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Single Ileal Diverticulum with Perforation and Localized Mesenteric Abscess

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Although ileal diverticulitis with mesenteric abscess is a rare disease, it should be considered in the differential diagnosis of acute abdomen, particularly in elderly patients. We report the case of an 88-year-old woman presenting with constant, right lower quadrant abdominal pain with peritonitis. Abdominal ultrasonography and computed tomography scans were inconclusive. Because of the presence of peritonitis of unknown etiology, a diagnostic laparoscopy was performed, which revealed a localized abscess in the ileal mesentery. The patient underwent laparotomy with segmental resection of the ileum and antibiotic treatment. Pathology showed a perforated single ileal diverticulum causing a mesenteric abscess. The diagnosis and management of mesenteric abscesses caused by ileal diverticulitis is discussed.

Key words: mesenteric abscess, ileal diverticulitis, laparroscopy

INTRODUCTION

Ileal diverticulosis is rare and its incidence has been reported to be between 0.06% and 2.3% based on radiological and autopsy studies[1]. Most cases of ileal diverticulosis show multiple diverticula, and occur mostly in those over the age of 60 and predominantly in males. Ileal diverticulosis can result in a range of complications such as diverticulitis, small bowel obstruction, perforation, peritonitis and abscess. Only 2% to 6% of jejunoileal diverticulosis cases are complicated with perforation[2]. We describe here a case of an elderly woman with right lower quadrant abdominal pain. Her single ileal diverticulum complicated with perforation and mesenteric abscess was diagnosed by laparoscopy and pathology without conclusive preoperative imaging studies.

CASE REPORT

An 88-year old woman with a 20-year history of hypertension and type 2 diabetes mellitus with medication presented with a one-day duration of constant, right lower quadrant abdominal pain. She had no fever, nausea, vomiting or bowel habit changes. On examination, her abdomen showed hypoactive bowel movements by auscultation and board-like rigidity and rebound tenderness in the right lower abdomen. Digital examination was unremarkable. The laboratory data showed a white blood cell count of 19300/μl with 93% neutrophils, blood sugar was 215 mg/dl and other biochemistry studies were within normal limits. The chest and abdominal roentgenogram showed a diffuse bowel gas pattern without free air. The abdominal ultrasonography image was poor due to the patient's obesity and the presence of bowel gas. Computed tomography (CT) scans of the abdomen showed mild fat strands and local gas accumulation in the ileal mesentery located in the right lower quadrant abdomen. (Fig. 1). Because of the presence of peritonitis of unknown etiology the patient underwent a diagnostic laparoscopy, which showed a 5×4 cm abscess located in the ileal mesentery 120 cm proximal to the ileocecal valve (Fig. 2). The surgery was converted to laparotomy because of dense adhesions between the mesentery and the retroperitoneum. A segmental resection of ileum with end-to-end anastomosis was subsequently performed. The resected specimen showed a 0.3×0.4 cm ulcer in addition to the mesenteric abscess (Fig. 3). The pathology showed a perforated ileal diverticulum communicating with the abscess (Fig 4). Klebsiella pneumoniae was cultured from the mesenteric abscess, and based on a susceptibility test ceftriaxone was administered for seven days. The patient's postoperative

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Fig. 1 Mild fat strand and local gas accumulation at the arrow.

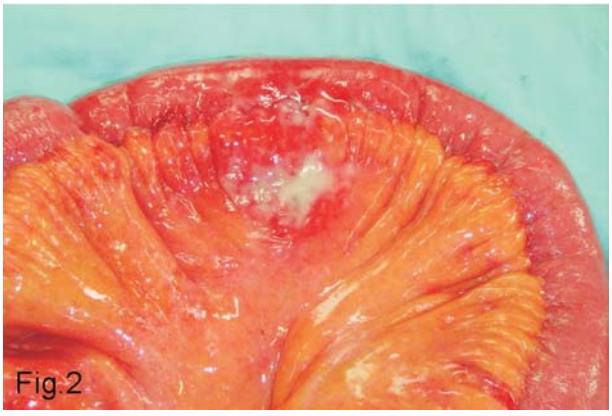

Fig. 2 At surgery, mesenteric abscess of ileum from 120cm proximal to ileocecal valve, measured 5×4 cm in size was found.

course was uneventful and she was discharged on postoperative day 10.

