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Endometriosis Presenting as a Rare Cause of Intestinal Perforation: A Case Report With Literature Review

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Received: 15 December 2024 | **Revised:** 28 January 2025 | **Accepted:** 7 February 2025

Funding: The authors received no specific funding for this work.

Keywords: abdominal pain | case report | endometriosis | intestinal perforation

ABSTRACT

This case report details a 39-year-old woman with a history of endometriosis who presented with severe abdominal pain, vomiting, and nausea, leading to a diagnosis of intestinal perforation caused by endometriosis. The patient underwent emergency surgery to resect the perforated bowel and an adjacent mass. Pathology confirmed the presence of endometrial tissue within the intestinal wall. This case underscores the importance of considering endometriosis in the differential diagnosis of acute abdominal pain, particularly in women with a history of the disease. Early diagnosis and prompt surgical intervention are crucial for managing this potentially life-threatening complication.

1 | Introduction

Endometriosis is a health issue characterized by endometrial tissue and stroma-like lesions outside the uterus, potentially affecting various organs in the body. This condition causes a long-lasting inflammatory reaction, frequently leading to significant suffering and health complications [1]. While some women with endometriosis experience debilitating symptoms, including dysmenorrhea and infertility, others may remain asymptomatic, underscoring the heterogeneous nature of this disease [2]. Although classified as a benign condition, endometriosis can profoundly impact reproductive health, particularly in women of reproductive age [3].

The exact prevalence of endometriosis is not well established; however, estimates indicate that it impacts as many as 15% of women of reproductive age and approximately 70% of those experiencing chronic pelvic pain [4]. The pathogenesis of endometriosis is predominantly linked to menstruating women, and the retrograde menstruation theory, popularized by Sampson, postulates that menstrual debris can traverse the fallopian tubes, implant onto peritoneal surfaces, and subsequently infiltrate adjacent tissues [5].

Gastrointestinal endometriosis can involve both the large and small intestines, and the diagnostic gold standard for this manifestation includes diagnostic laparoscopy accompanied by biopsy [6]. Symptoms associated with gastrointestinal endometriosis are heterogeneous, encompassing abdominal pain, bloating, diarrhea, and, in some cases, an absence of symptoms altogether [7]. As exemplified in clinical reports, gastrointestinal endometriosis may present with more severe manifestations such as abdominal pain, nausea, vomiting, and bowel perforation, which may necessitate surgical intervention. Given the symptomatic overlap with other gastrointestinal disorders, notably Crohn's disease, clinicians must consider small bowel endometriosis within the differential diagnosis framework [6].

This report underscores the need to recognize gastrointestinal manifestations of endometriosis, which can lead to severe complications such as bowel perforation. We are presenting this case

Summary

- This case report highlights the severe gastrointestinal complications of endometriosis, including intestinal perforation, which can present as acute abdominal pain.
- Early diagnosis and prompt surgical intervention are crucial for optimal patient outcomes.

to help increase awareness and promote timely diagnosis, which can improve patient outcomes.

2 | Case History

2.1 | Case Presentation

A 39-year-old woman with a history of endometriosis was referred to the emergency department due to severe abdominal pain, accompanied by vomiting and nausea. The abdominal pain had started 3 days before her admission. The patient didn't have a drug history or underlying disease. The patient's vital signs were $T = 37.9$, HR = 140, BP = 90/50. Upon examination, there was noticeable distension, generalized tenderness, and rebound tenderness. Routine laboratory tests showed leukocytosis. A chest radiograph indicated pneumoperitoneum beneath the diaphragm, and Upright and supine abdominal radiographs showed intestinal obstruction (Figure 1). Our assessment indicated peritonitis caused by an intestinal obstruction, and the patient was readied for exploratory laparotomy. During the procedure, a mass was found next to a perforation in the ileum. The mass and the perforated segment of the ileum were resected, and the intestine was reconnected (Figure 2).

