

Chapter 4

Recurrence Following Conservative Surgery



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Publication short communicated in this chapter:

Tanprasertkul C ,Manusook S ,Somprasit C,Sreshthaputra O,Patumanond J ,Vutyavanich T.
Recurrence of Endometrioma Following Conservative Ovarian Endometrioma Cystectomy:
Laparoscopy versus Laparotomy. Med Assoc Thai 2015 ;98 Suppl 3:S96-100.

Endometriosis is a chronic disease in reproductive-aged women, and one major concern of conservative surgery is the recurrence of the disease. The percentage of recurrence ranges from 6 to 51 % within 5 years following surgery. ⁽¹⁾ Total excision of endometriosis during conservative surgery is often not possible even in experienced hands, and the procedure is limited to the removal of visualized lesions as much as possible. This limitation is the main reason for the recurrence of endometriosis after surgery.

Rate of recurrence

Published studies have used different terminologies in reporting the burden of this disease. The crude percentage of recurrence, the rate of recurrence during a certain period, and the cumulative recurrence rate are arbitrarily utilized. In reality, the reported rate should correspond to the time after surgery to the event of recurrence. Pregnancies following conservative surgery should also be considered as censoring competing events.

The rate of recurrence varies because the definition of recurrence is not clear and inconclusive. Most investigators identify recurrence clinically by symptoms, such as pelvic pain or dysmenorrhea. The feeling of pain is very subjective and varies considerably from individual to individual. Others use transvaginal ultrasound findings as indicative of a recurrent cyst. The typical imaging of an endometriotic cyst consists of hypoechoicity with ground glass appearance. However, the defined diameter of endometrioma is still variable. Most define the cyst diameter as more than 20 mm. while a few investigators use 10 mm. ⁽¹⁻³⁾ Diagnostic laparoscopy, with pathological confirmation of the lesion, is ideally suitable and highly accurate for the diagnosis of recurrent disease. However, it is not clinically practical, as it requires an invasive procedure.

Clinical Risk Factors for Recurrence

Several published literatures have attempted to evaluate risk factors for recurrence, as well as the times of recurrence. The clinical predictive factors for recurrence include the severity of the disease by the rASRM score, location and size of the lesion, bilaterality of the cyst, age of onset, early menarche and previous pregnancy.

Roman *et al.*⁽⁴⁾ followed patients for six years after conservative surgery for endometriosis. They used EuroQol Group EQ-5D questionnaire for the evaluation of quality of life (QoL) in 163 women. The mean age of the patients was 31 years, and 12 percent were under 20 years of age. The most common preoperative symptom was dysmenorrhea (57.7%) and pelvic pain (27%). The follow-up time ranged from six months to six years, with an average of 37.9 months. The main indication for surgery was severe pain. The surgical treatment provided a positive relief effect on endometriosis-related symptoms, as assessed by the EQ-5D questionnaire. Pain score was significantly improved. Nonetheless, 20 % of patients had to undergo a second surgery. The majority of recurrent cases were in stages 3 and 4, who were referred to their tertiary care center. One interesting finding was that pathology report from the second surgery confirmed the presence of endometriosis in only 40 percent of recurrent cases. This implied that recurrence of symptoms after surgery did not always mean recurrence of the disease. Post-surgery pain could have many causes, and true recurrence of the lesions might occur in less than half of the cases.

In a five-year retrospective study by Coccia *et al.*⁽⁵⁾, thirty-eight percent of patients still had moderate-to-severe lower abdominal pain after surgery. Most cases with early pain recurrences within the first 3 months after surgery were those in the advanced stage (76.7%). Factors affecting recurrences of the disease or progressive pain were late menarche, severe dysmenorrhea and/or severe lower abdominal pain. Patients with these risk factors had a much higher chance of recurrence. If transvaginal ultrasonography found a recurrent cyst within the first 3 months following surgery, this usually implied a residual lesion rather than a newly developed lesion.

Pain recurrence following surgery might not be directly related to the recurrence of endometriotic lesions. The pain mechanism could be explained by pain-memory sensations, or psychological or neurological components, and no new recurrent lesions may be present.

The ASRM score is a powerful predictor of recurrence of endometriosis after surgery. In more advanced stages, there is less complete eradication of the disease. Consequently, the chance of recurrence is higher. Another risk factor is the age of onset; specifically, adolescence is more often associated with recurrence of the disease.⁽⁶⁾ In these patients, the pathology is

complex and severe; the level of estrogen in youthful adults is higher than that in other groups.

A pregnancy after surgery is protective against disease recurrence. Enormous and prolonged hormone production during a pregnancy changes the ectopic endometrium, transform it into decidua, atrophic endometrium with necrosis, and ultimately proceeds to the point of disease regression.⁽⁷⁾ There is also a dilatation of the internal ostium of the uterus and cervix. This process decreases the tubal reflux of endometrial debris.

Tandoi *et al.*⁽³⁾ studied the recurrence of the disease in young patients with age onset less than 21 years old. This group of endometriotic women exhibited a high chance of recurrence within a 5-year period. In recurrent cases, 34 % required a second surgery and all of them had a pathologically confirmed condition. Moreover post-operative hormonal treatment could not protect them from recurrence of the disease.

