Surgical treatment of deep infiltrating rectal endometriosis: in favor of less aggressive surgery

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Deep infiltrating endometriosis of the rectum is a severe disease concerning young women of reproductive age. Because it is a benign condition, aggressive surgical treatment and subsequent complications are not always accepted by young patients. Two surgical approaches exist: the radical approach, employing colorectal resection; and the conservative approach, based on rectal shaving or full-thickness disc excision. At present, the majority of patients with rectal endometriosis worldwide are managed by the radical approach. Conversely, as high as 66% of patients with colorectal endometriosis can be managed by either rectal shaving or full-thickness disc excision. Most arguments that used to support the large use of the radical approach may now be disputed. The presumed higher risk of recurrence related to conservative surgery can be balanced by a supposed higher risk of postoperative bowel dysfunction related to the radical approach. Bowel occult microscopic endometriosis renders debatable the hypothesis that more aggressive surgery can definitively cure endometriosis. Although most surgeons consider that radical surgery is unavoidable in patients with rectal nodules responsible for digestive stenosis, conservative surgery can be successfully performed in a majority of cases. In multifocal bowel endometriosis, multiple conservative procedures may be proposed, provided that the nodules are separated by segments of healthy bowel of longer than 5 cm. Attempting conservation of a maximum length of rectum may reduce the risk of postoperative anterior rectal resection syndrome and subsequent debilitating bowel dysfunction and impaired quality of life. Promotion of less aggressive surgery with an aim to better spare organ function has become a general tendency in both oncologic and benign pathologies; thus the management of deep colorectal endometriosis should logically be concerned, too.

Key words: bowel endometriosis, colorectal resection, deep infiltrating endometriosis, digestive function, disc excision, rectal endometriosis, shaving

Deep infiltrating endometriosis is a form of endometriosis that penetrates >5 mm under the peritoneal surface.[1] Surgical management of deep endometriosis has increasingly become a major topic of debate in gynecologic surgery. Surgical efforts aim at removing endometrial implants and restoring anatomic distortions. Surgical care can be broadly classified as conservative treatment and radical surgery.

A radical surgical approach involves organ resection, while the conservative philosophy or symptom-guided approach aims at conserving the involved organ.[2] In our opinion, the philosophy of conservative surgical treatment should concern deep infiltrating endometriosis of the rectum. The reason for such a choice is due to specific complications[3] and functional disturbances of radical treatment on such an organ,[4] as well as the feasibility of various conservative techniques.

The aim of our manuscript is to discuss the role of conservative surgery in deep infiltrating rectal endometriosis, with no conviction that radical surgery should never be performed. In our database at the Rouen University Hospital, 414 nodules deeply infiltrating the rectum were treated surgically between June 2009 and October 2015. A total of 139 colorectal resections (33.5%), 197 rectal shavings (47.7%), and 78 full-thickness disc excisions (18.8%) have been performed. This means that more than 66% of patients could benefit from a conservative approach, while in almost 3 out of 10 cases colorectal resection cannot be avoided. In these latter patients, the decision to perform colorectal resection was made preoperatively based on particular arguments, such as large and deep infiltrations of the upper rectum and sigmoid colon responsible for stenosis, or multiple deep colorectal localizations with short healthy digestive tract between 2 consecutive nodules.

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Received Nov. 30, 2015; revised Jan. 17, 2016; accepted Jan. 28, 2016.

The authors declare no conflict of interest related to this work.

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0002-9378/$36.00
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http://dx.doi.org/10.1016/j.ajog.2016.01.189

Surgical management of deep infiltrating rectal endometriosis: arguments for a conservative technique

The debate concerning the choice of the best surgical approach in the treatment of deep infiltrating endometriosis of the rectum is far from being over. Globally, the literature shows that 2 approaches are being practiced: radical rectal surgery and conservative rectal surgery.

Radical rectal surgery includes colorectal resection by complete excision of the rectal segment affected by the disease.[5] Conservative techniques may be performed by the practice of rectal shaving, in which the rectum is not opened,[6] or by full-thickness disc

excision, in which only the endometriosis nodule along with the surrounding rectal wall is removed.[3,7-11] Available data concerning direct comparison of those 2 approaches are provided by retrospective case series reported by surgeons who generally perform only 1 technique, and therefore those studies cannot lead to a conclusion and may only provide a hypothesis.[6,12] The choice of surgeons who perform colorectal resection worldwide is supported by those retrospective studies reporting significant improvement in pain and quality of life following such a radical technique.[3,13,14]

However, success in rectal surgery should also be evaluated in relation to both rectal function[4,15] and rectal recurrence. Isolated improvement of pelvic pain and deep dyspareunia are not strong arguments supporting the success of rectal surgery, but rather supporting the success of overall endometriosis surgery. It is therefore not reasonable to justify a technique for the treatment of rectal endometriosis based only on the improvement of such general symptoms.

