



Surgery versus hormonal therapy for deep endometriosis: is it a choice of the physician?



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ABSTRACT

Deep endometriosis, occurring approximately in 1% of women of reproductive age, represents the most severe form of endometriosis. It causes severe pain in the vast majority of affected women and it can affect the bowel and the urinary tract. Hormonal treatment of deep endometriosis with progestins, such as norethindrone acetate or dienogest, or estrogen-progestins is effective in relieving pain in more than 90% of women at one year follow up. Progestins and estrogen-progestins can be safely administered in the long-term, may be not expensive and are usually well tolerated. Therefore, they should represent the first-line treatment of deep endometriosis associated pain in women not seeking natural conception. However, hormonal treatment is ineffective or not tolerated in about 30% of women, the most common side effects being erratic bleeding, weight gain, decreased libido and headache. Surgical excision of deep endometriosis is mandatory in presence of symptomatic bowel stenosis, ureteral stenosis with secondary hydronephrosis, and when hormonal treatments fail. Surgical treatment is similarly effective as compared to hormonal treatment in relieving dysmenorrhea, dyspareunia and dyschezia at one year follow up in more than 90% of women with deep endometriosis. Surgical removal of the nodules may require resection of the bowel, ureter or bladder, with possible severe complications such as rectovaginal or ureterovaginal fistula and anastomotic leakage. A thorough counsel with the patient is necessary in order to pursue a therapeutic plan centered not on the endometriotic lesions, but on the patient's symptoms, priorities and expectations.

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Introduction

The endometriotic disease is differentiated in three different forms: ovarian cysts, superficial peritoneal lesions and deep infiltrating lesions. Deep infiltrating endometriosis, occurring approximately in 1% of women of reproductive age [1], represents the most severe form of the disease. Deep endometriotic lesions may involve the posterior compartment, affecting the uterosacral ligaments, the Douglas pouch, the anterior rectal wall and the posterior vaginal wall, with estimated prevalence of bowel involvement between 7% and 19% [2]. Alternatively, or in concomitance with lesions of the posterior compartment, deep endometriosis may affect the ureter and the bladder. According to

recent findings, the involvement of the urinary tract in women with deep endometriosis may be as high as 19% [3] or even 53% [4].

Deep infiltrating endometriosis is associated with severe pain in more than 95% of women [5]. Typically, women experience pain in the form of dysmenorrhea, deep dyspareunia or nonmenstrual pelvic pain. Symptoms and signs of infiltrative bowel lesions include severe constipation, dyschezia, menstrual diarrhea, menstrual hematochezia, and pain radiation to the perineum [6]. Bladder endometriosis is usually associated with catamenial mictalgia, frequency, urgency, or vesical tenesmus. Although women with ureteral endometriosis may present with colicky flank pain or gross hematuria, as many of 50% of them may be asymptomatic. Ureteral endometriosis represents therefore the most insidious form of the disease, because it may cause silent loss of renal function [5].

Treatment of deep endometriosis can be either surgical, aiming at restoring the normal anatomy by removing endometriotic lesions, or hormonal, aiming at inducing a hypo-estrogenic state, atrophy or quiescence of endometriotic lesions, and a reduction of

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the chronic peritoneal inflammatory status. In the present paper, we will describe the factors influencing the choice between a surgical or a hormonal treatment for deep endometriosis.

Clinical assessment: anatomical characteristics of the disease

Deep endometriosis has a typical multi-focal presentation [7]. As a first diagnostic step, it is important to rely on a thorough physical examination. Performing a detailed exam allows the physician to map out the disease location and often assess severity and infiltrative status. In addition, in order to plan an appropriate surgical or medical treatment of this condition, ultrasonography and MRI are useful tools for assessing the number, size and anatomical localization of the endometriotic nodules [5,8]. Although MRI is more accurate than transvaginal ultrasonography for lesions located on the upper level of the sigmoid, the two techniques are equally accurate for pelvic disease [9]. Transvaginal and transrectal ultrasonography have the advantages over MRI of being less expensive, more easily repeatable and allowing pushing pelvic organs with the probe for the evaluation of mobility and elicited pain [10,11]. Although the gold standard of diagnosing endometriosis, whether it be deep or superficial, remains surgical evaluation at laparoscopy, the preoperative mapping of endometriotic lesions provides the surgeon many important informations for each specific location of deep endometriosis.

