

Diagnostic Laparoscopy and Endometriosis

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Abstract : The prevalence of endometriosis in population varies according to the study. The purpose of this paper is to determine and evaluate the frequency of endometriosis in patients who underwent diagnostic laparoscopy with various clinical diagnoses and presentations. Medical and laparoscopic surgical records of 856 patients who underwent diagnostic laparoscopy from January 1999 to December 2000 in the Endoscopic Unit, Department of Obstetrics and Gynecology, Siriraj Hospital, are retrospectively evaluated. 661 consecutive cases aged between 17-71 years were recruited for the study. 51.1% were finally diagnosed with endometriosis and the majority were between 20-39 years old. We found 194 endometriotic cases out of 229 clinically suspected endometriotic cases (84.7%), 50 out of 84 pre-operative chronic pelvic pain cases (59.5%), and 52 out of 132 infertility cases (39.4%). However, no visible pathology was detected in 13 out of 229 clinically suspected endometriotic cases (5.7%). Interestingly, among endometriotic cases in the chronic pelvic pain group, 36 cases (72.0%) had a minimal to mild degree of endometriosis while 14 cases had a moderate to severe degree. For all clinical diagnoses, the frequency of endometriosis in patients with an adnexal mass was found to be significantly higher than that without adnexal mass, 125:171 cases (73.1%) compared with 181:368 (49.2%) respectively ($p < 0.05$). We conclude from this study that the revised American Society of Reproductive Medicine (ASRM) system of classifying endometriosis has limitations and inherent defects. This system does not correlate well with pain. However, at the time of laparoscopy, endometriosis should be staged according to the revised ASRM classification of endometriosis in order to facilitate follow-up and comparison if future surgery is performed. To avoid unnecessary exposure to the attendant risks and the expense of laparoscopy, most diagnostic laparoscopies should be performed selectively. Biopsy is recommended in any clinically suspected endometriosis.

เรื่องย่อ : การวินิจฉัยโดยการผ่าตัดส่องกล้องทางนรีเวชกับภาวะเยื่อบุผนังมดลูกเจริญผิดที่
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จากการศึกษาต่าง ๆ พบว่าความถี่ของโรคเยื่อบุผนังมดลูกเจริญผิดที่ในสตรีให้ผลแตกต่างกัน วัตถุประสงค์ของการศึกษานี้เพื่อวิเคราะห์และตรวจหาความถี่ของภาวะเยื่อบุผนังมดลูกเจริญผิดที่ในผู้ป่วยที่มาด้วยอาการปวดท้องน้อยเรื้อรังและอาการอื่น ๆ โดยการผ่าตัดส่องกล้องทางนรีเวชเพื่อการวินิจฉัย รายงานนี้เป็นการศึกษาย้อนหลังจากข้อมูลของผู้ป่วยและรายงานการบันทึกการผ่าตัดของผู้ป่วยจำนวนทั้งสิ้น 856 ราย ที่ได้รับการวินิจฉัยโดยการผ่าตัดส่องกล้องทางนรีเวชตั้งแต่เดือนมกราคม พ.ศ. 2542 ถึงเดือนธันวาคม 2543 ที่ภาควิชาสูติศาสตร์-นรีเวชวิทยา โรงพยาบาลศิริราช มีผู้ป่วยเพียง 661 ราย ซึ่งมีอายุอยู่ระหว่าง 17-71 ปี ถูกนำมาใช้ในการศึกษานี้ จากการศึกษพบว่าผู้ป่วยร้อยละ 51.1 ได้รับการวินิจฉัยว่าเป็นภาวะเยื่อบุผนังมดลูกเจริญผิดที่ ผู้ป่วยกลุ่มนี้ส่วนใหญ่มีอายุอยู่ระหว่าง 20-39 ปี พบว่าจากผู้ป่วยจำนวน 229 ราย ที่ได้รับการวินิจฉัยก่อนผ่าตัดว่าเป็นเยื่อบุผนังมดลูกเจริญผิดที่ มีผู้ป่วยถึง 194 ราย ที่ตรวจพบว่าเป็นเยื่อบุผนังมดลูกเจริญผิดที่จริง คิดเป็นร้อยละ 84.7 นอกจากนั้นยังพบผู้ป่วยชนิดนี้จำนวน 50 รายจากผู้ป่วยทั้งสิ้น 84 ราย ที่ได้รับการวินิจฉัยว่ามีภาวะปวดท้องน้อยเรื้อรัง คิดเป็นร้อยละ 59.5 และ 52 ราย จากจำนวนทั้งสิ้น 132 รายของผู้ป่วยที่มีบุตรยาก คิดเป็นร้อยละ 39.4 ก็ตรวจพบภาวะเยื่อบุผนังมดลูกเจริญผิดที่เช่นกัน เป็นที่น่าสนใจว่ามีผู้ป่วยถึง 36 ราย คิดเป็นร้อยละ 72.0 ของผู้ป่วยที่มีภาวะปวดท้องน้อยเรื้อรังที่มีภาวะเยื่อบุผนังมดลูกเจริญผิดที่ชนิดที่ไม่รุนแรง เมื่อพิจารณาผู้ป่วยที่มารับการผ่าตัดส่องกล้องทั้งหมด พบว่าความถี่ของการตรวจพบภาวะเยื่อบุผนังมดลูกเจริญผิดที่ในผู้ป่วยที่ตรวจพบว่ามีก้อนที่ปีกมดลูกนั้นสูงกว่าผู้ป่วยที่ตรวจไม่พบก้อนที่ปีกมดลูกอย่างมีนัยสำคัญทางสถิติ (ร้อยละ 73.1 กับ 49.2) การศึกษาครั้งนี้พอสรุปได้ว่าการจัดลำดับความรุนแรงโดยวิธี revised ASRM ของเยื่อบุผนังมดลูกเจริญผิดที่มีข้อจำกัด โดยพบว่าระดับความรุนแรงไม่ได้สัมพันธ์กับอาการปวดของผู้ป่วย อย่างไรก็ตามการจัดลำดับความรุนแรงโดยวิธีนี้ยังคงต้องกระทำต่อไป เพื่อใช้ในการติดตามผลการรักษาและใช้เปรียบเทียบค่าจำเป็นต่อการผ่าตัดรักษาในครั้งต่อไป เพื่อหลีกเลี่ยงปัจจัยเสี่ยงต่อการผ่าตัดและการสูญเสียทางเศรษฐกิจ การวินิจฉัยโดยการส่องกล้องทางนรีเวชควรกระทำในผู้ป่วยที่ได้รับการคัดเลือกรักษาที่เหมาะสมและควรตัดสินใจส่งตรวจทางพยาธิสภาพในผู้ป่วยที่สงสัยว่าจะมีภาวะเยื่อบุผนังมดลูกเจริญผิดที่ก่อนผ่าตัดรักษาทุกราย

