Accurate Diagnosis of Sigmoid Colon Endometriosis by Immunohistochemistry and Transmission Electron Microscopy - A Case Report

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Resumat

Diagnosticul pozitiv al endometriozei colonului sigmoid prin imunohistochimie și microscopie electronică - prezentare de caz


Cuvinte cheie: endometrioza colon sigmoid, imunohistochimie, electronomicroscopie

Abstract

Endometriosis is described as the presence of functioning endometrial tissue at sites outside the uterus. Up to 15% of women in their reproductive period are affected by this condition. Endometriosis is mostly found on the uterosacral ligaments, inside the rectovaginal sphincter or vagina, in the rectosigmoid area, ovarian fossa, pelvic peritoneum, ureters, and bladder, causing distortion of the pelvic anatomy. Colonic involvement is rare but is usually found at the level of the rectum or the sigmoid colon. Acute presentation with intestinal obstruction or perforation is rare. While malignant transformation of endometrial lesions is rare, findings of dysplasia on pathology sections can give rise to questions of management. Immunohistochemistry and electron microscopy can help decision making. We present the case of a 38 year old woman with intestinal obstruction caused by sigmoid colon endometriosis with moderate dysplasia in which transmission electron microscopy was used for postoperative diagnosis. Detailed analysis of these cases, while logistically difficult, can prove useful in understanding the etiology and pathophysiology of the disease.

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Introduction

Endometriosis is described as the presence of functioning endometrial tissue at sites outside the uterus. Endometriosis represents a clinical entity (benign, estrogen-dependent, tumorlike disease characterized by chronic pelvic pain, dysmenorrhea, dyspareunia, infertility or subfertility - due to the uncontrolled ectopic growth of proliferative endometrial tissue) affecting 3-10 % of women of reproductive age, and occurs when functioning endometrial cells are implanted outside the uterus, commonly in the pelvis: in peritoneum, ovaries, and rectovaginal septum (1). The symptoms of endometriosis may markedly reduce a woman’s quality of life. The prevalence of endometriosis in women varies: 0.7-11 % in populations presenting for general health care, 2-22 % when undergoing surgical sterilization, 17-47 % among infertile women, and 2-74 % in women with chronic pelvic pain (2). Development of the disease is still unclear. From earlier theories like the retrograde menstruation (3), recent studies have revealed several other factors like dysregulation of apoptosis, fibrosis, and epigenetic factors to play important roles in the pathophysiology. Epidemiological studies found that shorter menstrual cycles, longer and heavier menstrual flow, low parity are risk factors for the disease (4). The classic theory on the pathogenesis of endometriosis includes implantation theory, coelomic metaplasia theory, and embryonic Mullerian remnants. A recent study found that extraterine stem cells originating from bone marrow may differentiate into endometrial tissues (5). Endometriosis affects the bowel in 3-37% of cases and usually involves the rectum or sigmoid colon (6).

Clinical data showed that malignant transformation of endometriosis occurs in less than 1% of patients with endometriosis (7).

Case report

We present the case of a 38 year old woman who was admitted into our department with acute abdominal pain of recent onset and lack of bowel movement for the previous 48 hours. Prior medical history reveals a cesarean section 7 years before presentation, pelvic menstrual pain and menstrual irregularity in the previous year. She has been self administering oral contraceptives for the past 4 years. On presentation she has a symmetrical, distended abdomen, painful in all quadrants, especially in the left-lower quadrant. Percussion of the abdomen shows tympanism. Digital rectal examination found a normal rectum but with no feces. Physical examination is otherwise normal. Abdominal ultrasound finds grossly distended bowel loops that make the examination difficult, with no other information being provided. Plain abdominal x-ray shows distended small and large bowel loops and air-fluid levels in the entire abdomen. Exploratory laparotomy was decided and the following was found: a small amount of free fluid, distended small and large bowel loops, a circumferential tumor of the sigmoid colon completely obstructing the bowel lumen. The rest of the abdominal organs were normal on inspection including the reproductive organs and liver. Left hemicolectomy was performed with a mechanical colo-rectal anastomosis, abdominal lavage and drainage. Postoperative course was uneventful with bowel function restoration on the 4th postoperative day and discharge on the 7th day.

Histological findings revealed endometriat-like glands and stroma infiltrating the bowel wall and moderate dysplasia. Immunohistochemistry revealed a rather high proliferative index as revealed by ki67 staining (Fig. 1). Transmission electron microscopy was performed on the specimen with a
JEOL JEM-1400 microscope operated at an accelerated voltage of 80kV. Electron microscopy revealed that the endometrial lesions are hyperplastic and include ciliated cells. Nuclei are polymorphic and euchromatic, many lining cells have prominent cilia and microvilli projecting into the luminal space and desmosome type intercellular junctions are almost missing (Fig. 2). Detection of cilia and their detailed ultrastructural aspects concerning the 9+2 doublet pattern similar to the ciliated uterine cells tell us about the real origin of ectopic endometriosis developed in sigmoid colon (Fig. 3). Apart from the associated stroma to the endometriotic epithelium, a fibrotic stroma accommodates the whole endometriotic lesion inside of the colon wall (Fig. 4).

The patient was started on oral hormone therapy and closely monitored both clinically and by imagery. One year after surgery the patient showed no signs of recurrence or disease progression.

Discussion

Endometriosis is a common health disorder in women, defined by the presence of endometrial-like tissue outside the uterus. Bowel involvement is relatively rare, with a difficult diagnostic and therapeutic management. Whether the clinical picture develops over several months or the patient presents with an acute disease, as the situation of the case presented with intestinal obstruction, the general surgeon is involved in the management. While intraoperative differential diagnosis can be difficult, there are circumstances where pathology results can be unclear in differentiating colonic endometriosis from adenocarcinoma. Moreover the ambiguous nature of the disease rises questions about its benign or malignant nature. In our case a result of dysplasia found by conventional pathology and a relatively high proliferation index, as evidenced by ki67 staining, was resolved by transmission electron microscopy that showed a hyperplastic lesion. While electron microscopy is not yet available for large scale use in the diagnosis of common conditions, its use in selected cases can help management and further the understanding of this enigmatic pathology.
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Conflict of interest

Vlad Constantin, Alexandru Carâp, Simona Bobic, Ion Pâun, Elvira Brâtilă, Bogdan Socea, Ana-Maria Moroșanu, and Nicolae Mirancea declare no conflict of interest.

References


