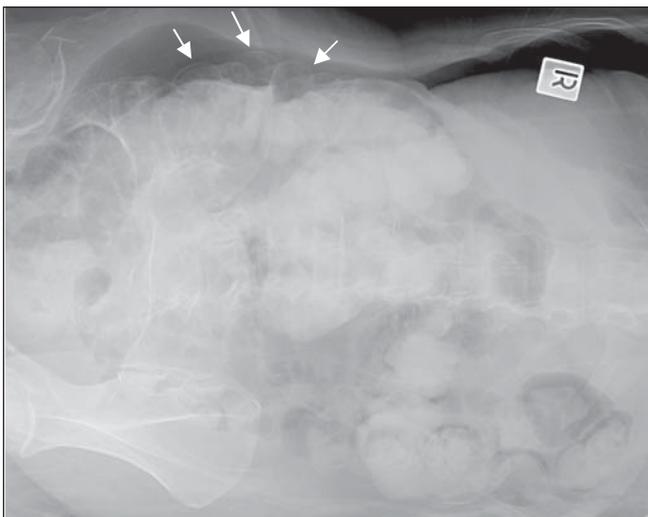


Fig. 1. Left lateral decubitus abdominal radiograph demonstrating a large amount of free air and multiple cysts along the bowel wall (arrows).

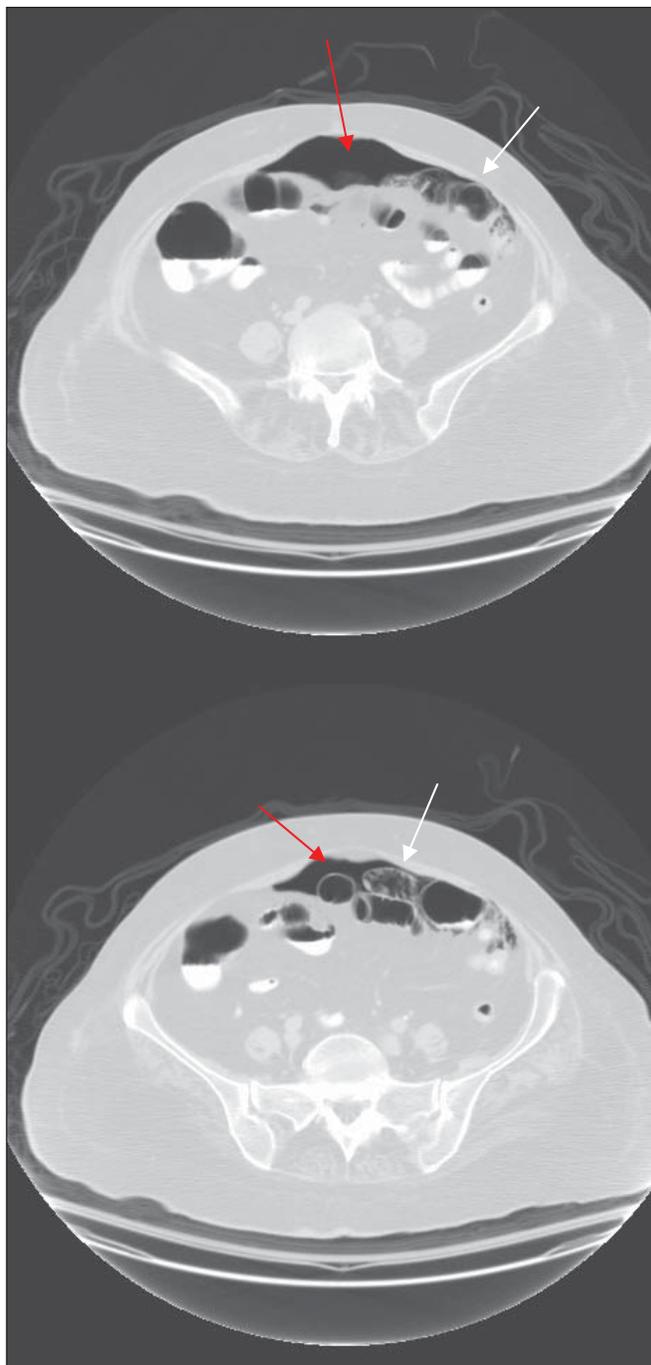


Fig. 2. Computed tomography scan of the abdomen and pelvis of a 61-year-old woman with oral and intravenous contrast in lung windows demonstrating multiple small cystic spaces lining the bowel wall in the left lower quadrant (arrows) and free peritoneal air (red arrows).

include chronic obstructive pulmonary disorder, collagen vascular disease and inflammatory bowel disease.¹⁻³ There are no known effective treatments, although oxygen supplementation, hyperbaric treatments and treatment with oral metronidazole have been proposed.⁴ Spontaneous resolution occurs in most patients.

Competing interests: None declared.

References

1. Koreishi A, Lauwers GY, Misdrayi J. Pneumatosis intestinalis: a challenging biopsy diagnosis. *Am J Surg Pathol* 2007;31:1469-75.
2. Ho LM, Paulson EK, Thompson WM. Pneumatosis intestinalis in the adult: Benign to life-threatening causes. *Am J Roentgenol* 2007;188:1604-13.
3. Mikami S, Nakase H, Sakurai T, et al. Pneumatosis of the ascending colon. *J Gastroenterol Hepatol* 2007;22:760.
4. Di Giorgia A, Sofo L, Ridolfini MP, et al. Pneumatosis intestinalis cystoids. *Lancet* 2007;369:766.