INTRODUCTION

Currently, laparoscopic procedures have been fully integrated into routine gynecologic care and an ever increasing number of additional surgical procedures are being approached laparoscopically. In general, the choice of laparoscopic route means a shorter recovery period, less pain, a shorter hospital stay, decreased costs, potentially decreased adhesion formation and blood loss, and operation scar that is cosmetically acceptable. Furthermore, early mobilisation after laparoscopy leads to fewer respiratory complications and thrombo-embolic events. These procedures are both diagnostic and therapeutic in nature.^{1,2} It has become the main gynecological surgical procedure for benign lesions. Its superior-

ity compared with laparotomy for the treatment of ectopic pregnancy, tubal infertility, ovarian cysts, or endometriosis is now accepted.^{3,4,5} Endometriosis is an enigmatic disease of unknown etiology, poorly understood pathogenesis and conflicting results concerning its diagnosis and the efficacy of treatment regimens.

The prevalence of endometriosis in the population varies according to the study. It depends on its definition, the population studied,⁶ and the experience and ability of surgeons performing the laparoscopy to detect such lesions. The purpose of this paper is to determine and evaluate the frequency of endometriosis in patients who underwent diagnostic laparoscopy with various clinical diagnoses and presentations.

MATERIALS AND METHODS

The study was designed as a retrospective study. Medical and laparoscopic surgical records of 856 patients who underwent diagnostic laparoscopy from January 1999 to December 2000 in the Endoscopic Unit of the Department of Obstetrics and Gynecology, Siriraj Hospital, were retrospectively evaluated. 661 consecutive cases aged between 17-71 years were recruited for the study. Characteristics of patients such as age, presenting symptom, pre-operative diagnosis, post-operative diagnosis, operative procedures, operative findings, staging of endometriosis, and histological findings were recorded and analyzed. Although many patients had more than one complaint, the pre-operative diagnoses in this study represented the main indications for diagnostic laparoscopy, or the final conclusion, or provisional diagnoses made of physicians after routine history taking, physical and ultrasonographic examinations. "Post-tubal sterilization" was the pre-operative diagnosis given for patients who underwent diagnostic laparoscopy to determine whether they were suitable candidates for reversal of sterilization. Chronic pelvic pain means recurrent and constant

pain in the pelvic region that has lasted for at least 6 months. Pre-operative diagnosis of endometriosis is a clinical diagnosis based on history, physical examination and ultrasonography (in some cases). The data were analyzed using SPSS version 10.0 and were expressed as percentage and mean with standard deviation (SD). Statistical comparisons were performed with Fisher's exact test and were considered statistically significant at $P < 0.05$.

