

Endometriosis is not only a gynecologic disease

J. Squifflet, J. Donnez

Department of Gynecology, Université Catholique de Louvain, Brussels, Belgium.

Abstract

The efficacy of medical and surgical treatment of endometriosis and pelvic pain is a source of questions and controversies.

Complete resolution of endometriosis is not yet possible but therapy has essentially three main objectives : 1) to reduce pain ; 2) to increase the possibility of pregnancy ; 3) to delay recurrence for as long as possible.

In case of moderate and severe endometriosis, operative laparoscopy must be considered as first line treatment. The mean pregnancy rate of 50% reported in the literature following surgery provides scientific proof that operative treatment should first be undertaken to give our patients the best chance of conceiving naturally.

In case of rectovaginal adenomyotic nodules, surgery must also be considered as first line therapy, medical therapy being relatively inefficient.

Careful preoperative examination is mandatory (transrectal sonography, magnetic resonance imaging, bowel barium enema or intravenous pyelography) to evaluate potentially severe complications of the disease. (*Acta gastroenterol. belg.*, 2004, 67, 272-277).

Key words : endometriosis, diagnosis, magnetic resonance imaging, transrectal sonography, bowel barium enema, conservative treatment.

Introduction

Endometriosis is defined as the presence of endometrial glands and stroma outside the uterus.

Pelvic endometriosis can be categorized into three different forms : peritoneal endometriosis, ovarian endometriosis and endometriosis of the rectovaginal septum (1).

Endometriosis can, however, also be encountered in any of the organs located in the abdominal or pleural cavity and in the retroperitoneum.

Peritoneal and ovarian lesions are more sensitive to hormonal status. Patients with these types of lesions will experience infertility and cyclic pain (dysmenorrhea, dyschezia) more frequently.

Therefore, increased chronic pelvic pain during menstruation could suggest the presence of endometriotic lesions. Induction of amenorrhea by continuous progestogen or GnRH agonist treatment reduces symptoms but does not treat the pathology. Deep endometriotic (adenomyotic) lesions in the Douglas pouch are less sensitive to cyclic menstruation, and are associated with deep dyspareunia (81% of cases), dysmenorrhea (98% of cases) and dyschezia (37 % of cases).

Materials and methods

Peritoneal endometriosis

Several theories relating to the pathogenesis of endometriosis have been proposed since its first detailed description by von Rokitansky in 1860 (2). The most widely accepted theory, the transplantation theory, was proposed in 1927 by Sampson, who observed that endometrial cells regurgitated through the Fallopian tubes during menstruation (3).

Three essential conditions must be met in order to consider retrograde menstruation as the origin of pelvic endometriosis (4). First, endometrial cells must enter the peritoneal cavity through the Fallopian tubes. Second, cells within the menstrual debris must be viable and capable of being transplanted onto pelvic structures. Third, the anatomic distribution of endometriosis in the pelvic cavity must correlate with the principles of transplantation for exfoliated cells.

These lesions appear as red flame-like, black or white superficial peritoneal lesions.

Peritoneal endometriosis cannot be excluded by any examination or imaging. In case of symptoms increasing under medical therapy, or inability to conceive, a laparoscopic procedure should be proposed.

Ovarian endometriosis

The cyst has a typical appearance in this pathology due to the accumulation of secretions, desquamation and transudation of the eutopic endometrium in the ovary, producing a dark fluid and so-called chocolate cysts.

The cyst wall consists of ectopic endometrium with its stroma.

Echography under ovarioscopy is the best procedure for the evaluation of such a cyst, which looks like a hypoechoic structure with a thickened cyst wall producing a few dense homogeneous echoes.

A functional ovarian cyst could mimic the image of an endometrial cyst. Ovarioscopy or repeat echographies need to be proposed before any surgical procedure ensues.

The CA-125 level could also be slightly increased.

Correspondence and reprints to : Prof. J. Donnez, Department of Gynecology, Catholic University of Louvain, Cliniques Universitaires St-Luc, avenue Hippocrate 10, 1200 Brussels, Belgium. E-mail : donnez@gyne.ucl.ac.be.

