

Diagnosis and Treatment of Deep Infiltrating Endometriosis with Bowel Involvement: A Case Report

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SUMMARY

Introduction Deep infiltrating endometriosis is a form of endometriosis penetrating deeply under the peritoneal surface causing pain and infertility. Assessment of the pelvis by laparoscopy and histological confirmation of the disease is considered the golden standard of diagnosis.

Case Outline We are presenting a patient diagnosed with deep infiltrating endometriosis by transvaginal ultrasound and treated with minimally invasive radical surgery including segmental resection of the bowel.

Conclusion Transvaginal sonography has an important role in detecting deep endometriosis of the pelvis. Fertility sparing surgery is the treatment of choice in symptomatic women wishing to retain fertility, since drugs used for endometriosis interfere with ovulation. The success of the surgery depends on the accuracy of the preoperative diagnosis. A multidisciplinary approach in managing deep endometriosis is mandatory in order to offer patients the best possible treatment using the combined skills of the colorectal and gynaecologic surgical teams. The presented case exhibits the feasibility of laparoscopic approach to severe pelvic endometriosis with bowel involvement.

Keywords: deep endometriosis; diagnosis; treatment; surgery; laparoscopy

INTRODUCTION

Endometriosis is defined by the presence of ectopic endometrial tissue consisting of glands and/or stroma outside the uterine cavity [1]. It is a chronic disease occurring in 10% to 15% of women of reproductive age [2, 3]. The most common sites of endometriosis are the ovaries and the pelvic peritoneum, and finally deep infiltrating lesions. Deep endometriosis may involve uterosacral ligaments, pouch of Douglas, rectovaginal septum, pelvic sidewall, ovarian fossa, the intestinal and the urinary systems. It is defined as an endometriotic lesion penetrating into the retroperitoneal space or the wall of pelvic organs to a depth of at least 5 mm [3]. Bowel endometriosis is one of the most severe forms, occurring in 5.3% to 12% of women with endometriosis [4]. It is most commonly located in the rectosigmoid junction, rectum, sigmoid colon and terminal ileum.

Although specific symptoms may lead to the final diagnosis, the stage of the disease does not necessarily correlate with the severity of these symptoms [5]. The main symptoms are pain (non-cyclic chronic pelvic pain, dysmenorrhoea, dyspareunia, painful defecation, cyclic pain) and infertility. These symptoms can affect general physical, mental and social well-being, impairing the quality of life in women with endometriosis.

It is generally accepted that the diagnosis of endometriosis requires laparoscopy, although

the visual inspection of the pelvis has major limitations, particularly for the diagnosis of retroperitoneal lesions in cases of an occluded pouch of Douglas [2]. The diagnosis of deep endometriosis begins with an evaluation of the patient's medical history and an extensive clinical examination. Clinical assessment alone is difficult, and imaging proves useful to determine the location and the extent of the disease. Various imaging techniques are used for the diagnosis of deep endometriosis, such as transvaginal sonography, transrectal sonography, endoscopic transrectal ultrasonography, magnetic resonance imaging, multislice computed tomography, colonoscopy, and barium enema [6, 7]. There are evidences strongly suggesting that the use of transvaginal sonography has an important role in detecting deep endometriosis of the pelvis, not only involving the ovaries but also structures, such as the vagina, the rectovaginal space, the uterosacral ligaments, the bladder and the rectal wall [3, 7, 8]. However, in most cases, the only way for a definite diagnosis is diagnostic laparoscopy.

Medical treatment for symptomatic endometriosis is indicated only in women who do not wish to have children in the short term, as available therapies generally inhibit ovulation. Current drug therapies tend to be effective only during administration and high recurrence rates occur after discontinuation of treatment [9, 10, 11]. Patients with bowel endome-

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triosis may not respond to conservative treatment [10]. As a consequence, women with severe symptoms resistant to medical therapy should be considered for surgery. Surgery is important for the verification of the diagnosis and offers the possibility to correct the distortion of the pelvic anatomy caused by endometriosis in an attempt to improve fecundity. The efficacy of surgical therapy may also depend on the accuracy of the preoperative diagnosis, as well as on the extent of the resection volume [6]. Since the first description of laparoscopic colorectal resection by Redwine and Sharp in 1991, the feasibility of this procedure has been confirmed by several teams [12]. However, colorectal resection still remains a matter of debate [4].

