CASE REPORT

Deep endometriosis of the colon

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Abstract

The article presents a case of deep intestinal endometriosis in a 27-year-old woman who complained of dysmenorrhea and infertility. The diagnostic process included ultrasonography as well as colonoscopy, barium enema and CT imaging. Because of the presence of two distant changes which involved nearly the full thickness of the rectal wall and the major part of its circumference, the decision to perform an anterior rectal resection with a simultaneous retroperitoneal colorectostomy was made. The Knight technique was implemented. The surgery involved the anterior rectal resection, the transverse rectal stump closure by use of a stapling device (TA50), and the creation of colorectal circular anastomosis with the CEEA 31 stapler.

INTRODUCTION

Endometriosis is defined as the presence of endometrial glands and stroma outside the uterus (Bazot *et al.* 2003; Bazot *et al.* 2004; Biscaldi *et al.* 2007). It affects 7–15% of women of reproductive age, although in those with pelvic pain syndrome or infertility its frequency may reach 20% and 40%, respectively (Callahan & Caughey 2006). Deep infiltrating endometriosis (DIE) is defined as infiltrating the peritoneum and the wall of the organs such as intestines, ureters, urinary bladder or vagina more than 5 mm in depth. Some suggest that only rectovaginal endometriosis (in which the endometriotic implants occur in the recto-vaginal septum or the ligaments of the uterus) should be considered as DIE (Del Frate *et al.* 2006). DIE is responsible for severe pelvic pain. The gastrointestinal tract is affected in 3–37% of women with pelvic endometriosis, with the rectum and sigmoid colon as the most commonly affected areas (Callahan & Caughey 2006; Koninckx *et al.* 1991). In the bowel the endometrial implants are most commonly located in its antimesenteric edge. They appear in the form of small nodules (single or disseminated) on the peritoneum or as large lesions infiltrating the muscular layer narrowing the lumen of the bowel (Yantiss 2000). The ectopic endometrial tissue remains responsive to the physiologic cyclic hormonal regulation which influences the nature of the ailments. The intensity of the symptoms like pain, diarrhea, constipation, bloating or dyspareunia is varied. The strength of the pain is correlated with the depth of infiltration (Koninckx *et al.* 1991).

CASE REPORT

A 27-year-old woman (nulligravida, nullipara) contacted her doctor because of inability to conceive for 6 months. She also complained of severe dysmenorrhea accompanied by abdominal disten-

tion and edema. Physical examination revealed changes in the form of nodules in the sacrouterine ligaments. On *per rectum* examination, a solid nodular mass in the anterior rectal wall was palpable. Ultrasonography showed two changes of heterogeneous echogenicity in the bowel projection on the left side of the abdomen (20 and 30 mm in diameter) (Figures 1 and 2). The patient, with suspected endometriosis, was referred for colonoscopy and surgical consultation for further diagnosis. The colonoscopy was not completed due to inability to pass the endoscope further than 25 cm. Sigmoidoscopy revealed an area (5×5 cm) of inflamed mucosa at the distance of 20 cm but the initial suspicion of deep endometriosis was not confirmed in histopathology of the collected tissue sample. Repeated colonoscopy showed no abnormalities so computerized tomography needed to be performed. It showed two round intramural lesions with positive enhancement (25 mm in diameter) in the area of rectosigmoid bend, suggestive of endometriotic changes. The bowel lumen was partially filled with a solid mass and narrowed. No signs of fat tissue involvement were seen. Subsequently, the double-contrast barium enema was done and it revealed the rectal lumen stenosis above the rectal ampulla. The nature of the lesion was not unequivocally defined. As the patient's symptoms persisted, further investigations were performed. Transrectal sonography revealed a hypoechogenic change accompanied by submucosal edema. Sigmoidoscopy showed the mucous membrane elevation and stenosis in the area of the rectosigmoid bend. The patient was qualified for surgery in order to remove the changes and determine their nature in histopathology. At surgery, at the borderline of the rectum and signum, a lesion narrowing the colon lumen was palpated, located higher than suggested on *per rectum* examination. Thus, the decision to dissect the rectum retroperitoneally in the direction of the rectovaginal septum was made. After gaining appropriate access, the palpation revealed a mass in the anterior rectal wall penetrating through the septum into the vaginal lumen. The dissection preserving the vaginal wall was performed. Because of the presence of two distant

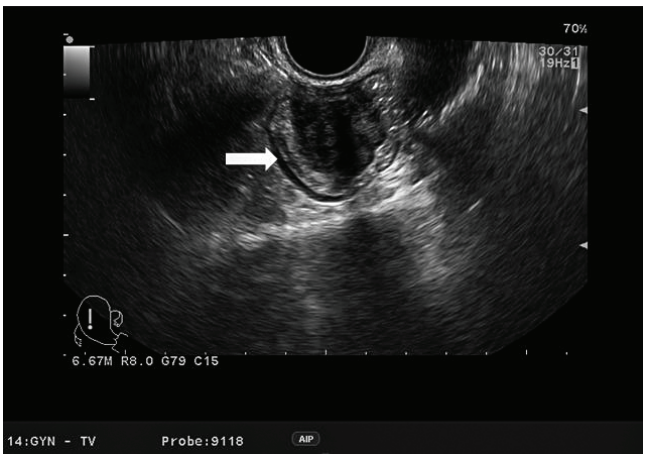

Fig. 1. Ultrasonographic image demonstrating a lesion, in the colon view, with a thickened capsule, filled with a hyperechogenic matter, suggestive of the intestinal wall tumor (endometrioma).

