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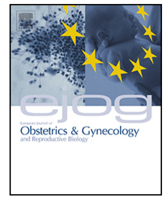

Determinant factors of postoperative recurrence of endometriosis: difference between endometrioma and pain

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ABSTRACT

Objective: Although the postoperative use of hormonal treatment for endometriosis is recommended in the European Society of Human Reproduction and Embryology guidelines to prevent the recurrence of endometriosis-associated dysmenorrhoea, hormonal treatment may not be necessary for all patients who undergo surgical treatment for endometriosis. The aim of this study was to clarify the determinant factors that predict the recurrence of endometriosis after surgery in order to develop personalized hormonal treatment recommendations. Factors associated with the recurrence of endometrioma and pain were investigated independently to identify the likelihood of recurrence in each individual patient.
Study design: Between 2008 and 2013, 352 patients underwent surgery and were diagnosed with endometriosis based on pathological findings at the study hospital. Among these patients, 191 experienced a recurrence of endometrioma in the absence of pre- or postoperative hormonal treatment. Various clinical factors such as pre-operative pain, intra-operative findings and postoperative improvement of pain were compared between patients who experienced recurrence after surgery and those who did not.
Results: The cumulative 5-year recurrence rate of endometrioma was 28.7% among the 191 patients who did not undergo pre- or postoperative hormonal treatment. Significant differences were detected in maximum tumour diameter, revised American Society for Reproductive Medicine score (r-ASRM score), operative time and operative blood loss between patients in the recurrent endometrioma group and the non-recurrent endometrioma group; only the r-ASRM score was significantly correlated with recurrence of endometrioma in the multivariate analysis. The cumulative 5-year rate of persistent/recurrent pain was 33.4%. There were significant differences in the postoperative improvement of pain between the persistent/recurrent pain group and the non-recurrent pain group according to the univariate and multivariate analyses.
Conclusion: This study suggests that the risk factors for recurrence of endometrioma differ from the risk factors for recurrence of pain. The use of postoperative hormonal treatment should be considered based on the dominant risk factors and needs of each patient.

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Introduction

Endometriosis is a chronic disorder estimated to affect 2–10% of women of reproductive age [1]. Long-term management is required to control the disease. Endometriosis most frequently presents with ovarian cysts, called 'endometrioma' or 'chocolate cysts', but can involve the peritoneum and other remote organs. Two major symptoms are associated with endometriosis: pain and infertility. Patients suffer from various types of pain, including dysmenorrhoea, chronic pelvic pain and dyspareunia at younger ages. Treatment for endometriosis generally consists of medical treatment and surgery, including conservative and definitive surgery. However, due to great diversity in the clinical course of the disease and therapeutic modalities, management of endometriosis is complicated and includes various unsolved problems.

Generally, indications for medical or surgical treatment of endometriosis include the existence of endometrioma, symptomatic pain and infertility. Several reagents, including oral contraceptives and dienogest, have been used in the management of these symptoms as single agents or in combination with surgery [2–8]. Adjuvant use of these drugs after surgery is

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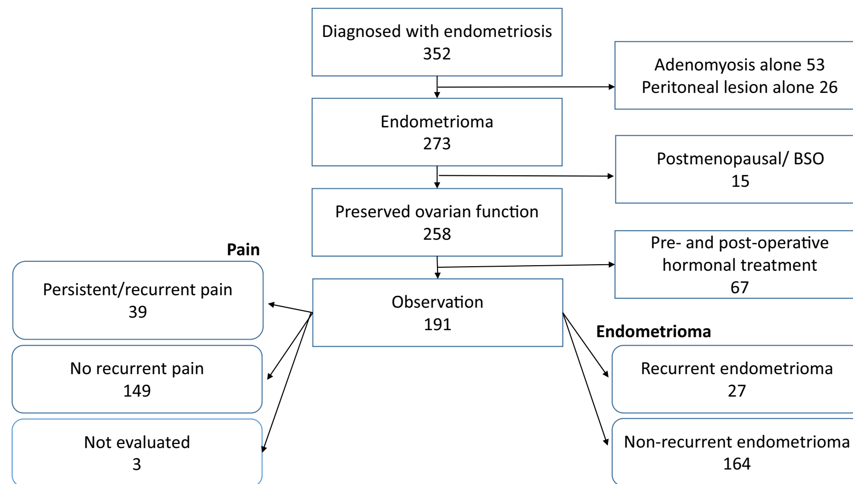