CASE REPORT

A 38-year-old woman was admitted at the Department of Obstetrics and Gynaecology in the Villach General Hospital for the operative treatment of endometriosis previously diagnosed by exploratory laparoscopy. The patient's family history was unremarkable. She was diagnosed with multiple sclerosis two years before and treated with interferon, which was discontinued due to scheduled operation. Her first period was at the age of 12 years, and the cycles were regular 28 days, lasting for 8 days with dysmenorrhoea and hypermenorrhoea.

The main symptom patient complained about was primary dysmenorrhoea, which worsened over the previous five years, with cramping abdominal pain. Over a period of four-years, the patient did not become pregnant. She was treated with oral contraceptive pills, with a consecutive reduction of dysmenorrhoea. Other symptoms included dyspareunia, abdominal pain during defecation, and, sometimes, painful bowel activity. Due to suspicion of endometriosis, she underwent diagnostic laparoscopy five months before. Afterwards, radical surgery was advised to the patient as treatment both for endometriosis and infertility. In the preoperative course she was given progesterone-only pill (POP) by her physician.

On admission, clinical exam, transvaginal ultrasound and laboratory tests were performed. On the gynaecological exam, the left sacrouterine ligament was palpable, painful and seemed fibrotic. The rectal exam revealed a palpable painful nodule in the bowel. Transvaginal sonography revealed an 18.3×7.5 millimetre nodule in the rectum, expressing sonographical characteristics of a typical endometriosis lesion (Figure 1). Her laboratory results and intravenous pyelography were unremarkable. Following all the procedures performed, the patient was diagnosed with deep infiltrating endometriosis and primary infertility. Preoperatively, the extent of the surgery was discussed with the patient in detail, particularly regarding physical and psychological strain and the risks of the operation. Informed consent was obtained for all the procedures planned.

A laparoscopic approach was undertaken, with a combined team of a gynaecologist and colorectal surgeon. The 10 mm videolaparoscope was inserted through the umbilicus, and two 5 mm troacars were introduced in



Figure 1. Transvaginal ultrasound image showing a hypoechoic nodule infiltrating the muscularis propria layer of the rectum



Figure 2. Genital organs prior to dissection: multiple adhesions between the left adnexa, uterus and pouch of Douglas

the left and right iliac fossa. The fourth 12 mm trocar was inserted in the median suprapubic area. The inspection revealed brownish peritoneal lesions above the right musculus psoas, corresponding to peritoneal endometriosis. The uterus was normal sized with massive adhesions between the pouch of Douglas and the left adnexa which were adherent to the sigmoid colon (Figure 2). On the left, the sacrouterine ligament and pelvic wall were not visible, and on the right, the sacrouterine ligament and ovary appeared normal with minor endometriotic peritoneal lesions in the right ovarian fossa.

Dissection of all the adhesions was performed together with ureterolysis, and separation of the sigmoid colon and left ovary from the posterior uterine wall. Following this step, the left sacrouterine ligament was dissected and coagulated. This was followed by opening of the rectovaginal septum giving sight to an endometriotic nodule infiltrating the rectal wall. The pararectal spaces were dissected on both sides and the rectum was mobilised with the EnSeal® device. Having fully mobilized the rectum to the sigmoidal junction, the CO₂ laser was inserted and endometriotic lesions above the right psoas muscle and on the left ovary were vaporized.

The lower rectum was dissected caudal to the pathologic finding using the EndoGia® device. The right iliacal trocar was withdrawn, and the puncture was expanded



Figure 3. Resected bowel specimen with endometriotic nodule



Figure 4. Completed surgery with conservation of the ovaries, tubes and uterus

to a mini-laparotomy (5 cm). The bowel stump, including the endometriosis, was pulled out. The mesosigmoid was dissected and the circular stapler was inserted in the bowel and fixed by a purse-string suture. The colon was placed back into the abdominal cavity before closure of the minilaparotomy, and the right trocar was put back. The upper part of the circular stapler was connected with the lower part of the device inserted transrectally, thus forming colorectal anastomosis. The length of the resected bowel was 12 cm (Figure 3).

