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## Laparoscopic management for spontaneous jejunal perforation caused by nonspecific ulcer: A case report



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## ABSTRACT

**INTRODUCTION:** Nonspecific small bowel ulcers are rare and there have been limited reports. We applied laparoscopic surgery successfully for the perforation caused by this disease of jejunum.

**Presentation of case:** A 70-year-old man visited to our hospital with complaint of abdominal pain and fever. He was diagnosed abdominal peritonitis with findings of intraperitoneal gas and fluid. Emergency laparoscopic surgery was performed. A perforation 5 mm in diameter was recognized in jejunum opposite side of mesentery. Partial resection of jejunum with end-to-end anastomosis and peritoneal lavage were performed. Pathologically, an ulcer was recognized around the blowout perforation without specific inflammation. He was discharged uneventfully 12 days after surgery.

**CONCLUSION:** Laparoscopic surgery has diagnostic and therapeutic advantages because of its lower invasion with a good operation view, and in case of the small bowel, it is easy to shift extra-corporeal maneuver.

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## 1. Introduction

Nonspecific small bowel ulcer is a rare disease. A reported incidence is approximately 4 small bowel ulcerations per 100,000 individuals [1]. It was first described by Baillie in 1795 [2], and the etiology remains unknown. The nomenclatures for these conditions differed from case to case, included primary nonspecific small-bowel ulcer, idiopathic ulcer of the small bowel, and nonspecific small-bowel ulcer [3]. Complications resulting from nonspecific small bowel ulcers have been reported previously [1], including intermittent small bowel obstruction, blood loss and acute abdomen. As the diagnosis can only be established after the exclusion of all other possible causes of small bowel ulcer, in case of acute abdomen, diagnosis is seldom made preoperatively. For perforative peritonitis, regardless of the cause, laparotomy has historically represented the gold standard treatment. Recently, however, the use of laparoscopy for abdominal emergencies has gained widespread acceptance due to various diagnostic and therapeutic advantages. Herein, we report a rare case of perforated nonspecific ulcer of small bowel successfully treated by laparoscopic surgery. This case report has been reported in line with the SCARE criteria [4] <http://www.scareguideline.com>.

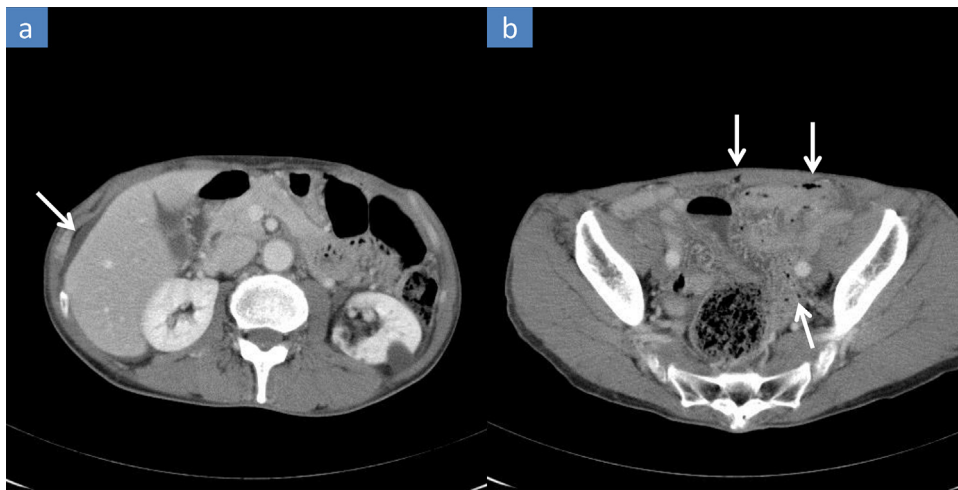
## 2. Presentation of case

A 70-year-old man visited his family physician for evaluation of a high fever. He was prescribed diclofenac sodium and clarithromycin for 5 days. However, he returned to his doctor 7 days later because of acute-onset abdominal pain and nausea; he was then referred to our department. He had a medical history of laparoscopic right hemicolectomy for ascending colon cancer 3 years previously. Upon admission, the patient's temperature was 38.8°C, blood pressure was 96/61 mmHg, pulse rate was 82/min, and respiratory rate was 20/min. His BMI was 18.6 kg/m<sup>2</sup>. Physical examination revealed board-like rigidity and tenderness throughout the whole abdomen. Laboratory data showed a white blood cell count of 12,900/mm<sup>3</sup> with no other remarkable findings. CT showed fluid on the surface of the liver and a small amount of free gas in the pelvis (Fig. 1). The patient was diagnosed with bowel perforation and acute peritonitis.