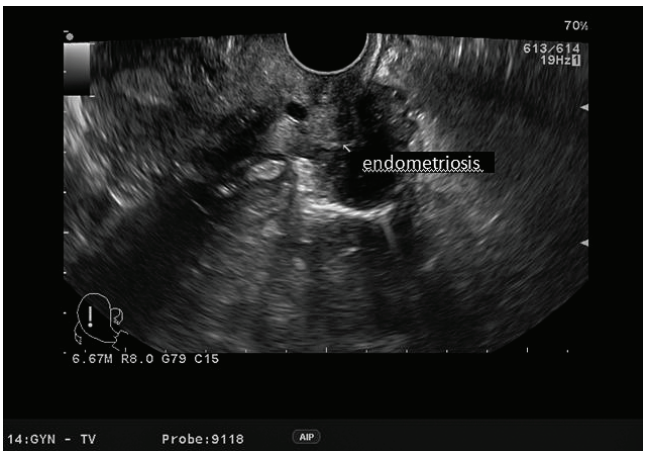

Fig. 2. An irregularly outlined lesion with a hyperechogenic content, in a view of the Pouch of Douglas, localized closely to the uterine cervix and the vagina, which may correspond to a lesion involving the rectovaginal septum.

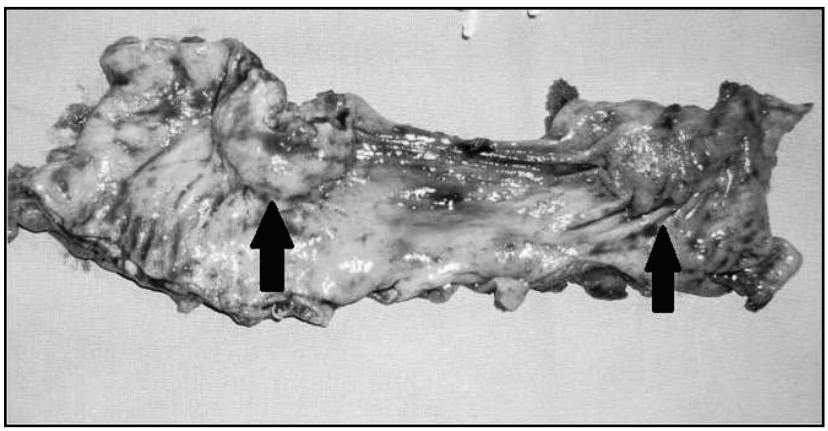

Fig. 3. A postoperative picture of the removed section of the rectum with two endometriotic changes (arrows) within the intestinal wall, which visibly corresponds with an ultrasound images in Figures 1 and 2.

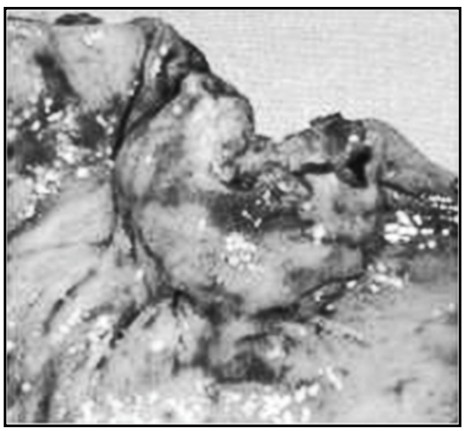

Fig. 4. A rectal wall nodule. A postoperative preparation of the lesion demonstrated in the ultrasound image in Figure 1.

changes which involved nearly the full thickness of the rectal wall and the major part of its circumference, the decision to perform an anterior rectal resection with a simultaneous retroperitoneal colorectostomy was made (Figures 3 and 4). The Knight technique was implemented. The surgery involved the anterior rectal resection, the transverse rectal stump closure by use of a stapling device (TA50), and the creation of a colorectal circular anastomosis with the CEEA 31 stapler. The removed section of the colon (with the margins of unaffected tissue) contained a bifocal lesion (Figure 3). The histopathology confirmed the presence of the endometriotic lesions in the excised bowel segment. The course of the surgery and the postoperative period were uneventful. The patient complained of no pelvic pain after the operation. After a month, a control rectoscopy was performed revealing no pathology. At the moment, one year after the surgery, the patient is still symptoms-free.

