CEOG Clinical and Experimental Obstetrics & Gynecology

Deep infiltrating endometriosis in young women

M. Zu[1], W. Meng[2], Q.Z. Guo[1], Z.Q. Liu[1]

[1] Department of Gynecology and Obstetrics, Section of Clinical Medicine, Affiliated Hospital of Binzhou Medical University, Binzhou
[2] Department of Central Laboratory, Section of Preclinical Medicine, Affiliated Hospital of Binzhou Medical University, Binzhou (China)

Summary

This work aimed to analyze the effect of deep infiltrating endometriosis (DIE) in young women. Twenty-seven cases of patients (below 38-years-old) diagnosed with DIE and admitted to the present hospital from January 2008 to July 2014 were reviewed, and their pre- and postoperative states of illness were summarized. The main preoperative symptoms included dysmenorrhea, chronic pelvic pain, dyspareunia, nodule in rectouterine fossa, and reduced level of fertility. All patients underwent surgery (17 laparoscopies and ten laparotomies). Postoperative pathological explanation confirmed DIE in lesions. DIE significantly affects the health of young women.

Key words: Deep infiltrating endometriosis; Dysmenorrhea; Dyspareunia.

Introduction

Deep infiltrating endometriosis (DIE) refers to a condition in which a functional endometrium grows to the peritoneum, with an infiltrating depth of > five mm. The prevalence rate of DIE is about 2%. About 50% to 70% of women have symptoms in their childbearing age [1]. Researchers have shown that DIE is a serious threat to women's health and quality of life [2]. However, few researchers discussed the impact of DIE in women of all ages. The present paper retrospectively analyzed the clinical data of 27 patients (below 38-years-old) diagnosed with DIE and admitted to the present hospital from January 2008 to July 2013 and investigated the impact of DIE in young women.

Materials and Methods

The clinical data of 27 patients (below 38-years-old) diagnosed with DIE and admitted to the present hospital from January 2008 to July 2014 (including six cases with relatively complete clinical data from other cities) were selected. Medical informed consent was signed by the patients as approved by the ethics committee of this hospital. The age of the patients ranged from 29 to 38 years (34.5 ± 4.3 years on average). One patient aged 33 years was diagnosed with adenomyosis of the uterus four years prior to the present study. Because of severe dysmenorrhea, subtotal hysterectomy was performed as strongly demanded by the patients and their families. The patient was admitted to the hospital one year prior to the present study and was diagnosed with chocolate cysts of bilateral ovary; cystectomy was performed. Goserelin acetate was administered for four months. In another patient aged 31 years, pelvic adhesion was found during laparoscopic surgery, and dark red nodular lesions were found in the diaphragm abdominal cavity surface and in lesser epiploon, right colon area, sigmoid colon, and left flexure of the colon. After surgery, goserelin acetate was administered for six months.

A retrospective analysis was performed as part of the clinical manifestations of all patients before and after the operation, and the impact of the operation on their daily lives was analyzed. Twelve to 36 months of follow-up and clinical conclusion were performed in all patients. This study was approved by the ethics committee of the Affiliated Hospital of Binzhou Medical University. Written informed consent was obtained from the participants, as approved by the Binzhou Medical University. The data was analyzed anonymously.

Results

Fourteen patients suffered from dysmenorrhea with different severities (eight cases were accompanied with sexual pain or discomfort and one case with sexual disorders); five patients felt repeated lower abdominal bulging and discomfort; another two patients had accompanying anal distention, which was heavier during menstrual periods. Gynecological examination (including bimanual examination and vagino-recto-abdominal examination) revealed poor uterus activity of all patients. Fourteen patients suffered from cervical motion tenderness, swing pain, or uterus tenderness. Eleven patients felt uterosacral ligament thickening (among which, two cases felt stiffer uterosacral ligament); in nine patients, uterus–rectum pouch tenderness nodules could be touched.