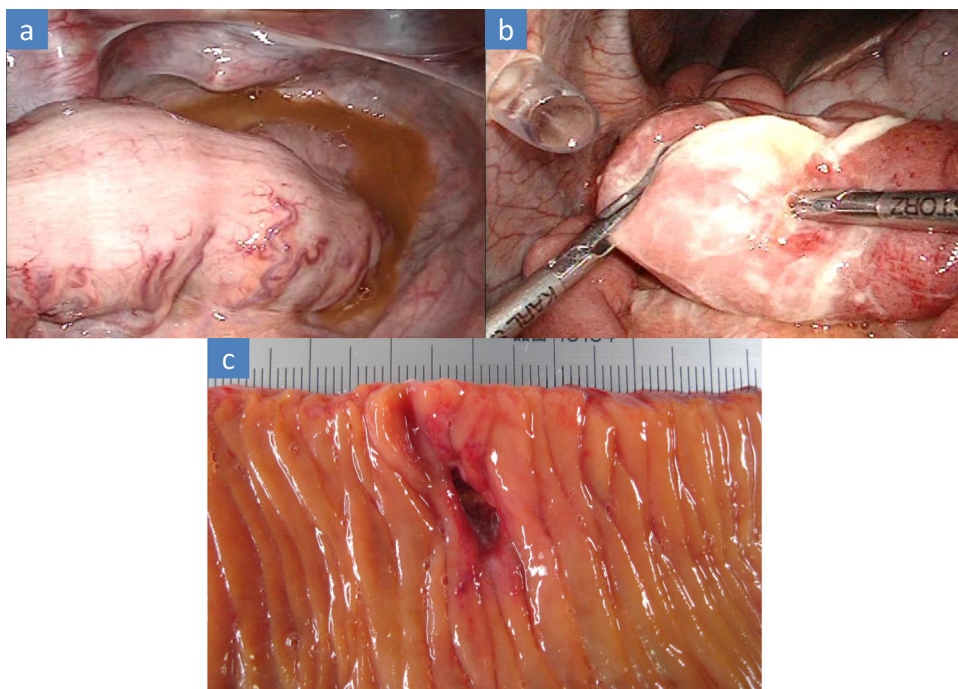
Emergency laparoscopy was performed by our established laparoscopic surgery team under general anesthesia with endotracheal intubation. A 12-mm trocar was inserted into the abdominal cavity through an umbilical incision using an open technique. A flexible 10-mm laparoscope was introduced into the abdomen via this trocar, and pneumoperitoneum was established at an intra-abdominal pressure of 12 mmHg. Two 5-mm trocars were placed in the right and left suprapubic region for forceps insertion. Exploratory laparoscopy revealed purulent fluid in the right subphrenic and pelvic region. The jejunum 80 cm distal to the ligament of Treitz was swollen and covered with pus (Fig. 2a). A 5-mm isolated perforation was detected at this site (Fig. 2b). No perforations

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**Fig. 1.** Enhanced computed tomographic images. (a) Fluid was present on the surface of the liver (arrow). (b) A small amount of free gas was observed in the pelvis (arrows).



**Fig. 2.** Exploratory laparoscopy. (a) Purulent fluid was present in the right subphrenic and pelvic region. (b) A jejunal perforation was detected 80 cm distal to the ligament of Treitz. (c) The resected specimen contained an isolated 5-mm perforation.

were observed in the stomach, duodenum, ileum, or colon. A 4-cm incision was made over the umbilical port to retrieve the perforated jejunum, which was extracorporeally repaired by partial resection. Irrigation was performed using 10L of saline under laparoscopic guidance with drainage flowing into the right subphrenic gutter, right paracolic gutter, and pelvis. The patient recovered and was uneventfully discharged from the hospital 12 days postoperatively.

Pathological examination revealed an ulcer around the perforation with nonspecific inflammation, leading to a diagnosis of nonspecific ulcer of the jejunum (Fig. 3). Capsule endoscopy was performed 1 month postoperatively, and no signs of ulcer were found in the small bowel (Fig. 4). No recurrence was found at the 6-month follow-up.

### 3. Discussion

Spontaneous, nontraumatic perforation of the small bowel is uncommon. The annual incidence is reportedly 1 case per

350,000 individuals [5]. Spontaneous small bowel perforation requires prompt diagnosis and surgical treatment in the absence of specific or reliable clinical or radiological findings [6]. The causes of nontraumatic perforation include immune-mediated disease, infection, medication, congenital disorders, metabolic disturbances, vascular conditions, and neoplasia. Traumatic small bowel perforation, on the other hand, may be caused by abdominal injury, foreign body ingestion, endoscopic studies, and surgical treatments. Regardless of the cause, patients with intestinal perforation typically present with acute-onset abdominal pain with associated symptoms including fever, nausea, and vomiting. Physical examination typically reveals diffuse tenderness on palpation. Laboratory test results are nonspecific and only help to guide preoperative resuscitation [7]. The most common radiologic findings are ileus, fat stranding, and pneumoperitoneum that occur as localized gas bubbles in the mesentery adjacent to the perforation [8–10]. However, precise diagnosis is difficult even with computed tomography (CT) because a small amount of peritoneal

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