2.2 | Pathology Report

Microscopic examination of the resected intestinal wall showed evidence of congestion, focal transmural hemorrhage, and areas of necrosis. Additionally, focal endometrial glands and stroma,

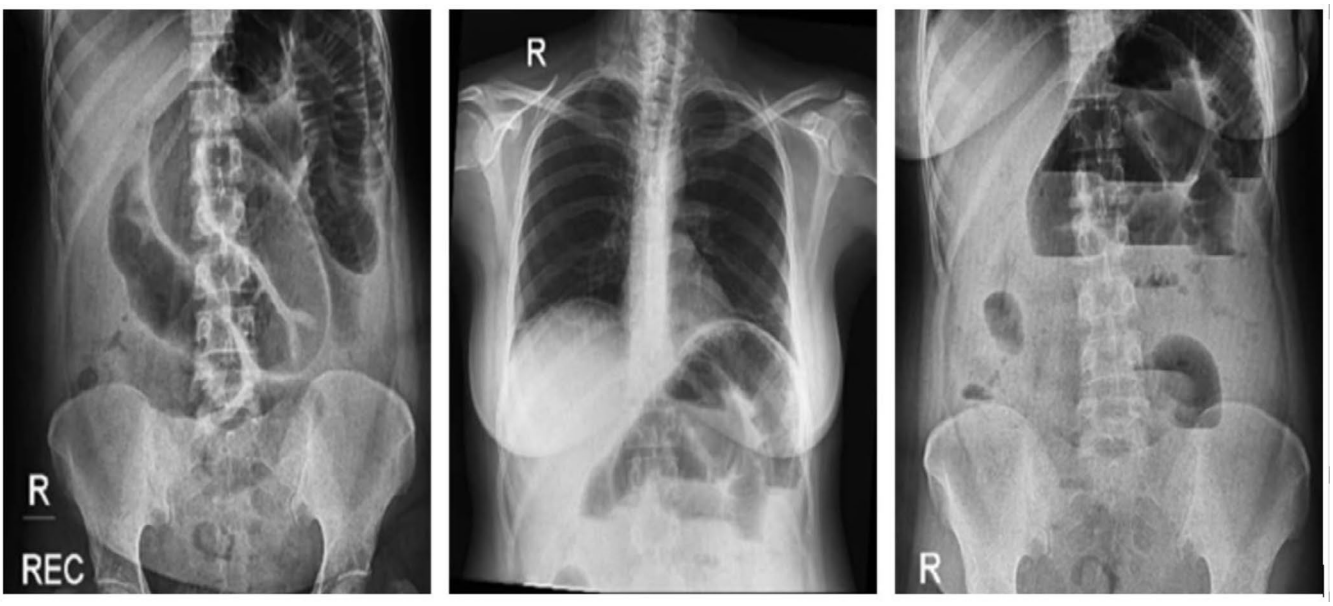

FIGURE 1 | Chest X-ray and upright and supine abdominal X-ray before surgery.

