

EPIDEMIOLOGICAL AND CLINICAL ASPECTS OF PELVIC ENDOMETRIOSIS – A CASE SERIES

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ABSTRACT

OBJECTIVE. To describe clinical and epidemiological aspects of patients with pelvic endometriosis who underwent laparoscopy at our service.

METHODS. Retrospective study of 892 post-laparoscopy patients with histologically confirmed diagnosis of endometriosis.

RESULTS. Mean age was 33.2 ± 6.3 years, and 78.7% of patients were Caucasian. We found that 76.9% of women in the sample had a higher education. Most (56.5%) patients were nulliparous, and 62.2% reported dysmenorrhea as the chief complaint. Chronic pelvic pain was the most prevalent symptom, followed by deep dyspareunia, reported by 56.8% and 54.7% of patients respectively. Infertility was reported by 39.8% of the 892 patients in the sample.

CONCLUSION. Endometriosis is most often diagnosed in the fourth decade of life. Patients with this condition present with multiple complaints, and must always undergo thorough questioning to properly guide diagnosis and monitor treatment results.

KEY WORDS: Endometriosis. Epidemiology. Dyspareunia. Pelvic pain.

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INTRODUCTION

Endometriosis is a common gynecologic condition that affects 5% to 15% of reproductive-age women and up to 3%-5% of postmenopausal women.¹ The number of women with endometriosis is estimated at 7 million in the United States and over 70 million worldwide² and, in industrialized nations, it is one of the foremost gynecologic causes of hospital admission.³

Endometriosis is defined as the implantation of endometrial stroma and/or glandular epithelium at extrauterine sites,⁴ and may involve several structures, including the ovaries, peritoneum, uterosacral ligaments, retrocervical area, rectovaginal septum, rectum, sigmoid colon, terminal ileum, vermiform appendix, bladder, and ureters.^{2,3,5,6,7} Although some patients are asymptomatic, most have clinical manifestations of varying intensity. The main symptoms of endometriosis are dysmenorrhea, chronic pelvic pain, infertility, deep dyspareunia, cyclic intestinal and urinary symptoms (such as pain or bleeding on defecation/urination during the menstrual period). Delays in diagnosis may be explained by the nonspecific nature of symptoms and, in some cases, by impaired access to specialized diagnostic modalities.^{2,5,8-12} Although some patients are asymptomatic, most have clinical manifestations of varying intensity.

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Some aspects of endometriosis are still the subject of research. Investigations have placed particular emphasis on the etiology and pathogenesis of the condition, as an understanding of the causal mechanisms behind formation of endometriotic lesions would help direct efforts towards improved diagnosis and management.^{18,19} For nearly one hundred years, two main etiological hypotheses have sought to explain the pathogenesis of endometriosis:

- the coelomic metaplasia theory, which hypothesizes that mesothelial tissue can undergo transformation into endometrial tissue;²⁰

the retrograde menstruation theory, which posits that retrograde flow of menstrual blood into the abdominal cavity through

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the Fallopian tubes deposits endometrial cells in extrauterine locations;²¹ implantation would be due to the influence of a favorable hormonal environment and to the failure of immune mechanisms to eliminate these cells from extraneous sites.^{22,23}

Furthermore, in recent years, the influence of immunological factors in the pathogenesis of endometriosis has been the subject of extensive research, and many abnormalities have been found; the main immunological mechanism investigated thus far is complementary to the theory of retrograde menstruation. For some as yet unclear reason, endometrial cells entering the endometrial cavity would fail to be eliminated; their permanence would allow migration and implantation, with subsequent development of endometriosis.²⁴

Thus far, few robust studies have attempted to characterize patients with endometriosis. Studies have shown that 2% to 18% of asymptomatic women undergoing tubal ligation are found to meet diagnostic criteria for endometriosis.²⁵ However, much can be learned from characterization of endometriosis patients, as family history, personal history, habits, and lifestyle are all likely to influence disease development. The present study therefore sought to describe the epidemiological and clinical aspects of endometriosis that may help draw an outline of patients with this condition.

METHODS

This case series assessed epidemiological and clinical data from 892 consecutive patients that underwent laparoscopy with histological confirmation of endometriosis at the Endometriosis clinic of the Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo Department of Gynecology between July 1999 and December 2009. The study was approved by the local Research Ethics Committee.

All patients who underwent laparoscopy and received a histologically confirmed diagnosis of endometriosis were enrolled in the series.

Women with chief complaints suggesting endometriosis were assessed by complete history and physical examination. Clinical assessment was supported by complementary imaging tests (transvaginal ultrasound and/or magnetic resonance imaging) as appropriate for suspected endometriomas (chocolate cysts) or deep infiltrating endometriosis. When history and imaging data suggested either type of endometriosis, or when clinical complaints suggested peritoneal endometriosis but imaging modalities failed to confirm the diagnosis, laparoscopy was indicated. Intraoperative biopsy was performed to allow histological confirmation of the clinical diagnosis.