Fig. 1. Flow chart of the study selection process. BSO, bilateral salpingo-oophorectomy.

expected to prolong relapse-free intervals and is recommended. However, the continuous use of medications is inconvenient for patients in terms of adverse effects and cost. In this respect, selecting patients who will benefit the most from medication therapy is clinically important. The preventive use of medications after operative treatment is recommended in patients with a high risk of recurrence. Many studies have investigated factors determining the recurrence of endometriosis after surgery [5,7,9–17]. However, these studies largely investigated risk factors for the recurrence of endometrioma and pain. Moreover, many of these studies included significant numbers of patients who underwent pre- or postoperative hormonal treatment. Few studies have conducted an analysis in a cohort with no hormonal treatment to examine the differences between the risks of developing endometrioma and pain in the same population [9,10]. These factors are important when considering the application of postoperative hormonal treatment according to risk factors for recurrence.

The aim of this study was to explore the risk factors for the recurrence of endometrioma and the risk factors for the recurrence of endometriosis-related pain, and to attempt to develop personalized treatment recommendations according to these risk factors.

Materials and methods

Subjects

In total, 352 patients with a diagnosis of endometriosis underwent surgery at Kinki University Hospital between 2008 and 2013. Patients who underwent surgery and were followed for more than 6 months at the study facility were included in this study. The median follow-up period was 29 months. A flowchart of the study selection process is presented in Fig. 1. Two hundred and seventy-three patients were diagnosed with endometrioma postoperatively based on pathological findings, 53 patients were diagnosed with adenomyosis, and 26 patients were diagnosed with pelvic endometriosis without endometrioma. The medical charts of the patients were searched retrospectively, and clinical data were collected on the operative history of endometriosis, pre-operative pain, pre- and postoperative hormonal treatment, serum CA125 values, bilateral involvement of ovarian endometrioma, diameter of endometrioma, revised American Society for Reproductive Medicine (r-ASRM) score [18], operative time, intra-operative blood loss, operative findings and postoperative improvement of pain. Two hundred and fifty-eight cases were selected as the cohort for the primary analysis, excluding cases with adenomyosis, cases with peritoneal endometriosis alone and cases with no ovarian function (including eight cases that underwent bilateral salpingo-oophorectomy and seven postmenopausal cases). Twenty-four patients with a past surgical history were included. One hundred and ninety-one patients who had not undergone any pre- or posthormonal treatment were selected for further analysis (Fig. 1) (Table 1).

Evaluation of operative findings, recurrence of endometrioma and pain

Operative findings were evaluated and scored according to the r-ASRM score. Obliteration of the pouch of Douglas was defined when there was any adhesion in the pouch, and adhesiolysis of the pouch of Douglas indicated complete opening of the pouch in the operation. Following surgery, ultrasound sonography was conducted every 3 months to assess the postoperative recurrence of endometrioma. A diagnosis of recurrent endometrioma was made when a round-shaped cystic mass with a diameter exceeding 2 cm was detected by transvaginal ultrasonography, and the examination was repeated 1 month later to confirm the diagnosis. Pelvic pain and dysmenorrhoea were evaluated using a visual analogue scale (VAS) (score 1–10) at each hospital visit. An improvement in pain was defined as a decrease in the VAS score of at least two points. Persistence of pain was defined as no improvement or an

Table 1
Detailed surgical procedure.

Factors	*n*
Total	191
Approach	
Laparoscopy	177 (92.7%)
Conversion to open surgery	3 (1.6%)
Open surgery	11 (5.8%)
Procedure	
Unilateral cystectomy	122 (63.8%)
Bilateral cystectomy	54 (28.3%)
Unilateral SO	12 (6.3%)
Unilateral SO + contralateral cystectomy	3 (1.6%)

SO: salpingo-oophorectomy.

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