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Review Article

Bowel endometriosis: a surgical red flag

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ABSTRACT

Endometriosis is a disease restricted usually to the female genital tract. Involvement of the bowel by this disease can lead to a diagnostic dilemma due to the great variation in the symptomatology. Awareness of the pathophysiology, clinical features and diagnostic modalities is of utmost importance to decide the modality of treatment. Hormonal manipulation and surgical resection are the two modalities of treatment. The choice depends upon critical analysis of clinical and radiological findings and the desire to have pregnancy in cases associated with infertility.

Keywords: Bowel endometriosis, Medical surgical management

INTRODUCTION

4%-17% of women during their active reproductive age suffer from endometriosis.[1,2] Out of these 5%-10% of women have colorectal involvement.[2] The symptoms of bowel endometriosis closely simulates intrinsic bowel disease making diagnosis very difficult.[3,4] Hence awareness of this complex entity is essential to avoid misdiagnosis and unnecessary surgical intervention.

Pathophysiology

Various theories have been proposed for the etiology of endometriosis. The hypothesis of retrograde menstruation with seeding of endometrial tissue into the peritoneal cavity through the fallopian tube is most commonly accepted. These endometrial implants may settle down in the most dependent areas of the pelvic cavity.[5] Therefore, the rectouterine pouch of Douglas happens to be the commonest site for endometriotic deposits. This is followed by ovarian deposits.

Symptoms of endometriosis at these sites may be easy to analyze in order to arrive at a diagnosis. However, in addition to these common sites, seeding of the sigmoid colon, rectum, ileum, appendix and caecum is encountered.[5,6] Endometriotic deposits grow over a period of time under the influence of hormonal stimulation. These deposits slowly invade the bowel wall. To start with they are deposited on the serosal surface but with time may cross the muscularis layer.

Mucosal involvement is quite uncommon. However, in the pouch of Douglas they cause dense adhesions between the recto-sigmoid junction, rectum and the posterior uterine wall.[6] Deposits on the appendix, ileum or the caecum may closely mimic appendicitis.

As the disease progresses the lesions caused damage to the intrinsic nerve plexus of the intestine, interstitial Cajal cells as well as cause a decrease in the functioning of the sympathetic nerve fibres.[3,4] Eventually these changes cause a gross alteration in the bowel physiology.

Grossly pigmented nodules are seen on the peritoneal surface of the bowel with typical puckering of the serosa. (Figure 1) This in many cases is indistinguishable from carcinoma.[6,7] Submucosal involvement may commonly be encountered in advanced cases. (Figure 2) However mucosal involvement is quite rare.

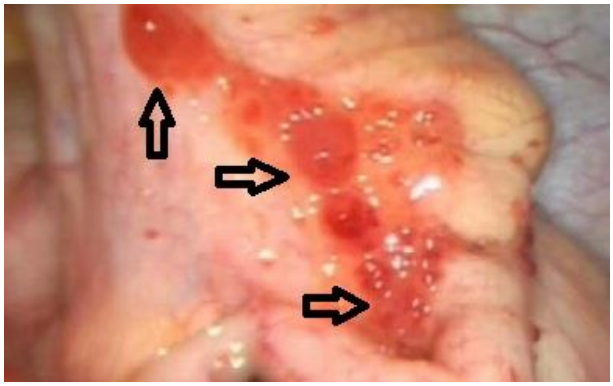

Figure 1: Endometriotic nodules on the surface of the caecum.

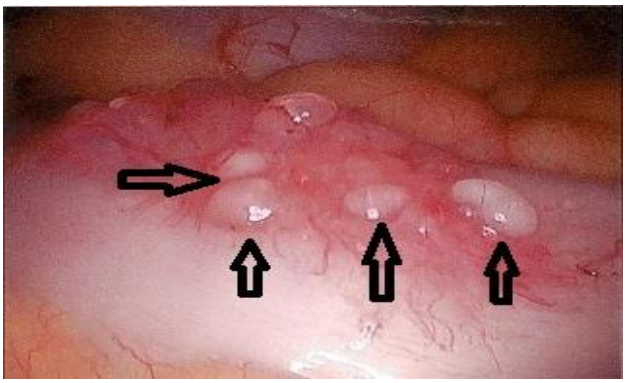

Figure 2: Endometriotic nodules over the bowel surface.

Clinical features

Pelvic pain, dyspareunia, cyclical rectal bleeding associated with the menstrual cycle are the commonest presenting features. However, bowel symptoms associated with menstrual cycle are commonly misinterpreted.[6,7] Symptoms like severe excruciating pain associated with obstructive symptoms are commonly encountered in severe cases. Otherwise, diarrhea like disease may also be encountered. These features are commonly attributed to inflammatory bowel disease and therefore wrongly treated. Therefore, careful analysis of symptoms and their close relationship with the events taking place during the menstrual cycle are essential in arriving at an early diagnosis.