Parazziniet *et al.*⁽⁸⁾ explored the determinants of early recurrence of the disease. The most significant risk factors in rapid recurrence of the disease were advanced stages of endometriosis and extreme chronic pelvic pain. Patients exhibiting such factors could be subgrouped as experiencing an aggressive form of endometriosis, with quick relapses of the disease. The major determinant factors of recurrent endometriosis, both risk and protective factors, are listed in table 4-1

Table 4-1 Major determinant factors of recurrence of endometriosis

Risk factors	Protective factors
Advance stage of endometriosis	Number of pregnancy
High rASRM score	Post operative progestin treatment
Young age	Completeness of first surgery
Bilateral cysts	Oral contraceptive use
Large size	
Severe pain	

Recurrence mechanism

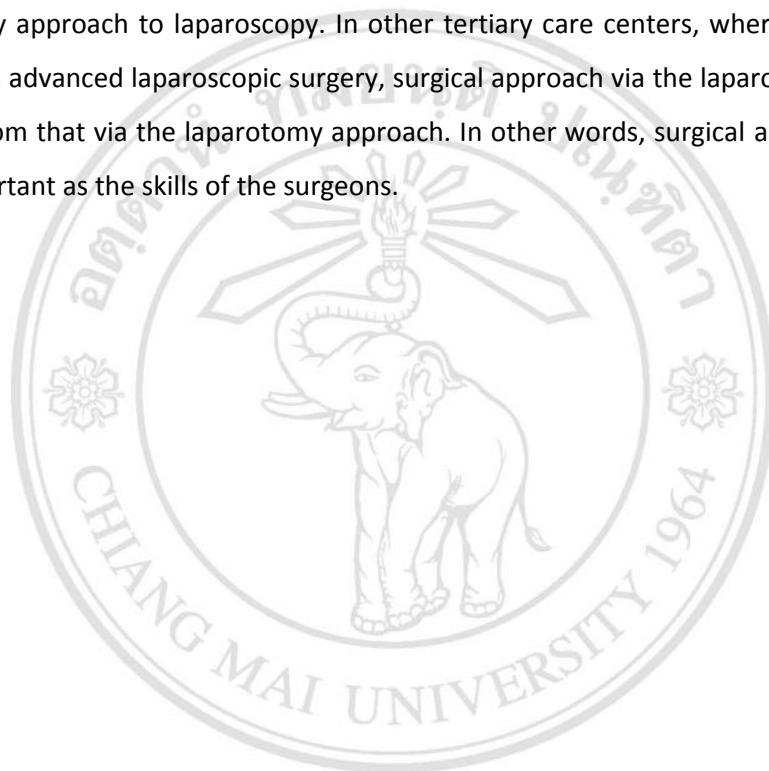
Researches that focus on this topic are quite limited in number. Available evidence, however, implies the existence of numerous mechanisms for recurrence of the disease. The sites of disease recurrence have been observed to occur either at or close to the location of the previous lesion during a follow-up operation.⁽⁹⁾ A description of an occurrence pattern has been made in conjunction with recurrence of the cyst.⁽²⁾ The probability of recurrence is greater at the site of a previously operated ovary than at the ovary on the contra-lateral side. Nonetheless, recurrence of the disease could be prevented by endometrial ablation for a period of two years or more, as was effectively demonstrated by Bulletti *et al.*⁽¹⁰⁾ This pattern serves as credible evidence that retrograde menstruation can cause a recurrence of the disease, with its initial stage developing at the endometrium.

Recurrent development of endometriosis may at least be partly explicable by lymphovascular spread. Cases of deeply pervasive endometriosis -- or relatively large lesions -- often exhibit what is called "lympho vascular invasion" (LVI), an otherwise rare variety of endometriosis.⁽¹¹⁾ This condition is behaviorally equivalent to metastatic cancer, and possibly constitutes an aggressive disease subtype with an inherent propensity to recur. Among the mechanisms of recurrence that are considered most probable are abnormal immunologic responses and estrogen receptor polymorphisms.^(12,13) Research reports pertaining to this area of inquiry, however, cover only the initial stages of the subject and provide only minimal information.

In summary our literature review suggests that one of the major factors for endometriosis recurrence is incomplete eradication of the disease pathology during the initial surgery. For an average gynecologic surgeon, who is not an expert in laparoscopic surgery, we believed that a laparotomy approach should provide a better operative view than the laparoscopic approach. As such, endometriotic cystectomy via the laparotomy approach should enable a more complete eradication of the disease, compared to the laparoscopic approach. Consequently, endometrioma recurrence after surgery should be more prevalent in patients who received laparoscopic endometriotic cystectomy than those who had cystectomy done by the laparotomy approach. To confirm this assumption, we conducted a retrospective study to compare the rate of the endometrioma recurrence after either laparoscopic or

laparotomy approach. We found a significantly higher rate of endometrioma recurrence in the group who underwent laparoscopic cystectomy than those who had cystectomy done via a laparotomy (27.3% vs. 14.9%, respectively; $p < 0.001$).⁽¹⁴⁾ The disease also recurred earlier in those who received laparoscopic surgery than those in the laparotomy group.

It should be emphasized that the setting of our center may be different from those in other centers. Surgeons in our center have different levels of skill in laparoscopy. Most prefer the laparotomy approach to laparoscopy. In other tertiary care centers, where surgeons are highly skilled in advanced laparoscopic surgery, surgical approach via the laparoscopy may not be different from that via the laparotomy approach. In other words, surgical approaches may not be as important as the skills of the surgeons.



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