All patients filled out a preoperative questionnaire on demographic data, clinical presentation, chief complaint, prior treatment (when applicable), and personal, obstetric, and family history. The present study focused specifically on objective symptoms, such as dysmenorrhea, chronic pelvic pain, deep dyspareunia, infertility, and cyclical bowel and urinary complaints. Pain was classified into four subtypes: mild, moderate, severe, or incapacitating. Mild pain was defined as that not requiring analgesics for management. Moderate pain was that adequately controlled by home use of over-the-counter analgesics, whereas severe pain required parenteral administration of analgesics

in a hospital setting. Incapacitating pain was defined as any pain preventing patients from carrying out their usual activities. Only "severe" and "incapacitating" symptoms were included for statistical analysis purposes. Infertility was defined as couple not being able to conceive after one year of regular, contraceptive-free intercourse. Cyclical intestinal or urinary symptoms were defined as bowel and/or urinary pain and/or bleeding coinciding with menstrual periods.

Data were stored and tabulated with intraoperative and postoperative findings in a Microsoft Office Access® 2004 for Windows database. Statistical analysis was performed with the SPSS 17.0 (2008) software package, using descriptive methods.

RESULTS

Mean patient age was 33.2 ± 6.3 years (mean \pm SD). Most patients were white (78.7%) and married or in stable domestic partnerships (69.5%). The prevalence of higher levels of educational attainment was remarkably high; as shown in Table 1, 76.9% of patients in the sample had completed secondary education or obtained a higher degree.

Approximately 5.3% of patients reported a family history of endometriosis in first-degree relatives. Analysis of obstetric history showed that 56.5% of patients were nulliparous and that, of the 387 remaining patients (43.4%), 191 had been pregnant only once (49.3%).

Tables 2 and 3 show the presenting complaints reported by the 892 patients in the study sample. Table 2 shows the most common chief complaint of patients with endometriosis, whereas Table 3 lists all objective symptoms reported.

Table 2 shows dysmenorrhea as the most common presenting symptom, with a prevalence of 62.2%. However, when all symptoms were considered rather than the chief complaint alone, chronic pelvic pain and collision dyspareunia were most prevalent, reported by 56.8% and 54.7% of patients respectively. Infertility was also a prevalent symptom, reported by 355 patients (39.8%); however, 237 patients (26.6%) claimed they had never tried to become pregnant.

Table 4 shows the surgical staging of patients in the sample. The prevalence of advanced (stage III and IV) disease was 66.4%, showing the severity of endometriosis in patients treated at our service.

DISCUSSION

Endometriosis is rare before menarche, and its frequency tends to decrease after menopause.^{11,16} Mean patient age in the present series was 33.2 years, which is consistent with prior reports⁵, of women presenting with infertility and those presenting with pain and related complaints. In a 2003 study, Arruda et al. found a mean age at diagnosis of 30 years for women presenting with infertility and 33 years for those presenting with pain.

In the present study, most affected women were white. A review of the literature shows endometriosis prevalence rates of up to 97% in Caucasian women; some studies have also reported predominance in Japanese women.^{1,9,10} A major difference in prevalence was also found between black and Asian women, with the latter accounting for only 4.6% of the study sample. Most studies have found ethnic differences in prevalence, but

Table 1 – Demographic data on patients with athenoanatomical diagnosis of pelvic endometriosis (n = 892)

	n	%
Race or skin color		
White	702	78,7%
Black	143	16,0%
Yellow (Asian)	41	4,6%
N/A	6	0,7%
Marital status		
Married / Dom. partner	620	69,5%
Divorced	40	4,5%
Single	224	25,1%
Widowed	5	0,6%
N/A	3	0,3%
Educational attainment		
Primary	189	21,2%
Secondary	223	25,0%
Higher	463	51,9%
None	7	0,8%
N/A	10	1,1%
Total	892	100,0%

Table 2 – Chief complaints of patients with endometriosis

Chief Complaint	n	%
Cyclical urinary complaints	1	0,1%
Cyclical intestinal complaints	33	3,7%
None (asymptomatic)	23	2,6%
Dysmenorrhea	555	62,2%
Deep dyspareunia	19	2,1%
Chronic pelvic pain	119	13,3%
Infertility	125	14,0%
Total	892	100,0%

Table 3 – Symptoms reported by patients in the sample

Symptoms reported	n	%
Incapacitating dysmenorrhea	253	28,4%
Chronic pelvic pain	507	56,8%
Infertility	355	39,8%
Cyclical intestinal complaints	431	48,3%
Cyclical urinary complaints	104	11,7%
Deep dyspareunia	488	54,7%

Table 4 – Surgical staging

	n	%
Stage		
I	133	14,9%
II	166	18,6%
III	208	23,3%
IV	385	43,1%
Total	892	100,0%

not statistically significant ones⁸, which suggests that race differences do not play a role as risk factors for endometriosis.