RESULTS

194 cases were excluded from the analysis due to incomplete medical records. 661 cases who underwent diagnostic laparoscopies in the Endoscopic Unit, Department of Obstetrics and Gynecology, Siriraj Hospital, were evaluated. The average age was 32.95 ± 14.25 years, ranging from 17 to 71 years old. Interestingly, 338 out of 661 cases (51.1%) were diagnosed as having endometriosis and the majority of endometriosis cases (85.5%) aged between 20-39 years. Furthermore, 1.8% were adolescents. No endometriosis was diagnosed in the age group of 50-71 years (Table 1).

Table 1. Percentages of endometriosis in various ages

Age Interval (years)	Post-operative Diagnosis		
	Other Diseases Cases (%)	Endometriosis Cases (%)	Total Cases (%)
17 - 19	5 (1.5%)	6 (1.8%)	11 (1.7%)
20 - 29	97 (30.0%)	96 (28.4%)	193 (29.2%)
30 - 39	176 (54.5%)	193 (57.1%)	369 (55.8%)
40 - 49	30 (9.3%)	43 (12.7%)	73 (11.0%)
50 - 71	15 (4.6%)	0	15 (2.3%)
Total	323 (100%)	338 (100%)	661 (100%)

Table 2. Percentages of endometriosis in various clinical diagnoses

Pre-operative Diagnosis	Endometriosis Cases (%)	Total Cases
Post-tubal sterilization	5 (9.6%)	52
Infertility	52 (39.4%)	132
Chronic pelvic pain	50 (59.5%)	84
Pelvic adhesion	4 (40.0%)	10
Acute pelvic pain	3 (100%)	3
Endometriosis	194 (84.7%)	229
Adenomyosis	4 (100%)	4
Benign ovarian tumor	16 (31.4%)	52
Malignant ovarian tumor	0 (0.0%)	8
Others	10 (11.4%)	88
Total	338 (51.1%)	661

Table 2 shows the percentages of endometriosis in various preoperative diagnoses. We found 194 endometriotic cases out of 229 clinically suspected endometriotic cases (84.7%), 50 out of 84 chronic pelvic pain (CPP) cases (59.5%), and 52 out of 132 infertility cases (39.4%). That means 87.5% (296/338) of the patients are laparoscopically diagnosed as a result of clinical diagnosis of endometriosis, CPP, and infertility. However, no visible pathology was detected in 13 out of 229 clinically suspected endometriotic cases (5.7%). Because no endometriotic staging was recorded in 32 cases, only

306 endometriotic cases were staged according to the revised American Society of Reproductive Medicine (ASRM) classification of endometriosis 1996. They were evaluated as shown in Table 3. 85 cases (27.8%) were classified as minimal degree, 67 cases (21.9%) were mild degree, 52 cases (17.0%) were moderate degree and 102 cases (33.3%) were severe degree. Interestingly, 36 cases (72.0%) with a pre-operative CPP diagnosis were minimal to mild degree, whereas, 108 cases (62.0%) in clinically suspected endometriosis are moderate to severe degree.

Table 3. The frequency and staging of endometriosis at laparoscopy with various clinical (pre-laparoscopic) diagnoses

Pre-operative Diagnosis	Endometriosis Staging				Total Cases
	Minimal Degree N (%)	Mild Degree N (%)	Moderate Degree N (%)	Severe Degree N (%)	
Post-tubal sterilization	4 (80.0%)	1 (20.0%)			5
Diagnostic infertility	19 (43.2%)	12 (27.3%)	4 (9.1%)	9 (20.5%)	44
Chronic pelvic pain	26 (52.0%)	10 (20.0%)	6 (12.0%)	8 (16.0%)	50
Acute pelvic pain	1 (33.3%)		1 (33.3%)	1 (33.3%)	3
Endometriosis	27 (15.5%)	39 (22.4%)	38 (21.8%)	70 (40.2%)	174
Adenomyosis	1 (25.0%)			3 (75.0%)	4
Benign ovarian tumor	3 (17.6%)	1 (5.9%)	3 (17.6%)	10 (58.8%)	17
Others	4 (44.4%)	4 (44.4%)		1 (11.1%)	9
Total	85 (27.8%)	67 (21.9%)	52 (17.0%)	102 (33.3%)	306

Table 4. Frequency of endometriosis and adnexal mass

Pre-operative Diagnosis	Adnexal Mass	Post-operative Diagnosis		P value
		Other Diseases N(%)	Endometriosis N(%)	
Clinically suspected endometriosis	Without adnexal mass	22 (19.6%)	90 (80.4%)	NS
	With adnexal mass	10 (10.6%)	84 (89.4%)	
All clinical diagnoses	Without adnexal mass	187 (50.8%)	181 (49.2%)	< 0.05
	With adnexal mass	46 (26.9%)	125 (73.1%)	

From Table 4, the frequency of endometriosis in patients with adnexal mass was found to be significantly higher than those without an adnexal mass, 125 out of 171 cases (73.1%) compared to 181 out of 368 (49.2%) ($p < 0.05$). However, in clinically suspected endometriotic cases the frequencies of endometriosis in patients with and without adnexal mass are comparable, 90 out of 112 cases (80.4%) versus 84 out of 94 cases (89.4%).