Radical surgery was performed. All the lesions exhibiting the macroscopic signs of endometriosis from the pelvic sidewall, rectovaginal septum and bowel were resected (Figure 4). Her postoperative recovery was uneventful. Endometriosis of the bowel was confirmed by histology.

DISCUSSION

The diagnosis and extension evaluation of deep infiltrating endometriosis is difficult. Bearing in mind that endometriosis can be found in up to 71% of patients with pelvic pain could facilitate early diagnosis due to an increase of awareness for the disease [10]. Early diagnosis could make surgery less extensive. Correct diagnosis and function preserving surgery will largely determine the

reproductive future of these patients. Laparoscopy is the golden standard for the diagnosis of endometriosis, which is made by the histological identification of endometrial-like tissue outside the uterus [2]. Evaluation by physical examination alone might be insufficient, although vaginal examination may be successful in detecting painful nodules in the pouch of Douglas or along the uterosacral ligaments [5, 6, 7]. Imaging has become an important tool for the diagnosis, particularly to evaluate the location and the extent of the disease. Most of imaging techniques are time-consuming and expensive, sometimes necessitating preparation, thus being unsuitable for patients' primary assessment. These issues have been overcome by the use of transvaginal sonography, which should be used as the initial imaging modality due to immediate availability and easy access.

Various sonographic approaches as transvaginal, transectal, and endoscopic transectal have been used for the diagnosis. Transvaginal sonography permits extensive exploration of the pelvis and is well tolerated by the patient [7]. The main advantage of transvaginal sonography is the exploration of the whole pelvic cavity, including the bladder, the uterus and its ligaments, the pouch of Douglas, the ovaries, the rectovaginal septum and the colorectum, during the same examination. Being the most commonly used technique in cases of pelvic pain, it is important for the early diagnosis of deep infiltrating endometriosis. The technique of transvaginal sonography used to detect endometriotic lesions has been described in the literature [3, 7]. However, it may fail to identify deep pelvic endometriosis located in the upper sigmoid, due to the distance from the probe or to the presence of faecal material. Nevertheless, Bazot et al. found that transvaginal sonography has a high accuracy in the diagnosis of intestinal endometriosis (93.7%) demonstrating that it has an adequate view of the rectal wall, particularly of the rectosigmoid junction [13]. Hudelist et al. [8] also used transvaginal sonography for early diagnosis of deep infiltrating and reported sensitivity and specificity rates of 98% and 99% respectively for the diagnosis of involvement of the muscularis propria by deep endometriosis.

Medical treatment of endometriosis relieves pelvic pain in some cases, but has no beneficial effect on fertility. Failure to provide adequate long-term pain relief and adverse effects of currently available medical therapies are an indication for surgical treatment of endometriosis. Because both approaches have advantages and disadvantages, the two positions co-exist and the debate continues. Management of deep infiltrating endometriosis has evolved from indiscriminate and often ineffective hysterectomy and oophorectomy to radical excision of all fibrotic endometriosis with disease free margins. This evolution has been greatly enhanced by the improved visualization of the rectovaginal space through laparoscopy and increasing surgical expertise, enabling radical resection of the disease. The goal of surgical treatment is to achieve a complete resection of all lesions during a one-step surgical procedure. It can be carried out by open, laparoscopic and combined approach. The advantages of laparoscopic access

include a better approach to the depth of the true pelvis, the magnification of the abdominal structures, minimal blood loss, and shorter post-operative recovery associated with the laparoscopic surgical technique [11].

The reluctance to apply laparoscopy in such cases can be attributed mainly to the long learning curve for these procedures and to the fear that the incidence of intra-operative and postoperative complications will increase as compared to the well-standardized open operations. The rates of major intra- and postoperative complications vary widely, ranging from 0% to 13% [14]. They include bowel fistula, laparoconversion, haemorrhage, rectovaginal fistula, anastomotic fistula, rectal fistula, bowel perforation, urethral fistula, vesical, vesicovaginal fistula, transient urinary retention, bladder, rectal and ureteral injury, bleeding, infection, anastomotic leak, infection, antibiotic-associated diarrhoea, haemoperitoneum, anastomotic leakage (fistula), ureteral fistula, uroperitoneum, bowel perforation, pelvic abscess, need for temporary loop ileostomy, post-operative bowel or ureteral anastomotic stenosis, neurogenic bladder dysfunction, constipation and peripheral sensory disturbance [6, 14].