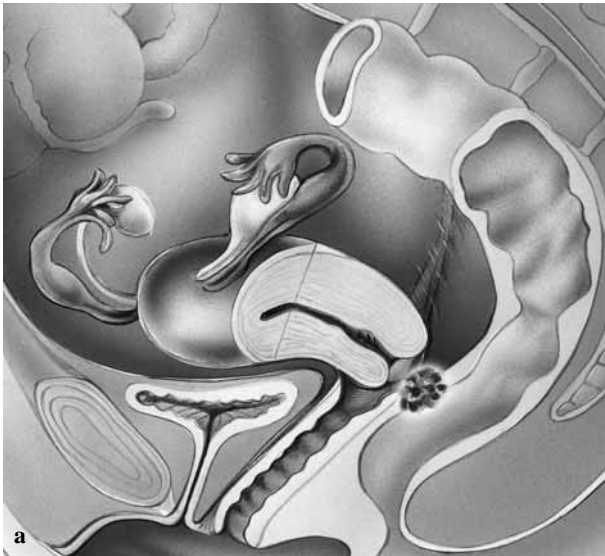


Fig. 1. — 1a) Deep endometriosis or retroperitoneal adenomyotic disease ; 1b) Vaginal examination : Pozzi forceps are placed on the cervix ; note the retraction and the posterior bluish lesion.



Laparoscopic removal or vaporization of the cyst wall with the CO₂ laser is the best treatment.

Deep endometriosis or retroperitoneal adenomyotic disease (Fig. 1a) :

Histology of these lesions shows an association of glandular epithelium (endometrium), endometrial stroma and smooth muscle hyperplasia constituting the greatest part of the lesion.

We have suggested considering the retroperitoneal space as the origin of adenomyotic disease, thereby banishing the concept of deep-infiltrating endometriosis. Our hypothesis is that these lesions result from metaplasia of Müllerian rests.

These lesions are retroperitoneal and may extend laterally or to the anterior rectal wall, provoking perivisceritis.

This perivisceritis phenomenon, visible at radiography, is not a rectal endometriotic lesion or invasion of the rectal wall by the endometriotic process, as has been suggested by many investigators. In our opinion, it is only the consequence of serosal retraction caused by the inflammatory process or fibrosis of the anterior wall of the rectum due to an adenomyotic lesion (5).

Smooth muscle proliferation and fibrosis, consistently observed, are responsible for the nodular aspect of endometriosis located in the rectovaginal septum. The clinical diagnosis is made only when smooth muscle proliferation is sufficient to be felt by vaginal examination.

How can it be diagnosed ?

The first step in the diagnosis of this pathology is the clinical examination, performed after obtaining a very

thorough medical history. Its principal features are pelvic pain and infertility. Unfortunately, most women with adenomyotic lesions suffer for a long time before seeking treatment. Adenomyotic nodules of the rectovaginal septum can involve the uterosacral ligaments, posterior vaginal wall, posterior fornix and, sometimes, extension to the anterior rectal wall or the distal part of the ureter.

In case of severe lesions, the pouch of Douglas may be completely or partially obliterated. Symptoms in this case are generally pelvic pain, deep dyspareunia depending on the position adopted during sexual intercourse and dyschezia. At least 50% of patients have a past history of one episode of pelvic surgery without the correct diagnosis.

A clinical examination is carried out to locate, with the help of a speculum, bluish lesions behind the cervix (Fig. 1b). The fingers constitute one of the most important diagnostic tools, allowing bi-manual vaginal examination with careful inspection of the posterior part of the cervix and posterior wall of the vagina.

The size of the lesions must be evaluated, as well as their location (medial or lateral to the uterosacral ligament) because lateral localization of the pathology could indicate possible extension to the ureter. The aim of additional procedures is to confirm the diagnosis of adenomyotic nodules and other entities, e.g. endometriotic cysts, adenomyotic lesions of the uterus or adenomyotic lesions of the bladder. Laparoscopic exploration may sometimes underestimate the presence and extension of the adenomyotic nodule if the correct diagnosis is not made by prior palpation. Preoperative imaging is therefore needed to establish the correct diagnosis and extension of the adenomyotic nodule of the rectovaginal space (6).

Bowel barium enema : a double contrast bowel barium enema in a profile view of the rectosigmoid junction may be able to detect a mass effect or perivisceritis of the anterior wall of the rectum in case of adenomyotic lesions (Fig. 2a). In our series, very careful examination of this profile view in good conditions was able to detect a mass effect in 54% of cases (7). A decrease in inflation of the rectal ampulla is the first indirect sign of adenomyotic lesions. In case of more extensive lesions, an irregular aspect of the anterior wall could reflect perivisceritis extended to the anterior wall. The contrast barium

enema may also identify upper bowel lesions as true endometriotic lesions of the sigmoid wall, which are not considered as adenomyotic lesions and require different treatment (Fig. 2b).

