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Title

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Journal

UCLA Radiological Sciences Proceedings, 1(4)

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Publication Date

2021

DOI

10.5070/RS41446711

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Acute Large Bowel Obstruction due to Pelvic Endometriosis: A Case Report

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UCLA Radiol Sci Proc. 2021;1(4):42-47

Abstract: Endometriosis is one of the most common benign gynecological conditions with a prevalence of 6.6% to 16.2% among women of reproductive age in the United States. It is defined as the occurrence of hormone-responsive endometrial tissue outside of the uterine cavity. However, the pathophysiology of endometriosis is poorly understood. Intestinal endometriosis causing large bowel obstruction is rare despite being the second most common extragenital site of endometriotic implantation. In the adult population, intestinal endometriosis is a clinical challenge because it can be mistaken for other acute obstructive diseases, such as colorectal carcinoma. Computed tomography lacks specificity in the detection of bowel wall abnormalities that cause a large bowel obstruction, and endoscopy does not show an intraluminal mass. The gold standard diagnostic procedures are laparoscopy and biopsy, with laparoscopy used for surgical resection of the abnormal tissue if necessary.

Keywords: *large bowel obstruction, endometriosis, intestinal endometriosis*

Introduction

Endometriosis is one of the most common benign gynecological conditions in women of reproductive age, with a prevalence of 6.6% to 16.2% among this population in the United States.¹ It is defined as the occurrence of hormone-responsive endometrial tissue outside of the uterine cavity. However, the pathophysiology of endometriosis is poorly understood. Many theories have been proposed to explain the ectopy of the functional endometrial tissue; these include retrograde menstruation, Mullerian metaplasia, and lymphovascular dissemination.² When endometriosis permeates deep into the pelvis, it can infiltrate the local bowel and cause acute or chronic gastrointestinal symptoms. This report presents a rare case of acute large bowel obstruction (LBO) due to intestinal endometriosis (IE) in a woman of reproductive age.

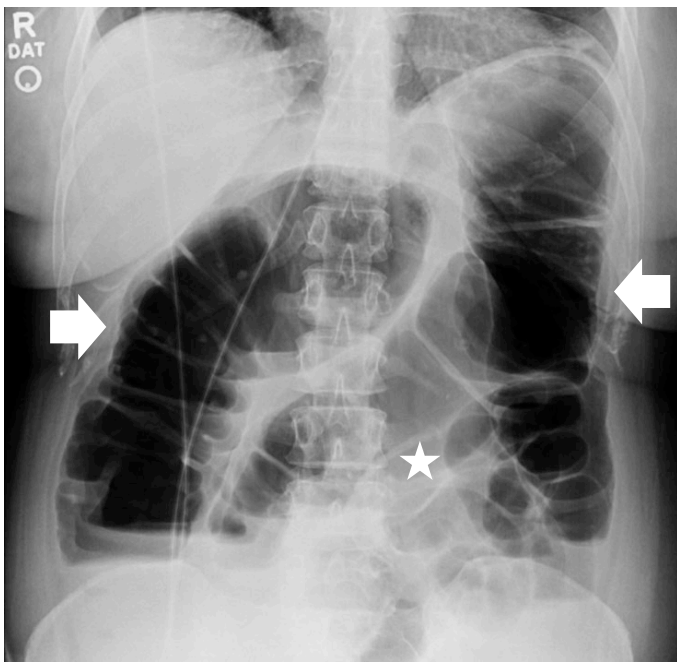
Key Points

- Intestinal endometriosis should be a part of differential diagnosis in women of reproductive age with a history of endometriosis and the symptoms of intestinal obstruction substantiated by imaging findings.
- Most frequently seen in the rectosigmoid colon, intestinal endometriosis is much more likely than acute abdomen to cause cyclic pain, constipation, hematochezia, diarrhea, tenesmus, and pain in the lower abdomen.
- The imaging findings for acute large bowel obstruction secondary to intestinal endometriosis might be nonspecific; therefore, radiologists must consider endometriosis in women of reproductive age presenting with large bowel obstruction.