DISCUSSION

The diagnosis of intestinal endometriosis is complicated and requires a comprehensive approach. It is still common not to take deep endometriosis into consideration when diagnosing a patient presenting with atypical symptoms. One of the most common complaints in large colon endometriosis is abdominal, pelvic or rectal pain (Galbfach & Dziki 2007; Remorgida *et al.* 2007). Other frequent symptoms are: diarrhea, constipation, abdominal bloating, tenesmus, nausea and vomiting (Galbfach &Dziki 2007; Remorgida *et al.* 2007; Townell & Vanderwalt 1984). Among typical gynecological symptoms: dysmenorrhea, dyspareunia, hypermenorrhea and infertility are the most common (Kavallaris *et al.* 2003; Levitt *et al.* 1989). Rectal bleeding is quite an infrequent symptom due to rare intestinal mucus membrane infiltration (Remorgida *et al.* 2007; Townell & Vandrwalt 1984). The symptoms periodically escalate before and during menstruation, or remain chronic without any correlation with the menstrual cycle (Galbfach & Dziki 2007; Garg *et al.* 2009; Townell & Vanderwalt 1984). Sometimes, symptoms of the obstruction of the bowel emerge as the first sign of intestinal endometriosis (Galbfach & Dziki 2007; Garg *et al.* 2009). As endometriotic lesions may be located in various places and cause a wide range of complaints, imaging techniques are needful. TVS – transvaginal sonography, REU – rectal endoscopic ultrasonography, double-contrast barium enema, colonoscopy, CT – computerized tomography, MRI – magnetic resonance imaging, are commonly used in the diagnosis of intestinal endometriosis.

TVS reveals endometriotic lesions as irregular hypoechogenic masses (often as linear thickness in the intestinal wall). Infiltration of the muscle is visible as a thin (<3mm) hypoechogenic change, while infiltrated mucosa and submucosa are hyperechogenic. TVS has been evaluated to be highly effective in detecting endometriotic changes in the bowel, with its limitation to precisely locate the lesions and determine the depth of infiltration (Bazot *et al.* 2003; Remorgida *et al.* 2007). It also enables to choose the most appropriate technique and surgical approach (Chapron *et al.* 1998). However, it is possible to overlook the changes localized on the front wall of the rectum and in Douglas pouch. The double-contrast barium enema may reveal the intestinal stenosis, as it happened in the discussed case. This method, however, cannot be regarded as a determinative one in the diagnostic process as it is not specific enough for endometriosis. However, it enables to localize the changes infiltrating the intestinal wall and giving a mass effect (Gordon *et al.* 1982). The intestinal endoscopic examination is one of the basic tests that are performed in case of any changes in the colon, especially when colon cancer is suspected. However, colonoscopy combined with mucus biopsy often fails to confirm the initial diagnosis of endometriosis due to lack of infiltration of the mucus, as it occurred in the reported case (Galbfach & Dziki 2007; Remorgida *et al.* 2007). The histological picture of endometriosis is also often unspecific. In addition, the endoscopic examination in patients with endometriosis is complicated because of the adhesions in the pelvis, stenosis and hypersensitivity of the intestinal wall (Galbfach & Dziki 2007; Townell & Vanderwalt 1984). The CT image of solid nodules with positive enhancement penetrating the thickened colonic wall can be suggestive of the intestinal endometriosis. Multislice Computerized Tomography with Enteroclysis – (MSCTe) is a variation of the method that enables a precise localization of the change (Biscaldi *et al.* 2007; Remorgida *et al.* 2007). The basic feature enabling to diagnose endometriosis by MRI is presence of hemorrhagic lesions in the intestinal changes, which are hyperintensive in the T1-weighted images and hypointensive in T2-weighted images (Remorgida *et al.* 2007). The method is highly sensitive and specific in the diagnosis of endometriosis, however, it is not yet a routine test to be performed. The limitations of the MRI are: 1) low sensitivity in estimating the depth of the infiltration, 2) the possibility of missing the lesions containing fibrous tissue – they give a signal similar to muscle tissue, 3) the artifacts caused by bowel movements (Remorgida *et al.* 2007).

Despite the undetermined appearance of endometriosis in the majority of radiological methods and lack of gold diagnostic standard, the preoperative examination and imaging are essential when planning the treatment and surgery. The treatment strategies depend on patient age, reproductive plans, progress of intestinal lesions and prognosis. Among medications, high-dose progestogens, GnRH agonists and Danazol are used. Their effectiveness proven in medical trial is comparable, with considerably more side effects caused by Danazol (Mahutte & Arici 2003). Surgery is a standard management when the symptoms of bowel obstruction

occur. However, in cases of intestinal endometriosis with no symptoms of intestinal stenosis, surgical treatment should be planned individually. The method of the surgical treatment must be chosen depending on the extent of the infiltration, the number of lesions, the location of the changes and their relations to the rectal wall layers and the availability of surgical methods, which are the following: local excision of the lesion, rectal wall full-thickness excision, segmental rectal resection and combinations of the above mentioned methods. These procedures can be performed by laparoscopy or laparotomy. The recurrence rates vary depending on the method: ~22% for the local excision, ~5% for the full-thickness excision of the wall, ~2% after segmental resection (Mahutte & Arici 2003).

In conclusion, among many available methods of imaging, none is considered the gold standard for diagnosis of intestinal endometriosis. A definitive diagnosis can be established only on the basis of histopathology. Proper management of the intestinal endometriosis is a clinical challenge and often requires interdisciplinary approach.

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