Transrectal ultrasonography

In our department, transrectal ultrasonography was performed using a Corevision Pro (Toshiba®, Japan, Endocavitary Transducer PVL-715RT, linear and convey transducer head) ultrasound scanner with a biplane two-dimensional longitudinal axial and sagittal circumferential 7 MHz probe. A water-filled balloon was placed over the tip of the probe to obtain contrast to evaluate infiltration of the rectal wall. The transducer was inserted into the rectum and advanced until the midline image of the cervix was visualized, using the longitudinal view.

Typical adenomyotic lesions look like pure hypoechoic cystic lesions surrounded by irregular, less hypoechoic structures ; these small focal well circumscribed lesions correspond to dilatation of the endometriotic glands surrounded by smooth muscle hyperplasia. Sometimes, these lesions produce a mass effect. All these retroperitoneal lesions were found to be located either attached to the cervix, in the rectovaginal septum or extending to the anterior wall of the rectum (Fig. 3).

In case of lateral extension and to evaluate the possibility of true ureteral lesions, Doppler ultrasound of the bladder was performed to prove normal bilateral ureteral flow.

Magnetic resonance imaging : MRI can diagnose endometriotic lesions as hypointense areas surrounding hyperintense spots in the myometrium in T2-weighted spin echo images, and some hyperintense spots after

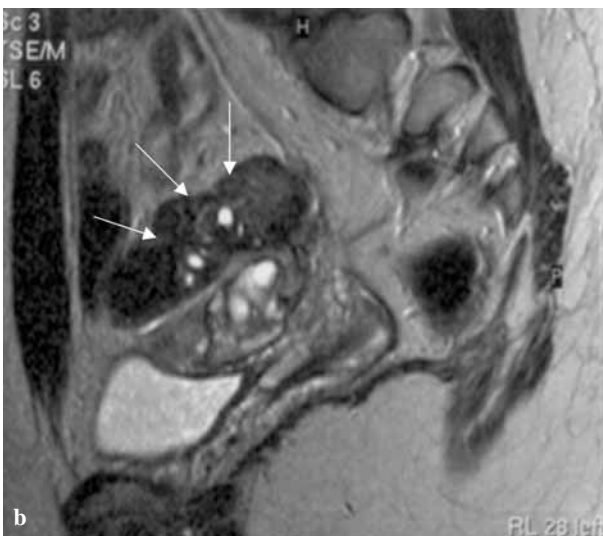
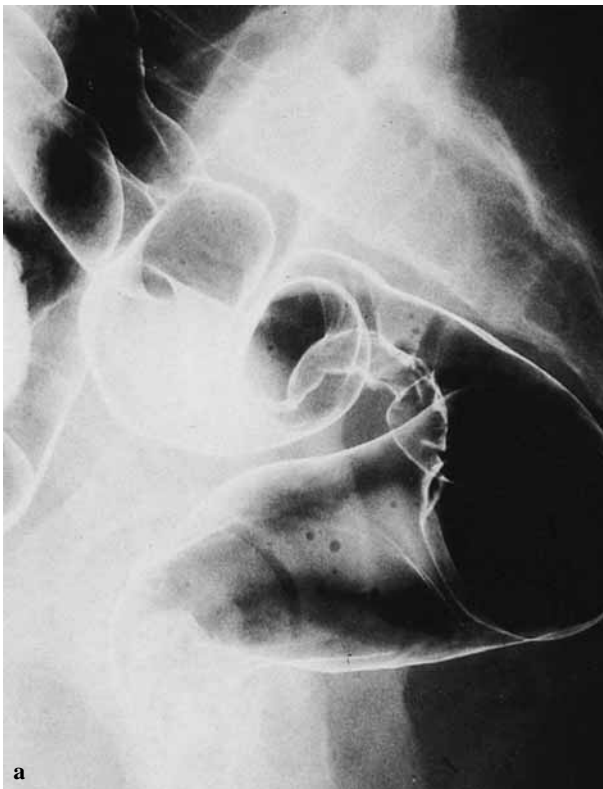