Case Presentation

A 39-year-old woman with a medical history of endometriosis, laparoscopy with lysis of pelvic adhesions, as well as an umbilical hernia repair presented to the emergency department with acute, spasmodic lower abdominal pain and non-bloody, non-bilious emesis that lasted for three days. The patient reported associated abdominal distention and lack of bowel movement or flatus since the onset of symptoms. The patient denied having night sweats, chills, shortness of breath or chest pain, diarrhea, dysuria, melena, and hematochezia.

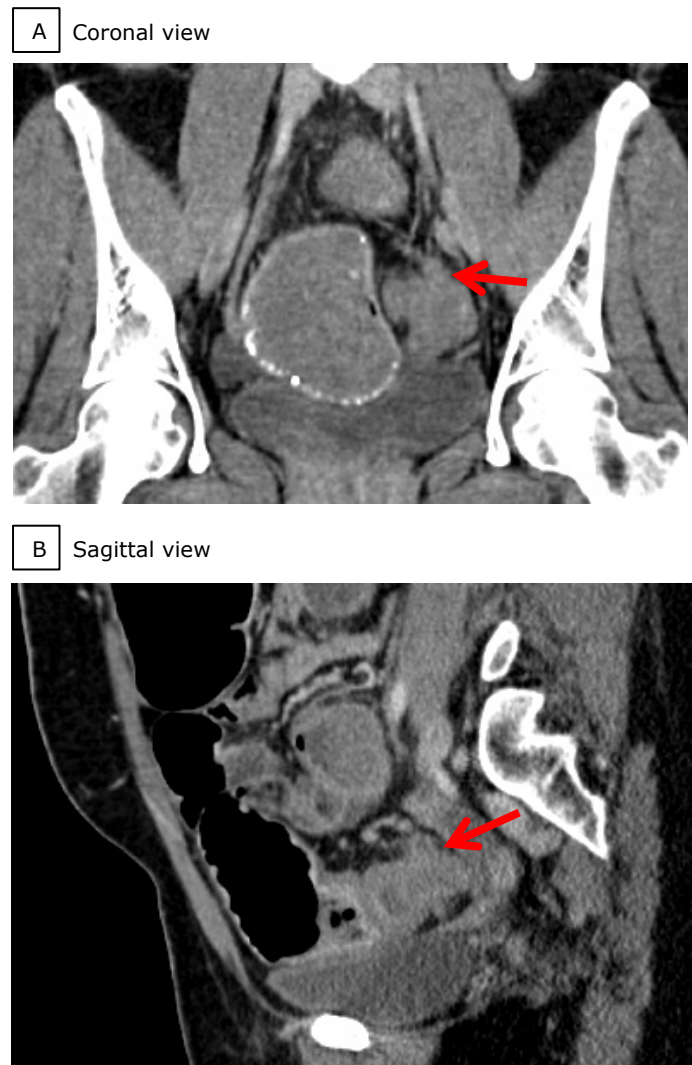
Figure 1. Anteroposterior (AP) Abdominal Radiograph of a 39-year-old Woman with Intestinal Endometriosis.



There is marked dilatation of the large bowel to the level of the sigmoid colon (arrows) and mild dilatation of the small bowel (star), consistent with ileus.

The patient's vital signs were as follows: temperature 98.7 °F, blood pressure 168/130, heart rate 122, respiratory rate 18, and oxygen saturation of 98% on room air. On physical examination, the patient appeared to be in pain and distress. The patient's abdomen was distended, with hyperactive bowel sounds, tympanic to percussion, and diffusely tender to palpation with voluntary guarding. Laboratory values were noteworthy for hypokalemia, 3.3 mmol/L (reference range: 3.6-5.3 mmol/L, UCLA

Figure 2. Contrast-enhanced Abdominopelvic CT of a 39-year-old Woman with Intestinal Endometriosis.