We found endometrioma in 105 out of 306 cases (34.3%). 90 out of 105 cases (85.7%) were found in 20-39 years old patients. The average size of the endometrioma was 4.23 ± 3.05 cm. and 30 cases (28.6%) had bilateral endometriomas.

DISCUSSION

Before the introduction of diagnostic laparoscopy, the evaluation or diagnosis of many gynecological diseases such as CPP, dysmenorrhea, infertility, or endometriosis required exploratory laparotomy, which was not performed unless symptoms were severe and a fairly certain clinical diagnosis. Because of its advantages, laparoscopy has largely replaced laparotomy as the diagnostic procedure for many patients suspected of having endometriosis. However, the prevalence of endometriosis in the population varies according to the study. It depends on its definition and the population studied.⁶ For example, in some epidemiological investigations, endometriosis was defined by visualization only while other studies required confirmation by biopsy. In addition, the frequency of endometriosis varies ac-

cording to the population studied, e.g., whether the population is clinically-based or geographically defined. Also, among clinically-based population, the prevalence of endometriosis may vary according to the reason for presentation. Approximately a quarter of women presenting with pelvic pain have endometriosis on laparoscopy compared with 20% of those presenting with infertility and 4% of those undergoing tubal sterilization.⁷

In this study, endometriosis was defined by visualization and / or histological confirmation. We found 51.1% of cases undergoing diagnostic laparoscopy had endometriosis. This group consisted of women with differing clinical diagnoses and ages. More than half of all endometriotic patients were 30-39 years old but no endometriosis was seen in the 50-71 years old group. This was comparable with a previously reported study⁷, 59.5% of women presenting with CPP, 39.4% of those presenting with infertility, and 9.6% of those patients undergoing reversal of sterilization had endometriosis.

From Table 3, about two-thirds of pre-operative CPP cases had minimal to mild degree of endometriosis. It suggested that the link between endometriosis and pain was not straightforward, or there were no correlation between pain symptom and the presence or severity of disease as classified by the revised ASRM classification of endometriosis 1996.⁸ Some women with laparoscopic evidence of endometriosis had no pain symptoms at all, as seen in the 5 cases of post-tubal sterilization. That means endometriosis is a common finding at laparoscopy and may even be a normal physiological state.⁹⁻¹²

Although laparoscopic evaluation is sometimes considered as a routine part of the evaluation, to avoid unnecessary exposure to the attendant risks and the expense of laparoscopy, most diagnostic laparoscopies in our clinic are performed selectively. When no diagnosis is clear after taking a full history, physical examination and ultrasonographic investigation, laparoscopy will be offered. In our experience, endometriosis is diagnosed in comparable percentages between cases with clinically suspected endometriotic cases with and without adnexal mass defined by pelvic or ultrasonographic examination ($p > 0.05$). But when all clinical diagnoses were analyzed, cases with adnexal mass had a higher percentage of endometriosis compared to those without an adnexal mass ($p < 0.05$).

The percentage of those with negative laparoscopy in those with clinically suspected endometriosis is relatively low. This may be the result of careful patient selection at our hospital. As endometriosis has a variable gross appearance, up to 6% of women with normal appearance of the peritoneum may have microscopic evidence of endometriosis, although it is obviously difficult to be certain that the peritoneum does, in fact, look normal in these cases.¹³ Thus, if no evidence of endometriosis is identified in a suspected case of endometriosis, a cul-de-

sac biopsy to rule out microscopic disease should be performed as endometriosis may be identified even if it is not visualized at laparoscopy. Although one study suggests a low prevalence of microscopic endometriosis,¹⁴ another report shows a significant rate of microscopic endometriosis in adults.¹⁵ Recent experience at the Children's Hospital in Boston, MA, suggests a significant amount (3%) of microscopic endometriosis in adolescents with visually normal pelvis.¹⁶

CONCLUSION

Endometriotic implants have variable morphology. The revised ASRM system is the most commonly used but still has limitations and inherent defects. This system does not correlate well with the symptoms of pain and dyspareunia. However, at the time of laparoscopy, endometriosis should be staged according to the revised ASRM classification of endometriosis in order to facilitate follow-up and comparison if future surgery is performed. To avoid unnecessary exposure to the attendant risks and the expense of laparoscopy, most diagnostic laparoscopies should be performed selectively. Biopsy is recommended in clinically suspected endometriotic cases.

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