Bowel endometriosis

Transrectal sonography can identify the normal rectal wall layers and detect rectal endometriosis as endometriotic infiltration of the muscularis layer; however, it is less accurate in assessing the involvement of the submucosal and mucosal layer [12,13]. Transrectal sonography can diagnose low rectal nodules as those below the level of the insertion of the uterosacral ligaments on the uterine cervix and can assess the lowest limit of the rectal nodule also by measuring its distance from the anus [14]. This is important because low rectal nodules are associated with a higher rate of surgical complications as compared to upper rectal and sigmoid nodules. Colonoscopy is another useful tool for assessing the level of a rectal nodule by measuring the distance from the dentate line; moreover colonoscopy allows obtaining tissue biopsies for histologic diagnosis of endometriosis and for the assessment of the depth of rectal wall involvement. A double-contrast enema is particularly useful for the evaluation of the degree and length of bowel occlusion in case of lesions higher than the rectum, i.e., endometriotic nodules of the high rectosigmoid or sigmoid colon [5]. Computerized tomography colonography (CTC), or otherwise virtual colonoscopy represents a new modality for imaging endometriosis of the bowel. In a recent study comparing CTC with rectal-water contrast transvaginal ultrasonography (RWC-TVS), the two techniques showed a similar accuracy of 90% and 94%, respectively, in the diagnosis of rectosigmoid endometriosis and similar precision in estimating the size of the nodules. CTC was more precise than RWC-TVS in estimating the distance between the nodules and the anal verge [15].

Ureteral endometriosis

At transvaginal ultrasound, the ureteral course can be directly evaluated for possible endometriotic infiltration from the renal pelvis down to the anterior parametrium. The ultrasonographic evaluation of possible ureteral involvement is particularly important in presence of deep nodules of the posterior compartment greater than 3 cm or deep nodules extending laterally in the parametrium, because these nodules are more likely to affect the ureter and to cause urinary retention after surgery [5,16]. When

ureteral involvement is suspected, hydronephrosis must be ruled out by means of renal ultrasound. In presence of ureteral stenosis associated with hydronephrosis, a preoperative ureteral stent is required, when feasible, and the surgical procedure is planned accordingly with the intraoperative availability of an expert urologist [17].

Bladder endometriosis

The accuracy of transvaginal ultrasound with a partially replete bladder for the detection of bladder endometriosis has been reported as high as 97% [9]. When an endometriotic nodule of the bladder is suspected, a cystoscopy is performed in order to rule out a transitional epithelium carcinoma and to measure the distance between the endometriotic lesion and the ureteral meatus. The removal of nodules affecting or being closer than 2 cm to the ureteral meatus is more difficult, is associated with a higher rate of complications, and may require ureteroneocystostomy.

Surgical treatment: outcome and complications

The outcome and complications of surgical treatment for deep endometriosis are difficult to assess, because they are influenced by numerous variables including severity of the disease, number and location of endometriotic nodules, degree of infiltration of the bowel or the urinary tract and overall experience of the surgical team.

Bowel endometriosis

The techniques for removing an endometriotic nodule from the rectum or rectosigmoid include the shaving of the nodule, i.e., without entering the bowel mucosa, the discoid resection or the segmental resection. The choice of the surgical procedure must be tailored basing on the anatomical extension of the disease and the patient symptoms, avoiding unnecessary procedures. It has been suggested that women with a bowel occlusion of >50% or longer than 2–3 cm should be scheduled for elective bowel resection, whereas all other women should undergo excision of the nodule [5]. It is important to bear in mind that the lower the level of bowel resection, the more difficult is to obtain a tension-free, well vascularized anastomosis. Therefore, low and ultra-low rectal resection, with a distance from the anal verge of ≤ 6 cm or ≤ 4 cm respectively, are associated with a higher risk of complications. Overall, a protective colostomy is required in 10–14% of women undergoing bowel surgery for deep endometriotic lesions [14].

According to a systematic review evaluating 34 articles describing 1889 procedures, segmental bowel resection is effective in reducing dysmenorrhea, dyspareunia and dyschezia at one year follow up in more than 90% of women. Pain relief after surgery was consistent with 71.4–93.6% of women being pain free after 1 year of follow-up (Table 1). In this series, treatment of deep endometriosis with bowel resection was associated with a 22% overall risk of complications, with an incidence of major complications of 11%,

Table 1

Women free of symptoms after segmental bowel resection for deep endometriosis evaluated at 1-year postoperative follow-up.

| Type of pain | Women free of symptoms n (%) |
|----------------------------|---------------------------------|
| Overall pain (n = 135) | 111 (82) |
| Dysmenorrhoea (n = 82) | 45 (55) |
| Deep dyspareunia (n = 100) | 62 (62) |
| Chronic pain (n = 16) | 5 (31) |
| Dyschezia (n = 41) | 19 (46) |

(Modified from Ref. [18]).

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