

Endometriosis causing extensive intestinal obstruction simulating carcinoma of the sigmoid colon: a case report and review of the literature

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Summary

Endometriosis with intestinal serosal involvement is not uncommon in women of childbearing age, however, presentation as colon obstruction is rare. Lack of pathognomonic symptoms makes diagnosis difficult, the main problem being differential diagnosis with neoplasm, even intraoperatively. Reported here is a case of extensive bowel obstruction due to sigmoid colon endometriosis in a 43-year-old woman who presented with signs and symptoms of bowel obstruction. Barium enema showed sigmoid obstruction; subsequent exploratory laparotomy showed the sigmoid colon surrounded by fibrous tissue, leading to its angulation and extensive lumen obstruction. Left oophorectomy and radical resection of descending and sigmoid colon as for bowel carcinoma were successfully employed. Pathological examination revealed endometriosis in the bowel wall with preservation of the mucosa. Aetiology, clinical presentation, differential diagnosis and therapeutic options for intestinal obstruction due to endometriosis are discussed.

Key words: Endometriosis; Gastrointestinal tract; Bowel endometriosis; Intestinal obstruction; Bowel carcinoma.

Introduction

Endometriosis is a disorder characterized by the presence of endometrial tissue in areas other than the uterus. Ectopic endometrial tissue has been reported in the skin, umbilicus, lymph nodes, round ligaments, surgical scars, bladder, kidney, pleura, lung, spinal canal and bowel [1, 2]. After the pelvic peritoneum, the most common location of extragenital endometriosis is the intestinal tract [3, 4] occurring most often in the rectum, the sigmoid colon, the caecum, the appendix and the terminal ileum [5]. In bowel endometriosis usually serosal implants are seen, but mural involvement may also occur [6].

Symptoms suggestive of bowel involvement include cyclic diarrhoea, cyclic constipation, diarrhoea alternating with constipation, cyclic rectal bleeding, dyschezia, cyclic abdominal distention and partial or complete bowel obstruction. Ileum and sigmoid colon obstructions occur in, respectively, 0.8% [7], and 8% to 12% [8, 9] of all surgically-treated endometrioses. However, complete obstruction of the intestinal lumen occurs in less than 1% of cases [7, 10, 11].

Endometriosis often causes intestinal stenosis and infiltration, consequently the clinical presentation may suggest bowel carcinoma; differential diagnosis can be difficult even intraoperatively [12, 13].

In this report we document a case of bowel endometriosis with extensive intestinal obstruction mimicking carcinoma of the sigmoid colon.

Case Presentation

In July 2001, a 43-year-old para I was admitted to the First Department of General Surgery, "George Genimatas" General State Hospital in Athens, Greece, after having suffered intermittently for three months with episodes of diffuse, colicky abdominal pain, vomiting and diarrhoea alternating with constipation and a weight loss of 15 kilograms during the same period; these symptoms were unrelated to her menstruation, which had last occurred 21 days before. Ten days prior to this admission the patient had experienced similar but milder symptoms and was hospitalized in another Athens' hospital with a diagnosis of incomplete bowel obstruction. At that time, the patient was treated symptomatically (she had refused surgery) and left the hospital against medical advice.

On this admission, the patient complained of general abdominal pain but palpation revealed no localized tenderness, distention or mass. No masses were noted on bimanual examination. Rectal examination revealed no stools or tenderness. Bowel sounds were reduced. Temperature, heart rate and blood pressure were within normal limits. Haematological and urine values were normal. Blood chemistry values were in the normal range, except AGT (65 U/L) and K⁺ (3.3 mmol/l). Tumor markers CEA (9.2 U/ml) and Ca19-9 (50 U/ml) were also abnormal. Virology examination for hepatitis B and C was negative. Plain abdominal X-rays demonstrated several air fluid levels in the small bowel; barium enema suggested sigmoid obstruction (Figure 1).

After routine for colectomy preoperative prep, an exploratory laparotomy through a subumbilical midline incision was performed. This procedure revealed the sigmoid colon surrounded by fibrous tissue, leading to a 5 cm angulation. The left ovary and fallopian tube were densely adherent to the sigmoid colon. A diagnosis of colonic carcinoma with invasion of the left adnexa was made. The midline incision was extended 10 cm supraum-

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Figure 1. — Barium enema suggesting sigmoid obstruction (arrows).

bilically. The liver was found to contain cirrhotic nodules. Left oophorectomy and radical resection, as for carcinoma, of the descending and sigmoid colon followed by an end-to-end anastomosis were successfully performed; a wedge liver biopsy was also taken and sent with the excised bowel and adnexa for pathology.

