CASE REPORT

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Perforated Non-Meckel Ileal Diverticulum Mimicking Neoplastic Lesion: A Case Report

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ABSTRACT

Non-Meckel small bowel diverticulosis is a rare condition often asymptomatic but capable of causing complications such as hemorrhage, perforation, and obstruction. It primarily affects elderly men, with the duodenum being the most common site. The pathogenesis is linked to myenteric plexus dysfunction, leading to increased intraluminal pressure and wall herniation. This case study presents a 58-year-old male admitted with acute abdominal symptoms. Imaging revealed free peritoneal fluid and intraperitoneal gas, prompting emergency laparotomy. Early diagnosis and appropriate treatment are crucial for preventing severe outcomes. Histopathological examination is necessary to rule out malignancy, particularly in emergency cases. Small bowel diverticulosis should be considered in differential diagnoses of acute abdomen.

Keywords: Ileum, Non-Meckel diverticulum, Complication, Acute abdomen, Surgery

INTRODUCTION

A diverticulum is an abnormal sac or pouch that protrudes from the wall of a hollow organ [1]. In the gastrointestinal tract, these pouches commonly develop in the esophagus, small intestine, or large intestine, with the colon being the most frequently affected site. The formation of diverticula typically occurs in weak areas of the bowel wall where blood vessels penetrate [2].

Most diverticula occur in the sigmoid colon; however, they can also be found in the descending colon (40%) and, less frequently, in other parts of the colon (5-10%). In contrast, non-Meckel small bowel diverticular disease is rare, with a prevalence of 0.01-2.3%. Autopsy studies have detected small bowel diverticula in 0.3-1.3% of cases, while small intestine contrast studies have identified them in 0.5-1.9% of the population. This condition primarily affects elderly men, with the duodenum being the most common site of occurrence, followed by the jejunum and ileum [3,4].

Non-Meckel small bowel diverticulosis is predominantly asymptomatic but may present with diarrhea, malabsorption, or chronic abdominal pain. Acute complications, including hemorrhage, perforation, fistulas, diverticulitis, and intestinal obstruction, occur in 10-15% of cases [4].

This study presents a case of ileal non-Meckel diverticulum with hemorrhage and perforation in a 58-year-old male. The clinical, surgical, and pathological features of the patient are discussed.

CASE REPORT

A 58-year-old male patient was admitted to the hospital with symptoms of acute abdomen. Ultrasonography revealed free fluid in the peritoneal cavity, and an X-ray examination showed intraperitoneal gas. The patient underwent emergency laparotomy. During the procedure, an exophytic mass with bleeding and necrotic changes, measuring 6×7×10 cm, was observed in the ileal wall. A significant amount of liquid blood and blood clots was aspirated from the peritoneal cavity. The affected ileal segment and a portion of the greater omentum were resected.

Gross examination of the specimen revealed that the ileal mass was a large perforated diverticulum (Figures 1 and 2). Histopathological analysis showed acute non-specific inflammation and gangrenous necrosis in the diverticular wall, with no evidence of ectopic tissue. The patient was discharged on the 10th postoperative day without complications. No

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Figure 1. Macroscopic view of resected small bowel and perforated diverticulum

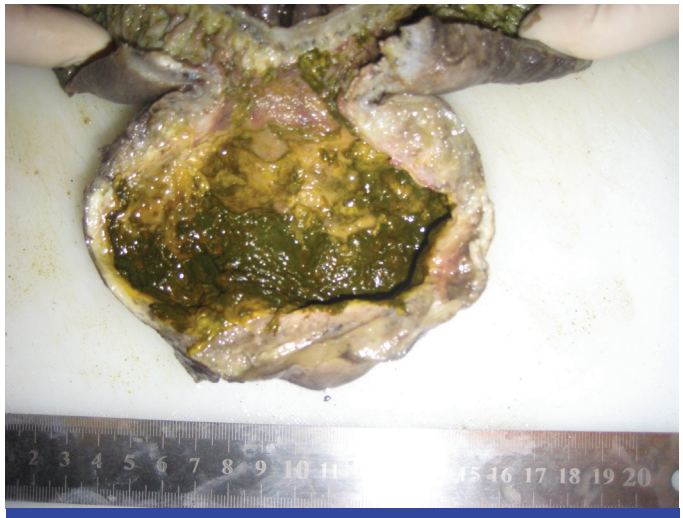

Figure 2. The diverticular cavity containing stool pieces and its relationship with the lumen of the small intestine

adverse events were observed during the 12-month follow-up period.

DISCUSSION

Diverticular disease is often referred to as a "Western disease" due to its higher prevalence in European and North American populations, whereas significantly lower rates are observed in African and Asian countries. This discrepancy is believed to be linked to a combination of genetic factors and dietary habits, particularly the lower fiber intake typical of Western diets [5]. It is a common condition, especially among the elderly, affecting 10% of individuals over 40 and up to 50% of those over 60. It is rarely seen in individuals under 40, with only 2-5% of cases occurring in this age group. Both genders are equally affected, though men tend to develop diverticular disease and diverticulitis at a younger age (under 50) [3,4].