Fig. 2. — 2a) Bowel barium enema : profile view
2b) MRI of sigmoid endometriosis

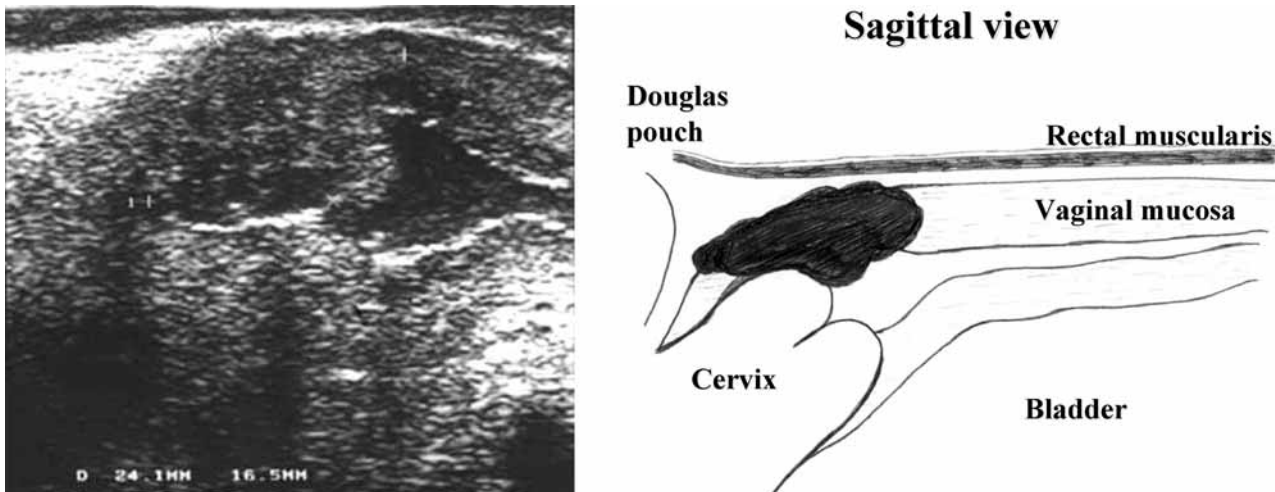


Fig. 3. — Transrectal sonography : sagittal view. Adenomyotic nodule between the rectum and the cervix without muscularis involvement.

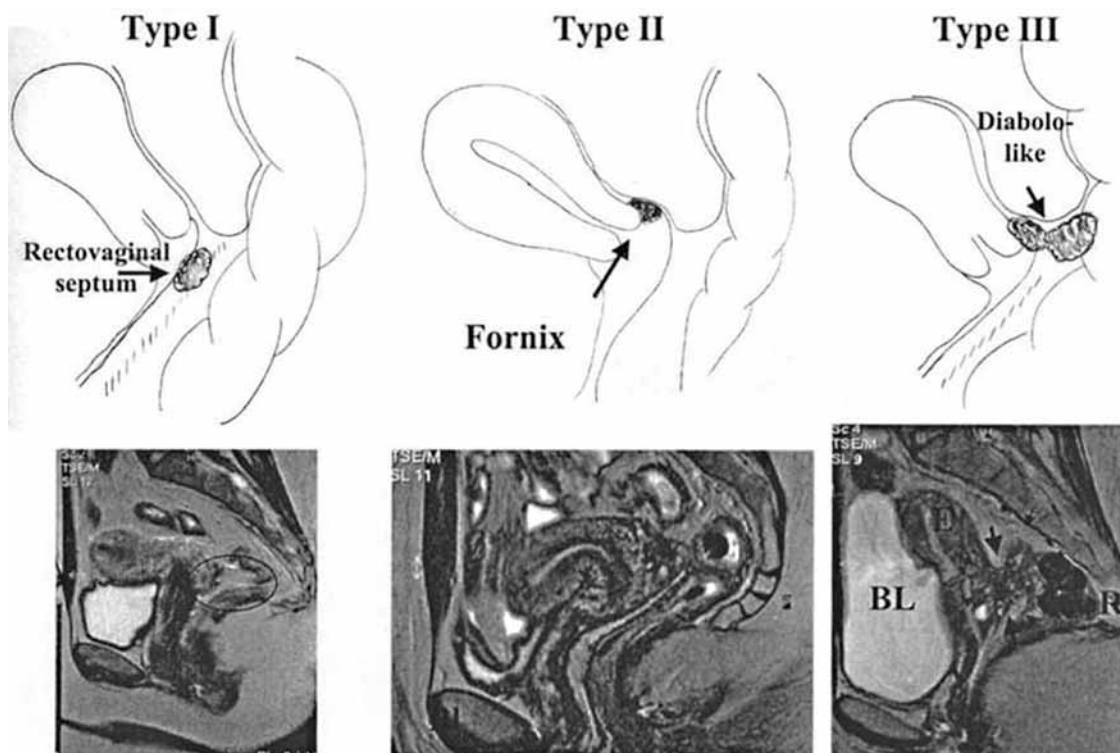


Fig. 4. — Classification of adenomyotic nodules according to MRI

intravenous injection of gadolenium agent in T1-weighted spin echo images. In addition, bladder and rectovaginal adenomyosis may be detected by MRI (8) (Fig. 4).