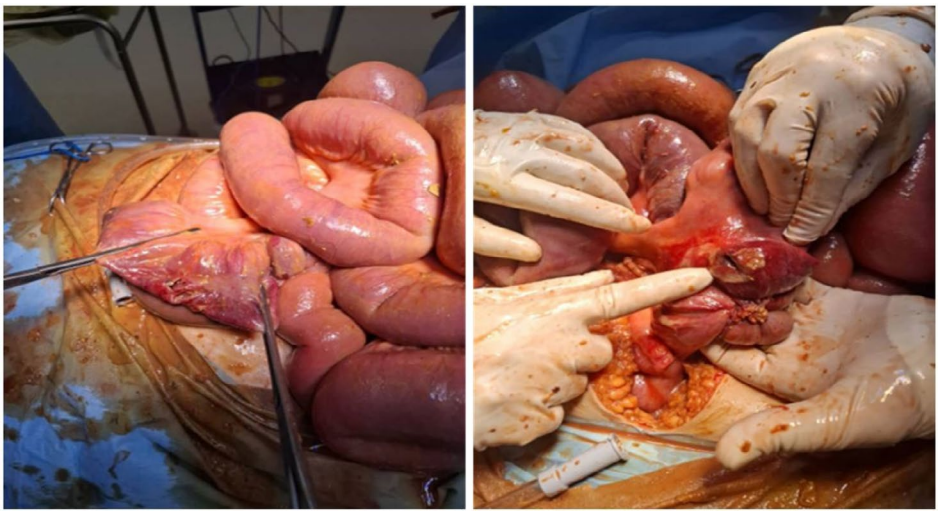

FIGURE 2 | Findings during laparotomy.

TABLE 1 | Literature review.

	Age	Symptoms	Laboratory findings	Imaging findings	Clinical significance	Surgical findings	Pathological diagnosis
Our Study	39	Severe abdominal pain, vomiting, nausea	Leukocytosis	Pneumoperitoneum on chest X-ray	Acute abdominal pain to ensure early diagnosis and prompt surgical intervention for severe gastrointestinal complications	Intestinal perforation, mass adjacent to the perforation	Intestinal perforation with transmural necrosis, endometriosis, reactive lymphadenitis
Thirumurthy [14]	35	Severe abdominal pain, nausea, vomiting, constipation	Normal	CT scan showed a complex cystic lesion in the ileocaecal area	Intestinal obstruction, especially in cases of persistent abdominal pain and failed conservative management	Mass involving 4 cm of terminal ileum, another ileal stricture 6 inches. proximal	Invasive endometrioma of the ileum involving the muscularis layer, involvement of the ileocecal junction
Kitamura [15]	47	Recurring lower abdominal pain	—	Imaging modalities showed small bowel obstruction caused by a mass lesion in the terminal ileum	Bowel obstruction in women of childbearing age.	Severe stenosis around the ileocecal valve and ileal perforation	Endometrial tissue infiltration through the mucosal lamina propria to the ileal subserosa
Iordache [16]	50	Widespread abdominal pain, nausea, vomiting, swollen abdomen, absence of intestinal transit	Leukocytosis	Ultrasound: volvulus; X-ray: multiple dilated loops of small bowel; CT scan: ileal loop looped around a blood vessel	Intestinal obstruction, especially in cases of unexplained bowel obstruction.	Ileal volvulus, intestinal wall enlargement, intestinal obstruction at terminal ileum	Intestinal endometriosis
Dharmavara [12]	41	Obstipation, vomiting, gradual abdominal distension	—	Ultrasound: normal; CT scan: soft tissue mass in distal sigmoid colon with upstream dilation	Large bowel obstruction, especially in women of reproductive age	Marked small and large bowel obstruction due to eccentric soft tissue mass at rectosigmoid	Extensive endometriosis infiltrating into the muscularis propria of the sigmoid colon wall
Rahman L. [17]	42	Chronic fever, watery stools, constipation, acute abdominal pain	Elevated inflammatory markers	Abdominal radiography showing excessive intestinal air distribution and suspected localized ileus	Acute abdomen, especially in women with risk factors	Ruptured bilateral ovarian endometriomas, adhesions	Bilateral endometriomas

(Continues)

TABLE 1 | (Continued)

	Age	Symptoms	Laboratory findings	Imaging findings	Clinical significance	Surgical findings	Pathological diagnosis
Sakiris [6], (Case 1)	40	Severe iron deficiency anemia, intermittent melena, fatigue	Iron deficiency anemia	Capsule endoscopy and retrograde balloon enteroscopy: multiple ulcerated strictures in distal ileum	Unexplained gastrointestinal symptoms, especially in women of reproductive age	Multiple distal small bowel strictures	Endometriosis with endometrial glands and stroma extensively involving the muscularis propria
Sakiris [6], (Case 2)	66	Intermittent perimenstrual abdominal pain, diarrhea, nausea with vomiting	Anemia, Hypoalbuminemia, Elevated CRP	Colonoscopy: stricture at ileocaecal valve, pseudopolyps in descending colon	Inflammatory bowel disease, especially in cases of unexplained intestinal inflammation and strictures	Stricturing terminal ileal disease with phlegmon, cecum adhered to right lateral pelvic side wall	Endometriosis focally involving the terminal ileum and appendix

accompanied by fibrotic stroma, were observed. One lymph node exhibited reactive changes, and there was also peri-intestinal infiltration of neutrophils. The final diagnosis was small bowel perforation due to endometriosis.

