

Perforated ileal diverticulitis: CT findings

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ABSTRACT

Diverticulosis of the ileum is very uncommon. The differential diagnosis for any inflammatory process in the right lower quadrant of the abdomen includes appendicitis, Crohn's disease, and other infectious and inflammatory conditions of the terminal ileum and cecum. Diagnosis of small bowel diverticulitis is based on radiological findings, and computed tomography is the method of choice to demonstrate mural changes and the mesenteric extent of the inflammation. Preoperative knowledge of this condition may influence surgical and medical management.

Key words: • intestine, small • computed tomography
• diverticulitis

Diverticulosis of the ileum is uncommon, with documented incidence rates of 0.001% to 1.9% (1–3). The reported complications of ileal diverticula are diverticulitis, small bowel obstruction, and hemorrhage (2, 3). Computed tomography (CT) may be helpful in diagnosing small bowel diverticulitis (4–7). The differential diagnosis for any inflammatory process in the right lower quadrant of the abdomen includes appendicitis, Crohn's disease, and other infectious and inflammatory conditions of the terminal ileum and cecum. Preoperative knowledge of this condition may influence surgical and medical management (8). Herein, we present the CT findings of a case with perforated ileal diverticulitis.

Case report

A 70-year-old woman presented with general abdominal pain and vomiting that began 12 hours earlier. The patient's medical history included appendectomy, but was otherwise unremarkable. Physical examination revealed her body temperature was 36.5 °C, heart rate 92 beats/min, and blood pressure 135/65 mmHg. Abdominal distension and evidence of peritonitis were also noted. The patient's white blood cell count was $11.4 \times 10^9/L$. Plain abdominal radiograph was normal. CT (Siemens, Volume Zoom, Erlangen, Germany) was performed with 8 mm collimation and slice thickness after administration of oral and bolus-intravenous contrast material.

The CT scan showed significant circumferential thickening of the ileum, with adjacent mesenteric inflammation, minimal free peritoneal fluid, and extraluminal air. Multiple small diverticula were observed in the distal ileum. The cecum was normal, except for the presence of multiple diverticula (Figure). The presumed diagnosis was ileal diverticulitis and perforation, on the basis of the CT findings. Laparotomy was performed through a lower midline subcostal incision, and surgical exploration revealed a perforated terminal ileal diverticulum. The perforated segment of the ileum was resected and an ileo-ileostomy was performed. Ten days after surgery the patient was discharged in good condition. She recovered rapidly and is currently in good health.