The patient received routine postoperative care and was discharged eight days later. No medical treatment was given. On follow-up four months later, the patient had recovered from the surgery but she had developed symptoms of depression and was referred for psychiatric consultation.

Pathology

Gross examination

a. The excised large bowel (descending and sigmoid colon) 35 cm in length was angulated around its middle and about 5 cm were severely stenotic with thickened and firm walls. The underlying mucosa was polypoid and in part, micronodular and fixed to whitish, firm submucosa. The muscularis propria was thickened with whitish-tan foci and the mesocolon showed white fibrous bands and yellow-red foci. Forty-nine lymph nodes were found in the mesocolon.

b. An adnexa of the uterus included a fallopian tube 4.5 cm long and an ovary 3.2 cm in its greatest diameter with some microcysts and a corpus luteum.

c. Wedge liver biopsy demonstrated nodular configuration.

Light microscopic findings

Colonic endometriosis was diagnosed with endometrial foci in the submucosa, muscularis propria and proximal mesocolon (Figure 2), and extensive smooth muscle hyperplasia and fibro-

sis (Figure 3). Some of the endometrial foci showed dilated glands with haemorrhagic content, haemorrhagic infiltration and haemosiderin deposits in endometrial stroma. The ovary was free of endometriosis; the microcysts represented cystic ovarian follicles. The corpus luteum was haemorrhagic and some haemosiderin deposits were seen in a small area on the surface. The liver biopsy showed severe fibrosis and regeneration suggestive of inactive cirrhosis (unknown aetiology).

Discussion

Although endometriosis has an estimated prevalence of 10% among women of reproductive age [15], its exact cause and pathogenesis is unclear [16]. The three main theories of pathogenesis are the embryonic, the metaplastic and the migratory [1]. According to the embryonic theory, since both the ovaries and the Müllerian ducts are derived from coelomic mesothelium, it is possible that the germinal epithelium of the ovary turns into endometrium derived from Müllerian ducts [14]. This theory however, explains only the development of endometriosis in the ovary. Similarly, the metaplastic theory claims that the peritoneum undergoes a change to endometrial tissue, since the peritoneum and the genital epithelium are derived from the coelomic mesothelium [1]. This theory explains only endometriosis in the peritoneum. The migratory theory offers the most widely accepted explanation. According to this theory endometriosis arises from normal endometrium and reaches its extrauterine position by proliferation in continuity through the walls of the uterus and tubes, by lymphogenous or haematogenous metastasis, and by retrograde menstruation [1]. Additionally, an association with cell-mediated immunodeficiency as a requirement for the survival and proliferation of metastatic endometrial cells has been described [16]. It is likely that more than one of these mechanisms is operating.

The most frequent sites of pelvic endometriosis are, respectively, the uterus, the ovaries, the pelvic peritoneum and the colon [3]. The pattern of involvement can be diffused throughout the pelvic organs [3], localized to the genital tract [3], or localized to the gastrointestinal tract without involvement of the genital tract, as occurred in our patient. However, in up to 80% of cases with histological-proven intestinal endometriosis genital endometriosis is also present [4].

The frequency of bowel endometriosis varies between 5.3% [8] and 12% [10] of all histologically-proven cases of endometriosis. However, as only surgically-treated cases tend to be reported, the true incidence of bowel involvement may be much greater and include a large number of women with chronic symptoms who have not had surgery [1]. In a review by Weed and Ray of 3037 laparotomies performed for endometriosis, the distribution in the bowel was 39% in the sigmoid colon (65 cases), 20% in the recto-sigmoid colon (33 cases), 19% in the appendix (32 cases), 10% in the rectum (17 cases), 7% in the terminal ileum (11 cases), 5.4% in the caecum (9 cases) and 0.6% in the transverse colon (1 case); sigmoidal and rectal endometriosis accounted for 69% of the cases [8]. In a 20-year review of bowel endometriosis at