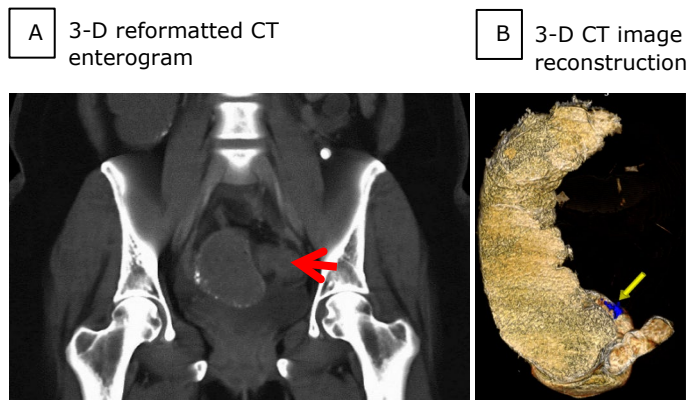


Coronal (A) and sagittal (B) abdominopelvic CT images with IV contrast show findings consistent with lower bowel obstruction (LBO) with a spiculated soft tissue nodularity (A and B, arrows) extending into the wall of the sigmoid colon at the transition point.

clinical laboratory), likely due to losses from prolonged emesis, and a high anion gap, 22 mmol/L (reference range: 8-19 mmol/L UCLA clinical laboratory), suggestive of lactic acidosis. Two-view abdominal radiography showed marked dilatation of the large bowel to the level of the sigmoid colon and mild dilatation of the small bowel (Figure 1). The findings of contrast-enhanced computed tomography (CT) of the abdomen and the pelvis were consistent with LBO with spiculated soft tissue nodularity extending

into the wall of the sigmoid colon at the transition point (Figures 2, 3).

Figure 3. 3-D CT Enterography of a 39-year-old Woman with Intestinal Endometriosis.



3-D reformatted CT enterogram (A) reveals in fine detail the endometriotic implant (A, arrow) extending into the wall of the sigmoid colon at the transition point. 3-D CT image reconstruction (B) of the portion of the sigmoid colon shows the endometriotic nodule (B, blue, yellow arrow) implanted into the wall of the sigmoid colon at the transition point with upstream large bowel obstruction (yellow).

In preparation for sigmoidoscopy, the patient was prescribed to have nothing by mouth, normal saline intravenously (IV), and appropriate pain management. The following day, a gastroenterologist performed a sigmoidoscopy with a failed attempt of intraluminal stent placement. The procedure revealed normal colonic mucosa with extrinsic compression and obstruction of the sigmoid colon at 45 cm from the anal margin (Figure 4). There was no intraluminal mass. The patient was taken to the operating room for a partial exploratory laparotomy and transverse loop colostomy. Histologic evaluation of surgical pathology of the resected sigmoid colon confirmed the presence of an endometriotic implant invading the colon (Figure 5). The postoperative course was complicated by infection of the incision site that was treated with a wet-to-dry dressing and 1g of cefazolin IV every eight hours for two days. Four months after initial presentation, the patient underwent colostomy takedown, which entailed a partial colectomy with anastomosis of the proximal sigmoid colon and rectosigmoid junction. The postoperative course was complicated by nausea and ileus that resolved

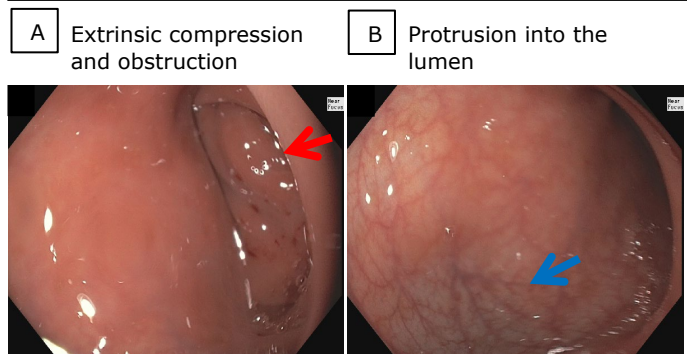
with symptomatic treatment. The patient was discharged in a relatively good condition on postoperative day eight.