2.3 | Follow Up

The patient was hospitalized for 3 days and did not have a fever during her stay. On the second day, she began a liquid diet, and bowel movements resumed on the third day. She was discharged with a prescription. Eight days later, she returned for suture removal. Upon evaluation, her overall condition was stable, and her nutritional intake was adequate.

3 | Discussion and Conclusion

A 39-year-old woman with a history of endometriosis experienced severe abdominal pain, vomiting, and nausea. Urgent surgery revealed intestinal perforation. A mass was found and resected. Pathology confirmed intestinal endometriosis as the cause.

Despite being a common gynecological disease, the exact pathogenesis of endometriosis remains unclear. Due to this vague pathogenesis, finding a proper classification system to approach this disease is yet problematic [8]. Though there is no gold standard staging system for endometriosis, the "ENZIAN" classification appears reasonable for surgical planning. A key advantage of the ENZIAN classification is that it offers detailed descriptions of the retroperitoneal structures; However, its accuracy is compromised if deep invasive lesions are not fully resected or if imaging is done without surgery [9]. According to a study, magnetic resonance imaging (MRI) facilitates preoperative surgical planning and uses the ENZIAN score to forecast the degree of disease before surgery [10].

A review suggested that transvaginal ultrasonography (TVS) should be the primary diagnostic tool for women with rectosigmoid endometriosis. The extensive use of TVS can accelerate the diagnostic process and facilitate treatment for intestinal endometriosis. The conclusion was promising for improving patient care [11].

The report's single-case nature limits the generalizability of the findings. More research is needed to understand the pathophysiology of bowel involvement in endometriosis and to develop definitive management guidelines. Although rare, endometriosis involving the bowel can mimic other gastrointestinal disorders with nonspecific symptoms [6, 12]. This case's progression to perforation stresses the potential severity of endometriosis-related complications. Previous studies have documented similar cases requiring surgical treatment [13].

Clinically, this case emphasizes the importance of considering endometriosis in women with acute abdominal symptoms, especially those with known endometriosis. It also highlights the need for a solid diagnostic method and prompt surgical evaluation in cases of suspected bowel perforation.

In conclusion, this case exemplifies the severe gastrointestinal complications that can arise from endometriosis, stressing

the importance of vigilance and timely surgical management. To compare and review other similar patients, we conducted a short literature review of case reports on this topic, published from 2024 onward (detailed in Table 1), highlighting the range of clinical manifestations associated with endometriosis, which can present with significant severity. Future research should aim to uncover the mechanisms behind bowel perforation in endometriosis and optimize treatment protocols.

Author Contributions

Farnood Forouhar: data curation, methodology, supervision, writing – review and editing. **Narges Mesbah:** data curation, writing – original draft. **Sina Esmailpour:** data curation, writing – original draft. **Peyman Bastani:** methodology, writing – original draft. **Mostafa Salimi:** data curation, writing – original draft, writing – review and editing, supervision.

Consent

The patient's written consent was obtained for the publication of this case report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

1. B. Smolarz, K. Szyłło, and H. Romanowicz, "Endometriosis: Epidemiology, Classification, Pathogenesis, Treatment and Genetics (Review of Literature)," *International Journal of Molecular Sciences* 22, no. 19 (2021): 10554, https://doi.org/10.3390/ijms221910554.