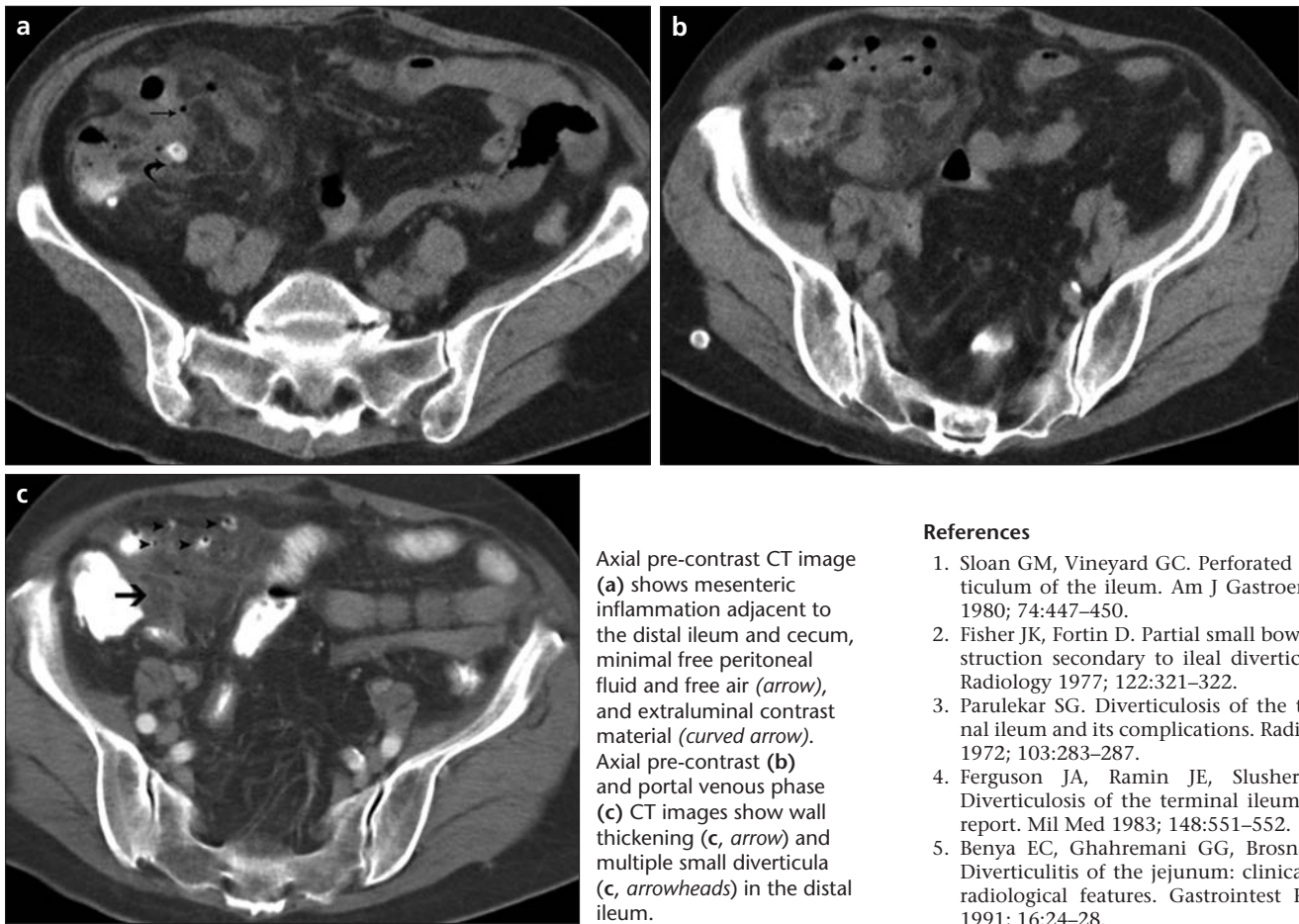
Discussion

Small-bowel diverticula are often detected with barium studies, and are more common in the duodenum than in the jejunum or ileum (3). Such lesions of the small intestine are uncommon, with reported incidence rates ranging from 0.001% to 1.9%. (3). Diverticula of the small bowel occur twice as frequently in males as in females, and are often associated with colonic diverticula (6). Most patients with small-bowel diverticula have coexisting colonic diverticula (9), as did the presented case.

Acquired diverticula of the small intestine may be primary, or secondary to abdominal surgery, tuberculosis, or Crohn's disease. In contrast to true

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Received 25 May 2006; revision requested 20 October 2006; revision received 21 October 2006; accepted 26 October 2006.



congenital Meckel's diverticulum, pseudodiverticula are usually multiple and occur at the mesenteric border (10).

The majority of small-bowel diverticula are asymptomatic, and less than 10% cause complications. The most common problems include gaseous dyspepsia, intermittent mild abdominal discomfort, malabsorption, obstruction, volvulus, intussusception, perforation, diverticulitis, enterolith, fistula, and bleeding (6, 7, 9–15). Acute complications, such as diverticulitis, perforation, obstruction, and hemorrhage, are relatively rare (6.5%–10.4%). The reported mortality rates associated with these acute complications range from 25% to 50% (9).

Diagnosis of diverticulitis in any section of the small intestine is based solely on radiological findings, and CT is the method of choice. In recent years, a number of case reports have described the spectrum of CT features in acute small bowel diverticulitis (4–7). CT has proven superior to barium studies for demonstrating the mural, serosal, and mesenteric extent of the disease (15);

however, definitive diagnosis of ileal diverticulitis requires fluoroscopic or tomographic visualization of diverticula. The CT findings of ileal diverticulitis include ileal wall thickening, mesenteric inflammation, extraluminal free air, fluid collection, and direct visualization of diverticulum. If CT shows focal inflammation around the terminal ileum, and the cecum and appendix are both normal, ileal diverticulitis should be included in the differential diagnosis. In the presented case, multiple ileal diverticula were clearly identified on CT. Certain conditions that affect the right lower quadrant more frequently may have similar imaging findings, including Crohn's disease, appendicitis, cecal diverticulitis, and infectious causes of terminal ileitis.

In conclusion, since CT is the primary imaging modality for evaluating right lower quadrant pathologies, knowledge of the CT appearance of ileal diverticulitis is necessary for preventing serious late complications and for providing appropriate clinical management.

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