Discussion

Intestinal endometriosis is defined as one of the forms of deeply infiltrating endometriosis with the lesion invading at least the subserosal and the muscular layers of the bowel wall.² The bowel is the most common (3-12%) extragenital site of endometriosis³ with a predominant occurrence in the rectosigmoid junction (50-90%), followed by the small bowel (2-16%), the appendix (3-18%), and the cecum (2-5%).

Patients with IE may complain of cyclic pain as well as cyclic constipation, hematochezia, catamenial diarrhea, tenesmus, and pain in the lower abdomen.⁴

Figure 4. Endoscopic View of the Sigmoid Colon Obstruction in a 39-year-old Woman with Intestinal Endometriosis.



Sigmoidoscopic View (A and B) reveals normal mucosa with extrinsic compression and obstruction (A, red arrow) of the sigmoid colon with a bluish impression (B, blue arrow) bulging into the lumen against the colon wall distal to the obstruction.

Only 0.1–0.7% of cases of intestinal endometriosis are complicated by intestinal obstruction.⁵ In the adult population, IE is a clinical challenge because it can be mistaken for other acute obstructive diseases, such as colorectal carcinoma.² However, unlike in cases of colorectal carcinoma, intraluminal pathology in IE is typically not detected by means of a biopsy because IE rarely implants at the mucosal layer of the bowel.³ Findings of CT of the abdomen and the pelvis, although useful in the diagnosis of LBO, are non-specific for endometriosis-related abnormalities of

the bowel wall.³ Multislice CT with colon water distension has been found to be an accurate, yet potentially risky, imaging modality in identifying location and extent of IE, for it exposes women of reproductive age to ionizing radiation and iodinated contrasts.⁶ Although having similar limitations associated with ionizing radiation and procedural discomfort, CT-based virtual colonography (CTC) is another imaging modality for diagnosing IE as it relates to morphologic alterations of the bowel lumen.⁷ With its excellent multiplanar capabilities and contrast resolution, magnetic resonance (MR) is yet another tool that provides high sensitivity (88%), specificity (98%), and diagnostic accuracy (96%), in imaging of patients with IE.^{4,8} When suspicion for IE is high, transvaginal ultrasound, in the hands of an experienced sonographer, can aid in visualizing endometriosis of the rectosigmoid colon.^{4,8} The gold standard diagnostic procedures are laparoscopy and biopsy, with laparoscopy used for surgical resection of the abnormal tissue if necessary.^{3,9}

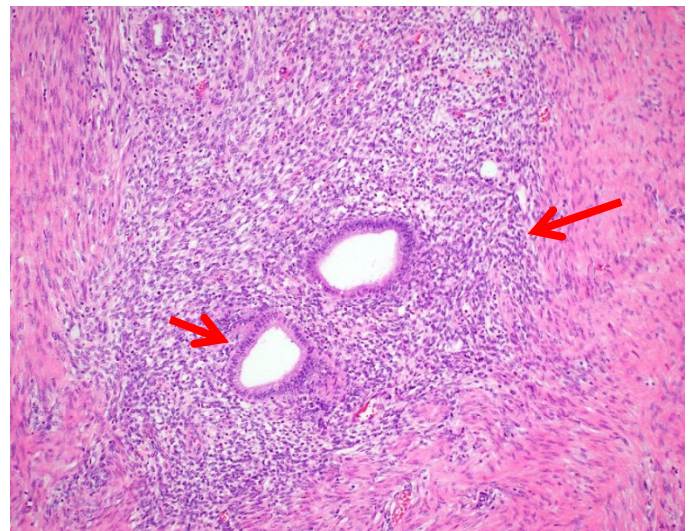
In our patient, the diagnosis of endometriosis of the intestine was first suspected on CT imaging; it was guided by a high clinical suspicion based on the patient's history of endometriosis. Endoscopic findings reinforced our suspicion, and histologic examination of surgical pathology confirmed the diagnosis of rectosigmoid endometriosis.

