



## Acute abdominal pain in an elderly patient

A possible large bowel obstruction and severe dehydration prompted us to admit this patient. But a day later, the clinical picture became even more worrisome.

NAUSEA, VOMITING, AND WEAKNESS for 4 days prompted a 76-year-old woman to seek care at our hospital. She was admitted for possible large bowel obstruction and severe dehydration. Her medical history was significant for a metastatic lung cancer to the mediastinal lymph nodes and to the left hip (for which she underwent a hip replacement 4 months earlier), anemia, and diverticulosis.

On Day 1 of her hospital stay, the patient became hypotensive and developed labored breathing. She also had mottled skin and cool fingertips with poor capillary refill. Her abdomen was distended, firm, and diffusely tym-

panic with diffuse pain to deep palpation and absent bowel sounds.

Her laboratory values revealed leukocytosis (with a significant left shift), metabolic acidosis, and an elevated lactic acid level. Her upright chest x-ray (FIGURE) is shown. The patient was transferred to the intensive care unit for further management.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE

### Upright chest x-ray



IMAGE COURTESY OF: SAINT PETER'S UNIVERSITY HOSPITAL, NEW BRUNSWICK, NJ

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Rather than complaining of pain, elderly patients may complain of the urge to defecate.

### Diagnosis: Pneumoperitoneum

This patient had free air under her diaphragm (due to a viscus perforation) and concomitant septic shock. Free air in the peritoneal cavity—pneumoperitoneum—indicates visceral perforation in 85% to 95% of cases.<sup>1,2</sup> A ruptured intra-abdominal viscus is considered a surgical emergency. Pneumoperitoneum is often linked to peptic ulcer disease and is seen in 50% of cases of bowel perforations.<sup>3</sup> This condition has a higher prevalence in the elderly and carries a higher mortality rate (up to 30% compared with 19% in a younger population).<sup>4</sup>

### A picture that shifts according to the patient's age

Physical findings suggestive of visceral perforation include sharp abdominal pain with a rigid abdominal wall. Patients will usually lie still because of the peritoneal irritation. Tachycardia and tachypnea are seen early in the disease process, while hypotension and fever usually develop within 4 to 6 hours.<sup>5</sup>

Elderly patients, however, can present with milder or nonspecific symptoms. Rather than pain, they may complain of the urge to defecate. Physical exam findings such as tachycardia or fever can also be absent due to autonomic dysregulation or medication. Furthermore, laboratory analysis is commonly within normal limits, making the diagnosis even more challenging in this population.<sup>5,6</sup>

### Imaging confirms the Dx

The standard imaging test used to confirm pneumoperitoneum is a standing chest

x-ray that will detect free air in almost 80% of cases.<sup>7</sup> The sensitivity is influenced by the location of the perforation: Free air will be seen in 69% of gastroduodenal perforations, 30% to 41% of distal small bowel perforations, and 37% to 46% of large bowel perforations.<sup>1</sup> Abdominal computed tomography scans have been reported to be more sensitive (up to 100%), especially in identifying small pneumoperitoneum.<sup>8,9</sup>

### Surgery is the next step

Management of pneumoperitoneum includes a prompt surgical consult for a possible emergent laparotomy, nasogastric suctioning, supportive measures for blood pressure, and broad-spectrum antibiotics such as a fourth-generation penicillin or a third-generation cephalosporin plus metronidazole.<sup>10</sup>

### The end of the fight

Given the high mortality rate and the atypical presentation of perforated viscus in the elderly, it is important to maintain a high index of suspicion in this population and to intervene rapidly to improve the outcome.

In the case of our patient, the family followed her wishes and declined surgery. She was aggressively managed with broad-spectrum antibiotics, IV fluids, and vasopressors—but unfortunately died 2 days later.

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