Laparoscopic segmental colorectal resection is well established procedure in the treatment of deep infiltrating endometriosis life [4]. This case shows that a laparoscopic approach to severe pelvic endometriosis with bowel involvement is possible, demonstrating the feasibility of laparoscopic colorectal resection for endometriosis.

Effective management of advanced stages of endometriosis requires a complete excision of all endometriotic tissue without necessitating oophorectomy or hysterectomy as in the presented case. As the majority of patients have an unfulfilled desire for children, it is necessary to act in an organ-sparing and/or organ-reconstructive way, as we did. The goal of surgery is to completely remove the endometrial implants while maintaining as much normal tissue as possible.

There appears to be a correlation between the extent of surgery and the postoperative improvement of complaints [15, 16]. Only partial removal of endometriosis may result in the persistence of the disease, continued growth of the endometrial lesions, and most likely, a relatively rapid recurrence of symptoms [17]. Fedele showed that the risk of clinical recurrence requiring further treatment was significantly higher in women who did not undergo colorectal resection when this organ was involved [18]. By reducing recurrence rates of the disease surgery improves the patient's quality of life in up to 93 % of cases [16]. Among women with bowel endometriosis, the reproductive outcome was better if bowel resection was performed [15].

Deep infiltrating endometriosis is a challenge for laparoscopic pelvic surgeons. This case demonstrates that deep infiltrating endometriosis is a condition necessitating interdisciplinary approach in order to obtain optimal results. This kind of procedure is difficult and requires specific skills in laparoscopic and colorectal surgery. Laparoscopic colorectal resection for endometriosis is a relatively safe procedure in the context of close collaboration between gynaecologists and surgeons, although it requires adequate training. Results after the treatment of deeply infiltrating lesions are strictly operator-dependent [14]. A multidisciplinary approach to manage deep pelvic endometriosis is mandatory in order to offer patients the best possible treatment using the combined skills of the colorectal and gynaecologic surgical teams.

In conclusion, surgery for deep infiltrating endometriosis is effective in terms of reduction of symptoms and increase in pregnancy rates. Treatment of these patients should be performed by experienced and well-trained professionals and should take place in centres specializing in the diagnosis and treatment of endometriosis. Such centres must have necessary expertise to offer all available treatments in a multidisciplinary context following an accurate preoperative examination.