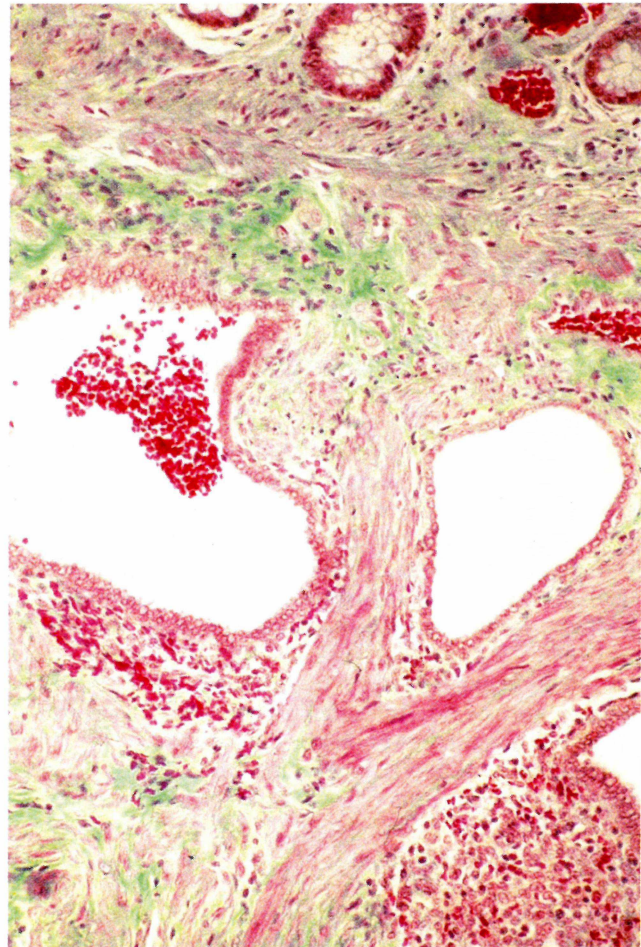
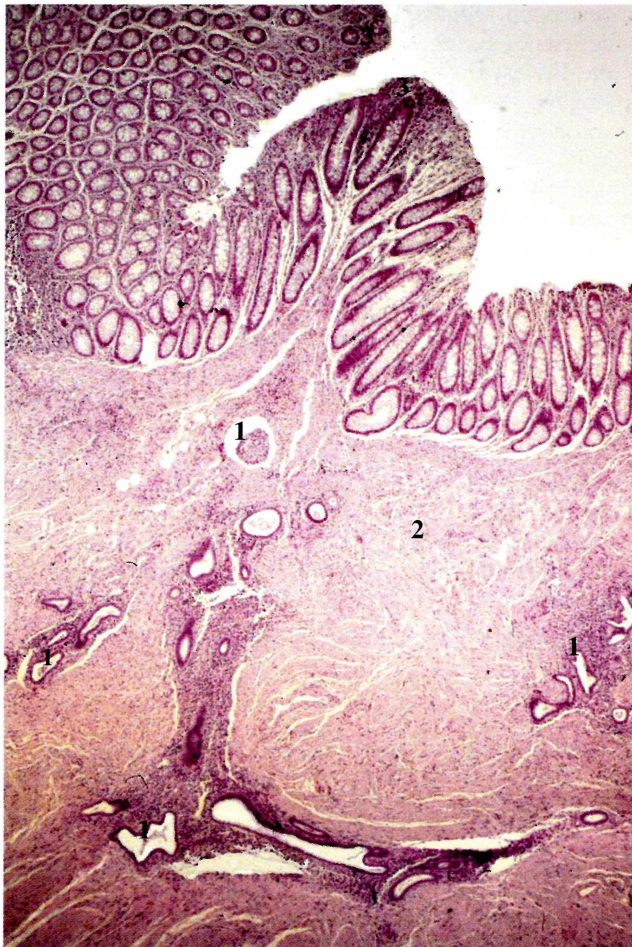


Figure 2. — Large bowel wall with polypoid mucosa [3], endometrial foci [1], and extensive fibromuscular obliteration of the submucosa [2] (Haematoxylin and Eosin, X 30).

Figure 3. — Endometrial foci with dilated glands, haemorrhages and fibrous tissue (green) and smooth muscle hyperplastic fibres (red) in submucosa of sigmoid colon (Trichrome masson, X 125).

the Mayo Clinic the incidence of small intestinal endometriosis was 0.53% (38/7200) [17]. Endometriosis of the appendix can mimic acute appendicitis. In 500 appendectomies in women reviewed by Pittaway [18] histological evidence of endometriosis was found in 2.6%; in 38% of these cases the appendix was completely normal. Nonetheless, in appendicular endometriosis appendectomy is always recommended.

Symptoms of endometriosis include dysmenorrhea, dyspareunia, unspecified abdominal pain and infertility [8]. Endometriosis may also be responsible for a number of unusual symptoms related to the site of implantation, such as pleural effusion or recurrent haemoptysis. The extent of the disease correlates poorly with the severity of symptoms [19]. Bowel involvement can be asymptomatic, but if symptoms exist, frequently they are nonspecific [20]. Symptoms of small-intestine endometriosis include cyclical abdominal pain ranging from mild to severe cramping similar to menstrual cramps, abdominal distension and rarely melena [6]. In one-third of patients with endometriosis in the sigmoid colon, clinical symptoms are present including cramps, flatulence, painful

tenesmus, hyperperistalsis, progressive constipation and diarrhoea alternating with constipation [4]. Rectal endometriosis is characterized by pressure accentuated during defecation or dyspareunia [21]. Obstructive endometriosis lesions of the bowel often cause painful bleeding in contrast with malignant bowel disease which causes mucosal ulceration and painless intermittent bleeding [8]. Our patient, however, did not complain about rectal pain or bleeding, which would have raised our suspicion of intestinal endometriosis.

