

Surgical images: soft tissue

An unusual presentation of perforated sigmoid colon

A 59-year-old woman with a history of metastatic breast cancer was admitted to a local hospital for palliation of her bony pain with narcotics and dexamethasone. Three weeks later, she experienced a sudden reduction in her level of consciousness; subcutaneous emphysema of the thorax, face and neck; and abdominal distension. Radiographs of her chest and neck demonstrated pneumopericardium, pneumomediastinum, pneumoperitoneum and subcutaneous emphysema in the neck and the prevertebral space. A computed tomography (CT) scan of her chest and abdomen confirmed the radiographic findings but could not identify the source of free air. A CT scan of her head was normal. Within 24 hours, her level of consciousness had returned to normal, and the subcutaneous emphysema had resolved. She tolerated a normal diet immediately after this episode and was passing flatus; she had not had a bowel movement in 7 days. The admitting physicians suspected an upper gastrointestinal source of the air. The patient was trans-

ferred to our hospital 4 days after this episode for further investigations and management.

On admission to our hospital the patient denied any nausea, vomiting or retching, coughing, shortness of breath, dysphagia and abdominal or chest pain. On examination she appeared to be in no distress. Her vital signs were normal, as were the results of her cardiorespiratory and abdominal examinations and her laboratory tests, including leukocyte count. A digital rectal examination revealed normal, soft stool.

The patient completed an upper gastrointestinal swallow with gastrograffin followed by dilute barium, which demonstrated no esophageal leak. A subsequent CT scan of her chest and abdomen identified pneumopericardium, pneumomediastinum and pneumoperitoneum (Fig. 1). The CT scan of her abdomen and pelvis identified free fluid that contained air and barium (Fig. 2) and was consistent with a perforated viscus.

Surgical exploration identified a very

thickened and inflamed midsigmoid colon that had multiple sites of perforation in the anterior space and into the retroperitoneal space. There was no clinical evidence of a stercoral perforation. We drained the retroperitoneal abscess cavity, performed a Hartmann procedure and treated the condition with broad-spectrum antibiotics. The pathology assessment confirmed the colonic perforation; however, we could not determine the etiology because there were no diverticuli, ulcers or other mucosal abnormalities present.

Colonic perforation presenting with pneumoperitoneum, pneumomediastinum and pneumopericardium has been reported as an uncommon presentation of colonic perforation secondary to colonoscopic polypectomy.¹ A single case of perforated diverticulitis has also been reported, which interestingly involved a 50-year-old woman who had metastatic breast cancer and was taking steroids.² In both patients, the retroperitoneal air tracked up to the mediastinum



FIG. 1. Computed tomography scans of the chest and abdomen demonstrating pneumopericardium (short black arrow), pneumomediastinum (long black arrow) and pneumoperitoneum (short white arrow).



FIG. 2. Computed tomography scan of the pelvis with an extraluminal collection of fluid containing air and extravasated barium (arrow).

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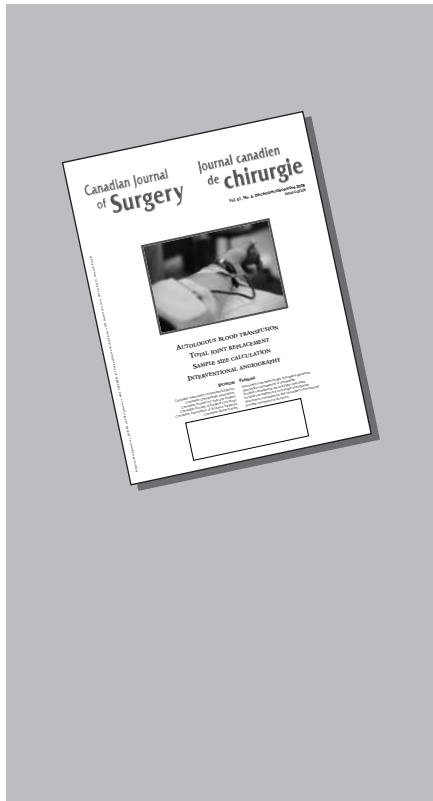
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and, from there, into the pericardium and soft tissues of the head and neck. Corticosteroids can be a contributing factor for colonic perforation, most commonly secondary to diverticulitis or colonic ulcers.³ Steroids are associated with an absence of the typical signs and symptoms of peritonitis, resulting in delayed diagnosis and treatment, higher rates of free peritoneal perforation and increased mortality.^{4,5}

Competing interests: None declared.

References

1. Ho HC, Burchell S, Morris P, et al. Colonic perforation, bilateral pneumothoraces, pneumopericardium, pneumomediastinum and subcutaneous emphysema complication endoscopic polypectomy: anatomic and management considerations. *Am Surg* 1996;62:770-4.
2. Basic N, Zgajnar J, Kocijancic I. Pneumomediastinum, pneumopericardium, and pneumoperitoneum caused by peridiverticulitis of the colon: report of a case. *Dis Colon Rectum* 2004;47:766-8.
3. Warshaw AL, Welch JP, Ottinger LW. Acute perforations of the colon associated with chronic corticosteroid therapy. *Am J Surg* 1976;131:442-6.
4. Pauker SG, Kopelman RI. A masked marauder. *N Engl J Med* 1994;330:1596-8.
5. ReMine SG, McIlrath DC. Bowel perforation in steroid-treated patients. *Ann Surg* 1980;192:581-6.



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