REFERENCES

1. Stefanovic D, Kerkez M, Djordjevic Z, Knezevic S, Markovic Lj, Knezevic Dj, et al. Endometriosis in cesarean section surgical scar. *Acta Chir Iugosl.* 2007; 54:79-81.
2. Ballard K, Lowton K, Wright J. What's the delay? A qualitative study of women's experiences of reaching a diagnosis of endometriosis. *Fertil Steril.* 2006; 86:1296-301.
3. Hudelist G, Oberwinkler KH, Singer CF, Tuttlies F, Rauter G, Ritter O, et al. Combination of transvaginal sonography and clinical examination for preoperative diagnosis of pelvic endometriosis. *Hum Reprod.* 2009; 24:1018-24.
4. Darai E, Ackerman G, Bazot M, Rouzier R, Dubernard G. Laparoscopic segmental colorectal resection for endometriosis: limits and complications. *Surg Endosc.* 2007; 21:572-7.
5. Ballard K, Lane H, Hudelist G, Banerjee S, Wright J. Can specific pain symptoms help in the diagnosis of endometriosis? A short study of women with chronic pelvic pain. *Fertil Steril.* 2010; 94:20-7.
6. Goncalves MO, Podgaec S, Dias JA Jr, Gonzales M, Abrao MS. Transvaginal ultrasonography with bowel preparation is able to predict the number of lesions and rectosigmoid layers affected in cases of deep endometriosis, defining surgical strategy. *Hum Reprod.* 2010; 25:665-71.
7. Bazot M, Malzy P, Cortez A, Roseau G, Amouyals P, Darai E. Accuracy of transvaginal sonography and rectal endoscopic sonography in the diagnosis of deep infiltrating endometriosis. *Ultrasound Obstet Gynecol.* 2007; 30:994-1001.
8. Hudelist G, Tuttlies F, Rauter G, Pucher S, Keckstein J. Can transvaginal sonography predict infiltration depth in patients with deep infiltrating endometriosis of the rectum? *Hum Reprod.* 2009; 24:1012-7.
9. Chapron V, Fauconnier A, Vieira M, Barakat H, Dousset B, Pansini V, et al. Anatomical distribution of deeply infiltrating endometriosis: surgical implications and proposition for a classification. *Hum Reprod.* 2003; 18:157-61.
10. Fleisch MC, Xafis D, De Bruyne F, Hucke J, Bender HG, Dall P. Radical resection of invasive endometriosis with bowel or bladder involvement – long-term results. *Eur J Obstet Gynecol.* 2005; 123:224-9.
11. Koh CH, Janik GM. The surgical management of deep rectovaginal endometriosis. *Curr Opin Obstet Gynecol.* 2002; 14:357-64.
12. Redwne DB, Sharpe DR. Laparoscopic segmental resection of the sigmoid colon for endometriosis. *J Laparoendosc Surg.* 1991; 1:217-20.
13. Bazot M, Thomassin I, Hourani R, Cortez A, Darai E. Diagnostic accuracy of transvaginal sonography for deep pelvic endometriosis. *Ultrasound Obstet Gynecol.* 2004; 24:180-5.
14. Vercellini P, Crosignani PG, Abbiati A, Somigliana E, Viganò P, Fedele L. The effect of surgery for symptomatic endometriosis: the other side of the story. *Hum Reprod Update.* 2009; 15:177-88.

15. Stepniewska A, Pomini P, Bruni F, Mereu L, Ruffo G, Ceccaroni M, et al. Laparoscopic treatment of bowel endometriosis in infertile women. *Hum Reprod.* 2009; 24:1619-25.
16. Keckstein J, Wiesinger H. Deep endometriosis, including intestinal involvement-the interdisciplinary approach. *Minimally Invasive Therapy.* 2005; 14:160-6.
17. Taylor E, Williams C. Surgical treatment of endometriosis: location and patterns of disease at reoperation. *Fertil Steril.* 2010; 93:57-61.
18. Fedele L, Bianchi S, Zanconato G, Bettoni G, Gotsch F. Long-term follow-up after conservative surgery for rectovaginal endometriosis. *Am J Obstet Gynecol.* 2004; 190:1020-4.

Дијагноза и лечење дубоке инфилтративне ендометриозе са захваћеношћу црева – приказ болесника

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КРАТАК САДРЖАЈ

Увод Дубока инфилтративна ендометриоза је облик ендометриозе која продире дубоко испод површине перитонеума и узрокује бол и неплодност. Лапароскопски преглед мале карлице и хистолошка потврда болести јесу златни стандард у постављању дијагнозе овог обољења.

Приказ болесника Приказујемо жену код које је дијагностикована дубока инфилтративна ендометриоза и која је лечена минимално инвазивним, радикалним хируршким захватом са ресекцијом црева и очувањем фертилности.

Закључак Трансвагинални ултразвук има важну улогу у откривању дубоке инфилтративне ендометриозе мале карлице.

Хируршки захвати с очувањем фертилности су метода избора у лечењу оболелих жена које желе зачеће, јер лекови који се користе у лечењу од ендометриозе утичу на овулацију. Примењује се мултидисциплинарни терапијски приступ, како би се болесницама омогућило најбоље могуће лечење комбинацијом вештина колоректалних и гинеколошких хируршких тимова. Приказани случај показује могућност лапароскопског приступа тешкој ендометриози мале карлице са захваћеношћу црева.

Кључне речи: дубока ендометриоза; дијагноза; лечење; радикална хирургија; лапароскопија

Примљен • Received: 08/09/2010

Прихваћен • Accepted: 15/12/2010