The clinical diagnosis of intestinal endometriosis is difficult. In a female of low parity, bowel dysfunction characterized by any of the above symptoms should be investigated to rule out the diagnosis of intestinal endometriosis. Internal examination may be helpful in cases where endometriosis of the recto-vaginal wall extends to the rectal wall or the uterosacral ligaments. In these cases, bimanual examination reveals palpable nodules which can change size during the menstrual cycle [21]. Radiological examination can help establish obstruction in the bowel but, as in our case, it is not diagnostic of carcinoma. Endoscopy is not usually diagno-

stically helpful because the intestinal mucosa is rarely reached [22] and endoscopic biopsies are seldom positive for endometriosis [8]. Associated pelvic deposits noted during surgery may suggest the diagnosis, while on laparoscopy, very dense adhesions may obscure the visual diagnosis of endometriosis of the bowel [8]. The pattern of bowel involvement may be serosal nodules [3], plaque, stricture or angular formation with obstruction of the intestinal lumen [3], as with our patient, or endometrioma formation [3].

There are various manifestations of endometriosis that may lead to stricture, kinking or angulation of the bowel producing partial or complete obstruction [6]. Intestinal obstruction may be produced by a localized endometrioma pressing on the lumen or causing intussusception. More commonly, however, diffuse endometriosis is seen with marked smooth muscle hyperplasia or fibrosis and consequent stenosis of the bowel lumen [6, 23]. The muscle propria usually becomes hypertrophied when benign glandular tissue is found ectopically in the bowel wall, the pancreas or in diverticulosis of the colon [6]. In addition, cyclical haemorrhage may occur in the bowel wall when the endometriosis is stimulated by cyclical hormonal changes leading to inflammation and subsequently fibrosis [6]. Adhesions secondary to endometriosis can also cause bowel obstruction [23].

Treatment of bowel endometriosis depends on the depth of the lesion, the size and the degree of obstruction [23]. Superficial lesions should be destroyed by laser or surgically removed because of the 1% risk of transformation into cancer [4, 24]. In cases of symptomatic advanced endometriosis defined as reactional fibrosis invading the muscularis of the intestine or in the presence of an obstructive syndrome the only treatment is surgical resection. This is necessary because endometriotic tissue in the bowel muscularis undergoes muscle cell hyperplasia and fibrosis which are resistant to medical treatment [21]. Bowel resection for intestinal endometriosis is generally performed by laparotomy. However, complete bowel resection of severe endometriosis and reanastomosis has also been performed endoscopically using sutures or staplers [25, 26].

Treatment of underlying endometriosis should be based on the patient's age, menstrual status, and desire for future pregnancy [2]. Removal of the ovaries and consequently, ending the cyclic influence of ovarian hormones, may be an independent favorable prognostic factor. Several studies have suggested that total abdominal hysterectomy and bilateral salpingo-oophorectomy eliminates endometriosis-associated pain in up to 90% of patients, whereas conservative surgery with preservation of the ovaries is followed by relapse in 18% by one year and 34% after five years [27]. Nonetheless, there are valid arguments against routinely advising surgical castration [21]. About 10% of women with intestinal endometriosis initially develop symptoms after menopause or after bilateral oophorectomy [4]. Furthermore, many patients with bowel endometriomas are young and early castration enhances the possibility of developing osteoporosis in later years. Such patients should delay

oestrogen replacement until symptoms of a oestrogen deficiency become evident and then they should receive the lowest dosage that relieves symptoms [8]. After surgery, medical treatment is recommended for three to six months in cases of incomplete removal of intestinal lesions [21]. In our patient we performed radical resection of the descending and sigmoid colon because the intestinal lesion appeared to be carcinoma. No preoperative suspicions of endometriosis existed and no consent for total abdominal hysterectomy or bilateral salpingo-oophorectomy was obtained. No medical therapy was given after surgery because the endometriotic lesions had been completely removed.

In conclusion, we presented a rare case of extensive obstruction and angulation of the sigmoid colon due to endometriosis. This case demonstrates the difficulty of establishing an accurate pre- and perioperative diagnosis and the propensity of intestinal endometriosis to mimic colon cancer. Bowel obstruction due to endometriosis requires resection. Postsurgical treatment should be decided case by case.

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