Conservative surgery is a philosophy opposed to that of the radical approach.[16] The goal of such a conservative technique is maximum rectal preservation by selective excision of macroscopic endometriosis implants, in order to prevent several unfavorable outcomes in relation to rectal resection. Historically, deep endometriosis of the rectum was first treated by a conservative approach;[17,18] then the practice of colorectal resection progressively increased.

To date, available data regarding postoperative digestive function do not seem to support the aggressive radical rectal surgery.[15] In a couple of case series in which postoperative digestive function was assessed following colorectal resection, incomplete relief of preoperative digestive symptoms, including constipation, tenesmus, and dyschesia, was noted in more than half of the patients.[19] Even though nerve-sparing techniques were prioritized, postoperative constipation was recorded in 20% of patients.[20]

In a retrospective study comparing the digestive outcomes of those 2 surgical philosophies, patients managed during the period of time when the conservative philosophy was dominant had lower risk of postoperative constipation and an overall improvement of gastrointestinal quality of life.[15] Extending the follow-up of this series of patients over 5 years (from 60 to 116 months) did not modify the results, as patients managed by the conservative philosophy continued to have a lower risk of constipation, better anal continence, better gastrointestinal quality of life, and no significantly increased risk of endometriosis recurrence on the digestive tract (personal communication with Horace Roman).

Data concerning colorectal resection show that such a procedure may result in major consequences, which may include the following: (1) rectal denervation due to the mobilization and section of the mesocolon; (2) stenosis of the colorectal anastomosis, which seems to be higher in incidence than that recorded in patients managed for rectal cancer;[21,22] (3) reduction of the volume and compliance of the rectal reservoir, resulting in changes in both the quality and frequency of bowel movements;[23] (4) high intracolic pressure with impact on the anal sphincter, weakening it in the long run, with consecutive urgency and fecal incontinence.[24] As the pathophysiology of postoperative digestive dysfunction is multifactorial, prevention is aleatory even in the hands of experienced surgeons.[25]

Conversely, a conservative technique by either rectal shaving or full-thickness disc excision requires neither mobilization of the colon nor section of the mesorectum. The shaving restores digestive function, preserves both sensitive and motor intestinal function, and improves the digestive complaints and pain symptoms.[26] Moreover, disc excision, performed either laparoscopically[7] or by employing transanal staplers,[8] results in semicircular rectal sutures that are less likely to lead to digestive tract stenosis. Furthermore, the overall length of the rectum and the volume of the rectal reservoir are less reduced in the conservative technique than after colorectal resection.[3,8]

Main arguments justifying systematic colorectal resection

Colorectal resection still has its place in certain conditions and should be practiced when necessary. However, it would be difficult to routinely employ such a technique whenever the rectal muscular layer is infiltrated. In the literature, myriad scientific articles support this radical policy, and the arguments for such support are mainly the same.

Reduction of recurrence risk

The literature lacks comparative studies, and therefore no evidence supports the claim of the supposedly higher risk of recurrence in patients managed by conservative surgery. It has been shown that the rate of patients with residual digestive microscopic implants may be as high as 40% when disc excision is performed.[8,27] However, colorectal resection also results in specimens with positive bowel margins in 15% of cases,[28,29] which may thus be responsible for colorectal proven recurrence.[29] This leads to the fact that when radical surgery is performed instead of the conservative disc excision, colorectal resection would avoid residual microscopic implants in 25% of patients. Therefore, 4 patients should undergo colorectal resection to avoid residual microscopic disease in only 1 patient.

A large meta-analysis pooled more than 1600 patients from 49 retrospective studies, most of them being noncomparative. Seventy-one percent of patients had undergone colorectal resection, 10% had undergone full-thickness disc excision and 17% were treated with superficial surgery.[30] Overall, the proven endometriosis recurrence rate appeared to be significantly lower in the resection-anastomosis group (2.5%; 20/812) when compared to the conservative group (5.7%; 49/865). However, the results are not as precise as they appear to be: the rate of patients lost to follow-up reached as high as 4-fold greater than that of the recurrence reported (respectively, 10% and 20% on average). The authors emphasized that the recurrence rate of endometriosis was reported in only 43% (21/49) of the included studies, while the cumulative recurrence rate was reported in only 1 study, 1 and 4 years after the surgery.[31] The majority of studies reported a

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