Individuals between the ages of 50 and 70 who consume a high-fiber diet (at least 25 grams per day) are 40% less likely to be hospitalized for complications of diverticular disease, compared to those with lower fiber intake. This underscores the crucial role of fiber in the prevention and management of diverticular conditions [6].

Most small bowel diverticula are false diverticula, lacking a muscularis layer, unlike true diverticula such as Meckel's. The pathogenesis of small bowel diverticulosis is thought to be related to motor dysfunction of the myenteric plexus, leading to disordered bowel contractions, increased intraluminal pressure, and subsequent herniation at sites where blood vessels and nerves penetrate the bowel wall. The jejunum is more frequently affected due to the diameter of its penetrating arteries [4].

Ileal diverticulosis, although less common than duodenal and jejunal diverticulosis, is more prone to complications such as perforation. Up to 19% of patients with ileal diverticulosis experience severe complications, including perforation, often necessitating surgical intervention. Although many cases remain asymptomatic, recurrent symptoms can significantly impact the patient's quality of life [7].

Imaging techniques such as computed tomography (CT), capsule endoscopy, and small bowel follow-through examinations are essential for diagnosing small bowel diverticulosis, particularly in asymptomatic or incidentally discovered cases. In acute presentations, CT scans can reveal bowel wall thickening, mesenteric edema, extraluminal gas, and fluid collection, which are indicative of complications such as perforation. Capsule endoscopy is valuable for diagnosing non-acute cases but less useful in emergency scenarios. Hemorrhagic lesions can be identified using a technetium-99m bleeding scan or arteriography, which detect bleeding rates of 0.1-0.5 mL/min and 0.5-1 mL/min, respectively. Preoperative imaging plays a critical role in surgical planning, particularly in cases of severe complications [6]. In our case, the presence of signs of perforation on ultrasound and X-ray examinations indicated that the patient's condition required urgent surgical intervention. Therefore, other imaging methods were not used.

Although rare, complications such as perforation or hemorrhage require prompt surgical intervention. The coexistence of diverticulosis and small bowel volvulus is an uncommon but serious condition that poses diagnostic challenges. Surgical resection of the affected bowel segment, often with primary anastomosis, is the definitive treatment in such cases. Early diagnosis and careful monitoring are essential to prevent severe outcomes, particularly in elderly patients [7]. Patients with localized abscesses (<3 cm), stable hemodynamics, no signs of peritonitis, and a good response to intravenous antibiotics may be

managed conservatively. Abscesses larger than 3 cm often require percutaneous drainage. Endoscopic therapy is the preferred approach for managing diverticular bleeding when feasible; however, recurrence rates of up to 20% have been reported, necessitating alternative treatments such as angiography or surgery in more severe cases [8]. While surgery is more invasive, it offers definitive treatment and prevents recurrence. Non-Meckel diverticulum of the small bowel is a rare entity that can be complicated by bleeding and perforation. Clinically or intraoperatively, it may mimic a neoplastic mass. Therefore, it should be considered by abdominal surgeons in the differential diagnosis in such cases. Histopathological examination is crucial for excluding malignancy, particularly in patients undergoing emergency surgery.

Ethics

Informed Consent: Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

Footnotes

Authorship Contributions

Surgical and Medical Practices: S.M., H.A., Concept: S.M., H.A., Design: S.M., I.K., Data Collection or Processing: S.M., I.K., Analysis or Interpretation: S.M., H.A., I.K., Literature Search: S.M., Writing: S.M.

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REFERENCES

1. Townsend CM, Beauchamp RD, Evers BM, Mattox KL. Sabiston textbook of surgery. 20th ed. Elsevier - Health Sciences Division; 2016.
2. Feldman M, Friedman LS, Sleisenger MH. Sleisenger & Fordtran's gastrointestinal and liver disease: pathophysiology, diagnosis, management. Philadelphia: Saunders; 2002.
3. Abramov R, Neymark M, Dronov M, Gilshtein H. Non-Meckel small intestine diverticular disease-current perspective. J Gastrointest Surg. 2022;26:2221-3.
4. Rajaguru K, Sheong SC. Case report on a rare cause of small bowel perforation perforated ileal diverticulum. Int J Surg Case Rep. 202;87:106465.
5. Peery AF, Dellon ES, Lund J, Crockett SD, McGowan CE, et al. Burden of gastrointestinal disease in the United States: 2012 update. Gastroenterology. 2012;143:1179-87.e3.
6. Strate LL, Keeley BR, Cao Y, Wu K, Giovannucci EL, et al. Western dietary pattern increases, and prudent dietary pattern decreases, risk of incident diverticulitis in a prospective cohort study. Gastroenterology. 2017;152:1023-30.e2.
7. Tarhan OR, Barut I, Cerci C. An interesting coexistence: small bowel volvulus and small bowel diverticulosis. Turk J Gastroenterol. 2006;17:300-4.
8. Chen YY, Yen HH, Soon MS. Impact of endoscopy in the management of duodenal diverticular bleeding: experience of a single medical center and a review of recent literature. Gastrointest Endosc. 2007;66:831-5.