The literature suggests that, compared with nonemergency interventions, emergency interventions for acute endometriotic LBO often result in prolonged hospital stay and increased complications and mortality.¹⁰ Operation may be even more difficult in case of extensive pelvic endometriosis; because of distorted pelvic anatomy, it may require a multidisciplinary team with skilled gynecologic and colorectal surgeons. These operations often result in major complications. One such complication, rectovaginal fistula, likely related to anastomotic leakage, was described in the paper⁷ reporting the outcomes of colorectal resection in a cohort of six patients. However, long-term follow-up of these patients showed no recurrences of IE.⁷ Endoscopic decompression by self-expandable metallic colorectal stents (SEMS) as a bridge to nonurgent surgery allows the multidisciplinary team to optimize patient preparation for an elective

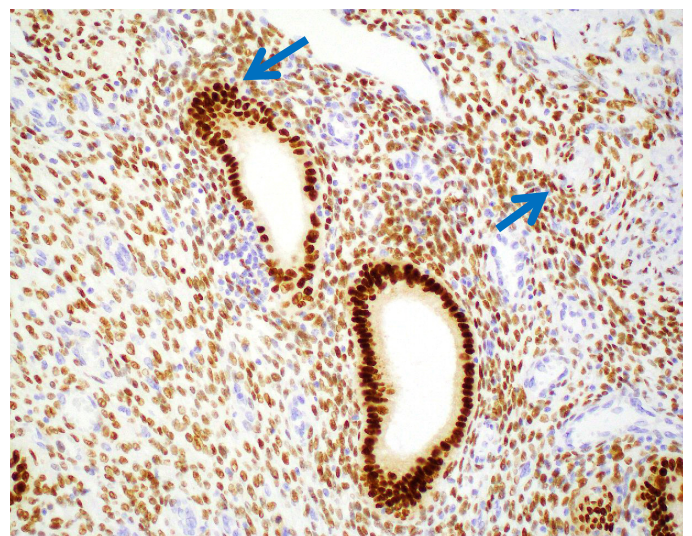
procedure.¹⁰ Only a few cases of treatment of acute endometriotic LBO were described in the literature.¹⁰ However, as suggested by Forshaw et al,¹¹ although the use of SEMS in the treatment of diverticular disease, anastomotic stricture, and rectal endometriosis might benefit some patients

Figure 5. Microscopic Examination of the Resected Specimen in a Case of Intestinal Endometriosis in a 39-year-old Woman.

A Hematoxylin-eosin staining



B Immunohistochemical staining



Photomicrographs A and B; Low power view of the surgically resected large bowel (A) shows endometrial glands and stroma within the muscularis propria of the sigmoid colon (A, red arrow). Immunohistochemical staining (B) shows estrogen receptor positivity seen as the strong bronze staining of the cells (B, blue arrow). These findings confirm the diagnosis of endometriosis infiltrating the sigmoid colon.

with benign colorectal disease, it is controversial and should be approached carefully as it has a high rate of complications, including stent migration and failure.

In conclusion, acute LBO is a rare complication of IE and requires urgent surgical resection. IE should be a part of differential diagnosis in women of reproductive age with a history of endometriosis and symptoms of intestinal obstruction substantiated by imaging findings.

Acknowledgements

We thank Hanlin Wang, MD, PhD in the Department of Pathology, David Geffen School of Medicine at UCLA, for contributing the images of histopathologic evaluation. We thank Kalyani Vyapari, MSc in the Q3D Imaging Lab, Department of Radiological Sciences, David Geffen School of Medicine at UCLA, for contributing 3-D rendered images.

Author Contributions

Conceptualization, M.P. and N.A.C.; Acquisition, analysis, interpretation of data, and writing – original draft preparation, N.A.C.; Review and editing, M.P. and N.A.C.; Supervision, M.P. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Disclosures

None to report.

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