Two of 14 patients had mild dysmenorrhea; their daily activities were not restricted. Seven patients had moderate dysmenorrhea and could not normally perform their daily activities and required only bed rest. Three of the seven patients habitually took pain medication to ease the pain. Five patients had severe dysmenorrhea and could not normally perform their daily activities, required only bed rest, and took pain medication. Two of the five patients did not obviously experience relief after taking the drug, and one patient experienced relief after doubling the drug dose.

Revised manuscript accepted for publication April 22, 2015

Table 1. — *Comparison between preoperative clinical symptoms and postoperative follow-up symptoms of patients*

Frequency of symptoms occurrence and *p* value	Clinical symptoms				
	Dysmenorrhea	Sexual pain	Spontaneous pregnancy[a]	Tenderness nodules	Urinary symptoms (postoperative complications)
Preoperative (n=27)[b]	14	8	13	9	No preoperative statistics
Postoperative (n=22)[c]	11	6	3 (of 15 patients wanted to give birth)	6	5
p	>0.05	<0.05	>0.05	<0.05	

[a]Thirteen cases of preoperative spontaneous pregnancy refer to the total number of spontaneous pregnancy among 27 patients; three cases of postoperative spontaneous pregnancy refer to three of 15 cases who desired to give birth, and the remaining seven cases who did not desire to give birth. [b]n=27 refers to all collected cases. [c]n=22 refers to five cases lost to follow up.

The sexual activity of eight patients who experienced accompanying sexual pain or discomfort, was reduced. One patient who had sexual disorders did not have sexual activities for five months. Eight patients had pain or discomfort in different degrees, had feelings of guilt with their sexual partners, and had lower quality of sexual activity.

The number of times of gestation for 27 patients was zero to three (1.5 ± 0.4 on average), and the number of times of birth was zero to two (1.1 ± 0.3 on average). Five patients had regular sexual activity after marriage and were not pregnant without contraception for more than two years and were not treated. Three patients were pregnant and gave single live births through in vitro fertilization. One patient was not pregnant after three attempts of in vitro fertilization and one attempt of test-tube baby.

Twenty-two patients visited the obstetrics and gynecology department of several hospitals once or multiple times. Medical and surgical treatment costs varied from 5,000 to 70,000 Yuan (excluding Medicare reimbursement).

All patients received surgical treatment. One patient's operation was stopped. The other patients underwent complete endometriosis resection in the rectouterine pouch, uterosacral ligament, and ovary and/or uterus-bladder peritoneal turning site. Seventeen patients underwent laparoscopic endometriosis resection (nine underwent bilateral or unilateral chocolate ovarian cystectomy at the same time, four underwent uterosacral ligament resection at the same time, and one underwent unilateral oophorectomy; for one patient, adhesion was compact and wide in the abdomen because of previous abdominal surgery and physical scars, and the patient's family refused to convert to laparotomy until operation was suspended). Ten patients underwent abdominal endometriosis resection (three suffered from wide abdominal adhesion and compact adhesion between the uterus and the surrounding tissue, so they elected laparotomy). During the operation, 24 patients suffered from severe adhesion in the pelvis, eight patients suffered from rectouterine excavation with complete adhesion and closure, and 11 patients suffered from rectouterine excavation with partial closure. In nine patients, lesions were located at the rectouterine excavation. In four patients, lesions involved the uterosacral ligament. In one patient, lesions involved the anterior wall of the rectum. In one patient, wide adhesion in the pelvis was found during laparoscopic surgery, and dark red nodular lesions were found on diaphragm abdominal cavity surface and in lesser epiploon, right colon area, sigmoid colon, and left flexure of the colon. After the operation, all patients received conventional anti-infection treatment. Among 27 patients, 15 patients received goserelin acetate treatment (28-day treatment cycle; average of four to six months), 11 patients did not receive assisted drug treatment, and one patient whose operation was stopped was transferred to another hospital to continue treatment (details are unknown).

Pathology reports described lesions in the involved site; thus, the diagnosis was DIE.