Intravenous pyelography : In case of rectovaginal adenomyotic nodules developing laterally and/or their size exceeding 3cm, patients should systematically undergo preoperative intravenous pyelography. IVP is abnormal in more than 10% of these cases. It can detect small abnormalities of the ureter, like medialization,

substenosis, and lack of distension after decompression, and may reveal the beginning of compression of the ureter by lateral extension of the nodule.

Classification : the key to the pathogenesis

Koninckx proposed a classification divided into three types : T1, T2 and T3 (9) with T3 suggested to be adenomyosis. Adamyan's classification attempted to describe the lesions anatomically (10). More recently,

Vercellini *et al.* (11) proposed that intraperitoneal endometriosis could explain the obliteration of the rectovaginal pouch and the subsequent infiltration of the rectovaginal septum by the lesions. That is why the term "deep-infiltrating disease" is sometimes used to describe these lesions. This latter hypothesis, however, has neither anatomical nor histopathological support.

According to our theory, adenomyosis originates in the retrocervical area and involves the retroperitoneal space. We have therefore proposed a classification which takes into account the location of the retroperitoneal lesion, as precisely defined by transultrasonography and MRI (7).

Rectovaginal septum

These lesions are situated within the rectovaginal septum between the posterior wall of the vaginal mucosa and the anterior wall of the rectal muscularis.

Posterior vaginal fornix

These lesions develop from the posterior fornix towards the rectovaginal septum. The posterior fornix is retrocervical and corresponds, in its attachment to the vaginal mucosa, to the posterior face of the posterior lip of the cervix.

Hourglass-shaped or diablo-like

These lesions occur when posterior fornix lesions extend cranially to the anterior rectal wall. The part of the adenomyotic lesion situated in the anterior rectal wall is the same size as the part of the lesion situated near the posterior fornix. A small but well observed continuum exists between these two parts of the lesion. That is why we have termed these lesions diablo-like or "hourglass"-shaped. As noted before, these lesions always occur under the peritoneal fold of the rectouterine pouch of Douglas. Hourglass-type lesions were also found to be large, their average size estimated to be 3 cm by clinical examination. The barium enema showed signs of perivisceritis in nearly all cases.

The most frequent type, in our experience, are posterior vaginal fornix lesions in 65% of cases (extension to the rectovaginal septum due to their size in 25% of all cases). Next, come hourglass-shaped or diablo-like lesions in 25% of cases. The most infrequent type are rectovaginal septum lesions in 10% of cases.

Infiltration of the rectal muscularis by the adenomyotic disease is observed on the anterior rectal wall. These lesions are never circumferential. Rectal stenosis was never observed at that level. The rate of muscularis infiltration increases with the size and type of nodule (barium enema showed perivisceritis in 78% of cases where clinical examination estimated the size of the lesion to be more than 3cm (personal data)).

Involvement of the rectal mucosa is very rare, which could explain why colonoscopy reveals an intact mucosa in nearly all cases.

True endometriosis of the sigmoid, bowel and mesocolon

This type of disease is less frequent (< 1%) and usually goes undiagnosed during laparoscopy if preoperative evaluation did not identify it.

Sigmoid endometriotic lesions seem to be more sensitive to hormonal stimulation, and a risk of sigmoid substenosis or stenosis exists.

Surgical treatment

Most women who suffer from retroperitoneal disease are young and wish to become pregnant in the future. It is important to propose a laparoscopic procedure that is as conservative as possible in terms of fertility. It may even be necessary to propose more than one procedure.

Even if the anterior rectal muscularis is involved, indications for rectal or bowel resection are uncommon (less than 2%) in our experience.

Bowel resection should be discussed only when true endometriosis of the sigmoid, involvement of the rectal mucosa, or recurrence of the symptoms after conservative treatment are observed.

Discussion

Endometriosis is a relatively new and not widely known disease, comprising different types that require different treatment approaches. The incidence of this disease increases with time. Careful evaluation of women suffering from infertility, pelvic pain, dysmenorrhea, deep dyspareunia and/or dyschezia must be carried out, the clinical examination being the most important.

Transvaginal echography, transrectal echography/bowel barium enema, MRI and IVP are useful in the diagnosis and evaluation of the severity of the endometriotic disease.

Conservative endoscopic surgical treatment is possible in most cases. In case of severe disease, a multidisciplinary approach is mandatory to propose the best treatment for these young patients.

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