Diagnosis

Critical analysis of symptoms will lead to a presumptive diagnosis of bowel endometriosis. Many of these women will be undergoing treatment for infertility which is additional evidence in support of the diagnosis. However, imaging is necessary to confirm the diagnosis. Traditional barium studies can still be performed. However, they have been replaced by other modern modalities of imaging. Trans-Vaginal Ultrasound (TVU) is a very effective method of diagnosing endometriosis.[8-10] However the diagnostic accuracy of ultrasonography depends on the experience of the operator. Adding water contrast to the rectum during transvaginal ultrasonography may facilitate identification of bowel endometriotic lesions. It will also help in evaluation of the extent and severity of the disease. This includes size of the nodules, number of nodules, depth of infiltration in the bowel wall and degree of narrowing caused by the lesion. This can only be possible if adequate bowel preparation has been done prior to the procedure.[8,9]

MRI Is another investigation which has high sensitivity and specificity. Injection of ultrasonography gel into the vagina and the rectum prior to an MRI is proposed to enhance the identification of bowel lesions.[11]

Multidetector computerized tomographic enteroclysis (MDCT-e) has in recent years proven to become the diagnostic investigation for bowel endometriosis.[11,12] After adequate bowel preparation, colonic distension is done by introducing about 2000cc of water. During enteroclysis, pharmacologic inhibition of peristaltic waves is achieved by intravenous injection of hyoscine butyl bromide.

Patient is examined with a 16 row MDCT scanner. Bowel endometriosis with respect to characteristics of nodules is very well identified. The depth of infiltration can also be very well assessed. This investigation has become the gold standard for diagnosis of bowel endometriosis.[12,13] Rectal endoscopic ultrasound is also performed. This also helps in precise evaluation of the depth of infiltration of the lesion, Maximum size of the lesions and the distance of the lesions from the anus. Colonoscopy has limited value and his helpful only in ruling out malignant bowel cancers.

Treatment

The choice of treatment depends upon the age of the patient, parity, endocrine status and the extent of the disease. If Infertility is an accompaniment then the attitude of the patient towards child bearing is also an important determinant.

Hormonal manipulation

Those patients with bowel endometriosis who wish to conceive are not good patients for hormonal manipulation.[14,15] Hormonal manipulation alleviates the pain and discomfort but does not halt the progression of the disease. Therefore, it is a temporary avail for patients. Combination pills (Estrogen-Progesterone Oral Contraceptive Pills) are medications of choice to alleviate symptoms. However, prolonged use of these medications can cause a variety of other complications. Inducing a pseudo-menopause like state by administering danozole or gonadotropin releasing hormone agonist is another way of alleviating symptoms. GnRH agonists like leuprolide acetate is quite effective in case of bowel

endometriosis.[15,16] The duration of treatment extends from 3-6 months.

Surgical treatment

Severe pain and infertility are indications for surgical intervention. A variety of surgical modalities have been proposed. Laparoscopic removal of nodules is a commonly performed surgical intervention. However, when severe adhesions lead to stenosis and obstruction, open surgical intervention remains the treatment of choice. It is always a safe practice to adequately prepare the bowel prior to surgical intervention.[17-19] This allows safe resection of affected segments of the bowel. Superficial nodulectomy is also effective in ameliorating symptoms. In many cases a combination of nodulectomy with resection may be required. This is especially seen in endometriotic deposits over the rectum and recto-sigmoid region with accompanying extensive adhesions with the uterus. In patients presenting with large masses, especially on the left side with involvement of the rectosigmoid junction, bowel resection and left sided salpingo-oophorectomy may be carried out. However, the opposite side tube and ovary needs to be preserved if the patient is young and desirous of having a pregnancy. Mobilization of the left colon is necessary to reduce the tension on the anastomosis especially while resecting recto-sigmoid lesions.

Impact of surgery on fertility

A meticulously performed surgical resection will not affect the fertility adversely. Studies have shown a 50% pregnancy rate after laparoscopic colorectal resection.[19,20] Another study has shown an 84% pregnancy rate after nodulectomy.[21,22] A higher pregnancy rate after surgical intervention can be explained on the basis of an unaltered female hormonal homeostasis.

CONCLUSION

Bowel endometriosis is a challenging clinical disease. It poses a diagnostic dilemma to both the gynecologist as well as to the surgeon. High index of suspicion based on a good clinical history is pivotal. Trans-vaginal ultrasound (TVU) followed by MDCT-e will confirm the diagnosis. Choice between hormonal treatment and surgical treatment will be determined by various factors with the attitude towards pregnancy being given utmost importance.

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