Twelve months to 36 months of postoperative follow-up were performed in all patients. Five patients could not be contacted (including two patients from other cities). Among the remaining 22 patients, 11 still had different degrees of pain: eight of them had milder pain than before and three patients did not obviously experience relief ($p > 0.05$). Six patients still had sexual pain or discomfort: five of them experienced relief, and one of five patients did not obviously experience relief ($p < 0.05$). Three to six months after the operation, three patients had spontaneous pregnancy ($p > 0.05$). Six patients suffered from rectouterine excavation nodes again, and four of them received goserelin acetate treatment after the operation. The mean time of node occurrence was 11.5 months. Two patients did not receive drug treatment. The mean time of node occurrence was 5.7 months, with a total mean time of 7.2 months ($p < 0.05$); five patients had urinary symptoms, including frequent urination, urination difficulty, and turbid urine, which occurred 2.5 months, on average, after the operation (Table 1). SPSS version 13.0 software was used. Kruskal–Wallis method was used in the statistical analysis.

Discussion

DIE mainly refers to pelvic rear DIE (PDIE), including uterosacral ligament, rectouterine excavation, and rectovaginal septum, which can violate the rectum or vaginal fornix [3]. PDIE is common in young women (mostly those who desire to give birth). The common characteristics of PDIE patients are obvious clinical symptoms such as dysmenorrhea, chronic pelvic pain, and sexual pain), extensive and adhere lesions, easy to diagnose, and difficult treatment. Some researchers have shown that endometriosis has a malignant biological behavior. DIE is invasive, which can extensively violate the surrounding tissue. The extensive metastasis of DIE may be related to lymph node metastasis [4]. Therefore, patients experiencing pain and infertility should select surgery as treatment. Laparoscopy is regarded as the "gold standard" of diagnosis. Currently, no standard operation exists for DIE. Special operations include the partial removal of intestinal segment+anastomosis and vaginal partial resection. Intraperitoneal endometriosis lesion resection is similar to ovarian cancer surgery, showing a trend at all costs. However, malignant biological behaviors of endometriosis lesions can make it difficult to remove all lesions and may have various complications.

In the present study, the authors selected 27 patients (below 38-years-old) diagnosed with DIE. Dysmenorrhea occurs on a daily basis and work can become restricted. Sexual pain or discomfort reduces sexual activity and may even become a sexual disorder. Some patients attempt to avoid sexual contact for fear of pain and feel guilty with their sexual partners. Consistent with the research results of Fritzer *et al.* [5], because of declined pregnancy and fertility, patients required assisted reproductive techniques, causing also psychological and economic burden to the patients and their families. Preoperative imaging and hematology inspection fees, costs of surgery, and postoperative assisted drug treatment fees may also add to the economic burden. Nevertheless, surgical risks and complications cannot be ignored. Because of the characteristics of DIE, pathological changes, adhesion, anatomical variations, and the requirement to remove all lesions, may cause bleeding and damage in the surrounding organs in DIE resection. The present paper mainly focused on urinary complications, with an incidence of 22.7%. Donnez *et al.*'s [6] study on 497 patients with postoperative complications reported that the incidence of rectal perforation is about 4.0%, delayed bleeding is about 2.0%, and urinary retention is about 4.0%. Chapron *et al.* [7] reported 29 cases who received laparoscopic-assisted transvaginal DIE lesion excision, and one (about 3.5%) suffered from rectovaginal fistula. Abbott *et al.* [8] reported that the incidence of loss of blood of more than 500 ml is about 17.8% in a study of 135 patients, and the incidence of transfusion was about 3.7%. Setala *et al.*'s [9] study on 22 patients reported that the incidence of temporary urinary retention is about 13.6%, postoperative vaginal bleeding is about 9.1%, rectovaginal fistula is about 4.5%, and perforation of the uterus is about 0.74%.

Postoperatively, some patients received drug treatment, including oral contraceptives, highly effective progestational hormone, androgen derivatives, and gonadotropin-releasing hormone agonist. Although drug treatment may ease the symptoms or delay the recurrence, it may have some side effects, including symptoms of the digestive tract, hepatic dysfunction, breakthrough bleeding, distending pain of the breasts, weight gain, and masculine attributes (increased hair, mood changes, and coarse voice). These side effects cause problems in the daily lives of some patients.