In 2002, Kuohung et al. found a similar patient age range in endometriosis patients from the United States and United Kingdom, but reported a significant predominance of white (88%) versus non-white patients (13%).²⁶

Women with endometriosis tend to have higher educational attainment and socioeconomic level^{8,9}. Accordingly, 51.9% of women in the study sample had a college- or university-level education. This may simply be due to bias, as women of higher socioeconomic standing have greater access to medical care and are more concerned with personal health in the event of pelvic pain or infertility.^{8,16,27,28}

Regarding obstetric history, nulliparity has consistently been reported as having a strong association with endometriosis²⁶. In fact, it is impossible to determine whether nulliparity is a risk factor for the condition or if women with endometriosis find it harder to conceive¹. Miscarriage does not appear to correlate with endometriosis or risk of endometriosis^{8,16}, in the present sample, prevalence rates of nulligravid and nulliparous women and those who had never experienced pregnancy loss were highest.

Endometriosis is associated with twentyfold odds of infertility², interestingly, analysis of extracted data shows that approximately 40% of patients have primary or secondary infertility. These scenarios are known to lead to lower estrogen exposure, creating more favorable conditions for the development of endometriosis. Furthermore, it has been associated with other estrogen-dependent diseases, such as uterine leiomyomata or endometrial cancer⁹.

Evidence is mounting for a genetic, hereditary basis for endometriosis. In the present sample, 5.3% of patients had affected relatives. Studies have shown endometriosis rates of 4.8% to 8.8% in sisters of affected patients²⁹. Evidence is mounting for a genetic, hereditary basis for endometriosis. In the present sample, 5.3% of patients had affected relatives. Studies have shown endometriosis rates of 4.8% to 8.8% in sisters of affected patients^{10,30-34}, and twin studies have shown concordance rates twice as high in monozygotic twins than in dizygotic pairs³⁵.

The main symptom reported was dysmenorrhea (62.2%). It bears stressing that patients' complaints were only considered when they were reported as being severe or incapacitating. Endometriosis may be classified as superficial, when lesions are less than 5 mm in depth, or deep, when lesions are more than 5 mm in depth. Lesion depth is also known to correlate with

symptom severity, and helps guide management.³⁶ As the setting of the present case series was a referral center, in which most surgical patients have advanced-stage disease and many have deep infiltrating endometriosis, the high prevalence of markedly severe symptoms may have been due to selection bias.

In addition to dysmenorrhea, endometriosis is closely associated with deep dyspareunia, chronic pelvic pain, and infertility. With a prevalence of 54.7%, deep dyspareunia was quite frequently associated with endometriosis in our sample, and can be a useful indicator of deep infiltrating disease, with likely involvement of the retrocervical region or rectovaginal fascia³⁷. Affecting approximately 57% of patients, chronic pelvic pain is also a very common symptom, and is refractory to clinical management.

Intestinal endometriosis may be found in 6% to 30% of women with deep infiltrating endometriosis. In a minority of cases, it is asymptomatic, but the vast majority of patients thus affected report abdominal pain, constipation, a feeling of pressure on defecation, pain, bleeding, or even bowel stenosis and obstruction^{38,39}. In our sample, 48.3% of patients reported cyclical intestinal complaints, including bleeding and/or pain on defecation during the menstrual period. Only 3.7% of patients had intestinal symptoms as their chief complaint, however. Most had other associated symptoms, which they felt to be of greater relevance, as mentioned above. Another possible explanation for the low rate of patients with intestinal symptoms may be difficulty in distinguishing blood in feces from menstrual bleeding.

Urinary tract endometriosis is a rare entity, affecting approximately 1% of all patients with endometriosis; symptoms are wide-ranging and nonspecific. Bladder involvement is usually associated with symptoms of urinary irritation, such as dysuria, hematuria, and recurrent urinary tract infection. Ureteral involvement, however, has a remarkably nonspecific clinical picture, and patients may progress silently to renal failure. Only 11.7% of patients in our sample reported urinary symptoms; only 0.1% had them as a chief or presenting complaint. Bladder and ureteral endometriosis are now believed to be distinct clinical entities, with the latter being a manifestation of lateral extension of retrocervical disease^{40,41}.

CONCLUSION

Systematic assessment of a large sample of patients followed at a single specialized service showed that endometriosis is most often diagnosed in the fourth decade of life. Patients present with pelvic pain and infertility-related complaints, and must always be questioned thoroughly to guide the diagnostic process.

Conflicts of interest: No conflicts of interest declared concerning the publication of this article

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Artigo recebido: 29/3/10
Aceito para publicação: 9/5/10