2. M. L. Macer and H. S. Taylor, "Endometriosis and Infertility: A Review of the Pathogenesis and Treatment of Endometriosis-Associated Infertility," *Obstetrics and Gynecology Clinics of North America* 39, no. 4 (2012): 535–549.

3. U. Leone Roberti Maggiore, V. Chiappa, M. Ceccaroni, et al., "Epidemiology of Infertility in Women With Endometriosis," *Best Practice & Research. Clinical Obstetrics & Gynaecology* 92 (2024): 102454.

4. P. Parasar, P. Ozcan, and K. L. Terry, "Endometriosis: Epidemiology, Diagnosis and Clinical Management," *Current Obstetrics and Gynecology Reports* 6, no. 1 (2017): 34–41.

5. J. Lamceva, R. Uljanovs, and I. Strumfa, "The Main Theories on the Pathogenesis of Endometriosis," *International Journal of Molecular Sciences* 24, no. 5 (2023): 4254, https://doi.org/10.3390/ijms24054254.

6. A. Sakiris, E. N. Fraz, A. Rajandran, et al., "Rare Presentations of Small Bowel Endometriosis," *DEN Open* 5, no. 1 (2025): e395.

7. M. Ek, B. Roth, M. Bengtsson, and B. Ohlsson, "Gastrointestinal Symptoms in Women With Endometriosis and Microscopic Colitis in Comparison to Irritable Bowel Syndrome: A Cross-Sectional Study," *Turkish Journal of Gastroenterology* 32, no. 10 (2021): 819–827.

8. L. C. Giudice and L. C. Kao, "Endometriosis," *Lancet* 364, no. 9447 (2004): 1789–1799.

9. S. Y. Lee, Y. J. Koo, and D. H. Lee, "Classification of Endometriosis," *Yeungnam University Journal of Medicine* 38, no. 1 (2021): 10–18.

10. V. Di Paola, R. Manfredi, F. Castelli, R. Negrelli, S. Mehrabi, and R. Pozzi Mucelli, "Detection and Localization of Deep Endometriosis by Means of MRI and Correlation With the ENZIAN Score," *European Journal of Radiology* 84, no. 4 (2015): 568–574.

11. S. Ferrero, F. Barra, U. Perrone, M. Paudice, and V. G. Vellone, "Ultrasound Diagnosis of Bowel Endometriosis," *Gynecologic and Obstetric Investigation* 1-24 (2024): 1–10.

12. S. Dharmavaram, S. Unnam, and M. A. Joacquim, "Rectosigmoid Endometriosis Causing Large Bowel Obstruction," *British Journal of Hospital Medicine (London, England)* 85, no. 10 (2024): 1–7.

13. Z. Tooraj, K. Mohammad Ebrahim, A. Soheil, and E. Ali, "Endometriosis as a Rare Cause of Small Bowel Obstruction," *Frontiers in Emergency Medicine* 7, no. 2 (2023): E137.

14. S. K. Thirumurthy and M. Mohammed, "A Rare Case of Invasive Endometriosis Causing Intestinal Obstruction," *Journal of Surgical Case Reports* 2024, no. 2 (2024): rjae082.

15. K. Kitamura, K. Shinagawa, M. Tokunaga, et al., "A Case of Small Intestinal Endometriosis With Bowel Obstruction and Perforation," *Nihon Shokakibyo Gakkai Zasshi* 121, no. 5 (2024): 400–406.

16. I. E. Iordache, L. Alexandrescu, A. D. Nicoara, et al., "Twisted Troubles: A Rare Case of Intestinal Obstruction due to Endometriosis and a Review of the Literature," *Clinics and Practice* 14, no. 5 (2024): 2027–2043.

17. L. Rahman, R. Anwar, Z. Zulvayanti, and K. D. Tjandraprawira, "Rupture Endometriomas Presenting as Acute Abdomen Infection in Hasty and Limited Resources Setting: A Pitfall Not to Miss—A Case Report," *International Medical Case Reports Journal* 17 (2024): 635–641.