Perforated Diverticulitis of the Terminal Ileum Complicating Crohn’s Disease with Chronic Renal Failure

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Abstract
In Crohn’s disease (CD), active terminal ileitis may expand to the diverticulum but usually does not impact on clinical decision-making. We detail an original surgical approach in a woman with perforated diverticulitis and CD.

Case presentation
We report the case of a 53-year-old woman with chronic renal failure admitted for lower right abdominal pain, fever, and an abdominal abscess. Computed tomography (CT) showed active ileocecal inflammation and fluid collecting in the right iliac fossa suggesting intestinal perforation. In addition to localized ileitis and ileocecal colitis, ileocecal resection for diverticulitis perforation showed a 3×3 cm abscess. Pathologically, the surgical specimen showed transmural inflammation with granulomas and perforation of the end of the diverticulum.

Conclusion
CD of the ileum may result in intestinal diverticulitis and perforation.

Key words: perforated diverticulitis, terminal ileitis, Crohn’s disease

Introduction
Diverticulitis of the terminal ileum, while very rare, may cause acute abdomen mimicking appendicitis. Ileal diverticulum is uncommon, with a documented incidence of 0.001% to 1.9%6). The prevalence of Meckel’s diverticulum in those with Crohn’s disease (CD) probably resembles that in the general population, although an increased 5.8% frequency has been reported6). Inflammation expanding to the diverticulum is uncommon, and very few of those with inflammatory bowel disease develop complications specifically related to Meckel’s diverticulitis6). Evidence indicates, however, that ileal Crohn’s lesions may spread to Meckel’s diverticulum, resulting in diverticulitis4) associated with small bowel obstruction4) or enteroceles fistula6). We report a case of perforated terminal-ileum diverticulitis with CD and chronic renal failure.

Case Presentation
A 53-year-old woman with chronic renal failure admitted for severe abdominal pain and fever and diagnosed with ulcerative colitis (UC) 3 years earlier was found in computed tomography (CT) to have an inflammatory process containing air bubbles in the lower right quadrant involving the cecum. It was thought to represent a sealed-off perforation. A 3 × 3 cm abscess was also seen in the right iliac fossa (Fig. 1). Colonoscopy showed an edematous Bauhin’s valve and some cecal diverticula without inflammation and CD (Fig. 2). Initial conservative management with 250 mg of metronidazole once daily (OD), 1 g of ceftriaxone sodium hydrate OD and percutaneous abdominal wall abscess drainage failed, necessitating surgery following the development of tem-
porary washing from the drain orifice.

Surgery showed features typical of ileocecal Crohn’s disease (CD) involving the last 3 cm of the ileum and a 3 × 3 cm abscess adhering to the lateral-anterior abdominal wall. The abscess originated in diverticulum perforation at the last 3 cm of the ileum (Fig. 3). Conservative surgery was preferred to avoid extensive bowel resection, necessitating ileocecal resection with a relatively safe layer-to-layer ileocecal anastomosis. Pathologically, the surgical specimen showed active transmural inflammation with granulomas complicated by abscesses and diverticulum perforation.

The postoperative course and subsequent CD medical treatment were uneventful, with clinical and biological inflammation parameters returning to normal within 7 days.

Discussion

Crohn’s disease (CD) is a granulomatous inflammatory condition adversely affecting the gastrointestinal tract at an incidence of 1-3 per 100,000 [http://www.emedicinehealth.com/crohn_disease/article_em.htm]. It usually shows gastrointestinal or non-specific symptoms such as weight loss. CD is associated with extraintestinal manifestations such as the eyes—uveitis or iritis; skin—erythema nodosum or pyoderma gangrenosum; cardiorespiratory—interstitial lung disease or pericarditis; and prolithogenic conditions—chole- or nephrolithiasis. Transmural inflammation often leads to fibrosis and to obstructive clinical presentation. Most of those with CD undergo small-intestine imaging studies and often intestinal resection. A CD hallmark is the fistula formation occurring in 17-50% of subjects, usually between bowels, abdominal viscera, or abdominal
Perforated terminal-ileum diverticulitis with Crohn’s disease

Fig. 3 Pathological examination
Pathological examination of the surgical specimen showing (A) the diverticulum and active transmural inflammation together with (B) granulomas and (C) perforation.

We report the case of a woman with ileocecal CD lesions developing into adjacent ileal diverticulum resulting in perforation and abscesses. Two lines of evidence suggest that perforated diverticulitis is directly related to CD—1) active CD present distal to the diverticulum and 2) transmural inflammation and giant cell granulomas present in the surgical specimen—yielding a diagnosis of CD. Pathologically, a perforated ileal diverticulum with an abscess involved mesenteric soft tissue adjacent to the terminal ileum and cecum.

Jejunal and ileal diverticulosis are uncommon entity, with a reported prevalence in conventional barium studies of 0.3-1.9% and at autopsy of 0.3-1.3%. Terminal-ileum diverticulitis, while very rare, may trigger acute abdomen mimicking appendicitis. Ileal diverticulosis has a documented incidence of 0.001% to 1.9%. Ileal diverticulum complications include diverticulitis, small bowel obstruction, and hemorrhage. Small-bowel diverticula found incidentally in small-bowel series or barium enema are usually asymptomatic. Acute complications including diverticulitis, perforation, obstruction, and hemorrhage are relatively rare, occurring in 6.5-10.1% of subjects. Small bowel diverticulitis shows no pathognomonic signs or symptoms. The clinical spectrum in reported cases varies from intermittent abdominal pain to acute abdomen with leukocytosis and fever. In the cases of ileal diverticulitis reported, the most common clinical presentation mimicked acute appendicitis.

Surgical strategy was conceivably ileocecal resection, proffering relatively safe ileocecal anastomosis but requiring extensive colon resection in high-risk subjects with chronic renal failure. We chose to maximize colon and small bowel preservation, limiting ileocecal resection for the terminal-ileum diverticulum. Two essential conditions for ileocecal resection met in our case were 1) the absence of stricture distal to the perforation and 2) a fairly long diverticulum with a relatively healthy base suitable for anastomosis. The postoperative course was uneventful. In the 1 month since surgery, the woman reports no episodes of abdominal pain and diarrhea per week and her blood test results are normal.
References