Garry [10] reported that surgery can remove endometriosis lesions, with the greatest extent, and significantly eased the patient's pain and improved the quality of life. However, DIE has high recurrence rate, with the highest rate in benign diseases (13% to 34%), and always relapses in the early stage. Studies have shown that few patients desire to undergo second surgery after recurrence. More importantly, many unknown factors affect the treatment of DIE. Operations may cause patients to suffer from one kind of pain instead of another or increase one form of pain into others. Avoiding re-adhesion caused by inflammation or recurrence after surgery is difficult because no better alternative exists for peritoneal or tissue defects resulting from surgeries. The present authors' proposed operation may increase the lifetime of young women with DIE or those bound to be affected by it.

In summary, researchers have shown that operation as a treatment can ease the symptoms of DIE to a certain degree. However, DIE remains highly fatal for young women.

Acknowledgements

The present authors' experiment was performed in the Obstetrics and Gynecology department and central laboratory of Affiliated Hospital of Binzhou Medical University. The data were supported by Information section of Affiliated Hospital of Binzhou Medical University. The pathologic results were provided by the Pathology Department of Affiliated Hospital of Binzhou Medical University.

References

[1] Ballard K.D., Seaman H.E., De Vries C.S., Wright J.T.: "Can symptomatology help in the diagnosis of endometriosis? Findings from a national case–control study—Part 1". BJOG, 2008, *115*, 1382.

[2] Schonman, R., Dotan Z., Weintraub A.Y., Goldenberg M., Seidman D.S., Schiff E., *et al.*: "Long-term follow-up after ureteral reimplantation in patients with severe deep infiltrating endometriosis". *Eur. J Obstet. Gynecol. Reprod. Biol.*, 2013, *171*, 146.

[3] Chapron C., 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.

[4] Keichel S., de Arellano M.L.B., Reichelt U., Riedlinger W.F.J., Schneider A., Köhler C., *et al.*: "Lymphangiogenesis in deep infiltrating endometriosis". *Hum. Reprod.*, 2011, *26*, 2713.
[5] Fritzer N., Haas D., Oppelt P., Renner S., Hornung D., Wölfler M., Hudelist G., et al.: "More than just bad sex: sexual dysfunction and distress in patients with endometriosis. *Eur. J Obstet. Gynecol. Reprod. Biol.*, 2013, *169*, 392.
[6] Donnez J., Nisolle M., Gillerot S., Smets M., Bassil S., Casanas-Roux F.: "Recto vaginal septum adenomyotic nodules: a series of 500 cases". *BJOG*, 1997, *104*, 1014.
[7] Chapron C., Fauconnier A., Dubuisson J. B., Barakat H., Vieira M., Bréart G.: "Deep infiltrating endometriosis: relation between severity of dysmenorrhoea and extent of disease". *Hum. Reprod.*, 2003, *18*, 760.
[8] Abbott J. A., Hawe J., Clayton R. D., Garry R.: "The effects and effectiveness of laparoscopic excision of endometriosis: a prospective study with 2–5 year follow-up". *Hum. Reprod.*, 2003, *18*, 1922.
[9] Setälä M., Härkki P., Matomäki J., Mäkinen J., Kössi J.: "Sexual functioning, quality of life and pelvic pain 12 months after endometriosis surgery including vaginal resection". *Acta Obstet Gynecol Scand.*, 2012, *91*, 692.
[10] Garry R.: "The effectiveness of laparoscopic excision of endometriosis". *Curr. Opin. Obstet. Gynecol.*, 2004, *16*, 299.

Corresponding Author:
Z.Q. LIU, M.D.
Department of Gynecology and Obstetrics
Section of Clinical Medicine
Affiliated Hospital of Binzhou Medical University
Binzhou, Shandong (China)
e-mail: doctorliuzhiqiang@163.com