DISCUSSION

Jejunoileal diverticulitis may be a result of fragility of the mesenteric side of the bowel wall due to abnormalities of peristalsis[3,4]. Sometimes it is difficult to diagnose because it may present with nonspecific symptoms such as nausea, vomiting, abdominal pain and fullness that resemble those of irritable bowel syndrome or dyspepsia.

Fig. 3 The specimen showed one 0.3 cm diverticulum perforation beneath the mesenteric abscess.

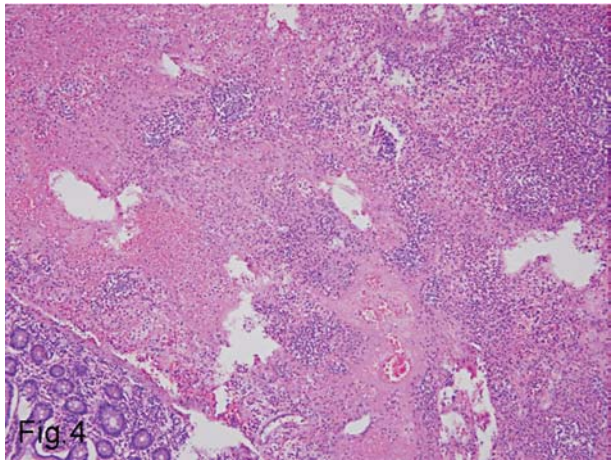

Fig. 4 Infiltrating inflammatory cell and hemorrhage in HE stain 100×

The majority of small bowel diverticula are asymptomatic, with only 10% associated with acute complications, including diverticulitis, perforation, volvulus, obstruction, hemorrhage and sepsis[1,5]. The most common complication is acute diverticulitis. The mortality rate for this condition has been reported to be as high as 20%-40% in cases of delayed diagnosis of ileal diverticulitis with perforation[5-8]. Early diagnosis and treatment are important to prevent advanced intra-abdominal infection or mortality.

Preoperative diagnosis of ileal diverticular disease is not easy to establish. Direct imaging studies including capsule endoscopy and double-balloon endoscopy of the small intestine are accurate but not feasible in patients with an acute abdomen[9,10]. The alternatives for evaluating abdominal emergencies are sonography and a CT scan. CT

imaging is superior to sonography in demonstrating extraluminal free air, small bowel-wall thickening, mesenteric fat strands and abscess formation. Ileal diverticular disease is also difficult to differentiate from other inflammatory process such as appendicitis, cecal diverticulitis and Crohn's disease[11]. Laparoscopy has been reported to be helpful in the diagnosis of patients with ileal diverticula[2-7]. It provides a full examination of the abdomen, enables accurate diagnosis and avoids unnecessary laparotomy, and is our method of choice in patients with inconclusive preoperative imaging. Laparoscopic or laparoscopy-assisted resection of bowel is feasible when the diagnosis is confirmed, but in this case was not possible because of dense adhesions caused by severe inflammation.

Medical therapy with fasting and intravenous antibiotics based on the results of bacterial culture is the appropriate treatment for uncomplicated ileal diverticular disease, but surgery with resection of the involved ileum is the definitive treatment for patients with complicated ileal diverticulitis[5]. Our patient was stable and could have been treated with nonsurgical methods, but her presentation with peritonitis of unknown etiology prompted us to undertake surgery. She was an elderly woman, thus other differential diagnoses such as inflammatory bowel disease, intra-abdominal neoplasm and perforated acute appendicitis had to be considered.

In summary, ileal diverticulitis with perforated and localized mesenteric abscess is very rare and difficult to diagnose preoperatively. Delayed diagnosis and treatment could result in death. With the limitations of imaging studies, laparoscopy may be useful in diagnosis and treatment of complicated ileal diverticulitis.

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