# Characteristics of Endometrioma Recurrence Patients

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**Abstract**

**Objective**: To identify the characteristics of endometrioma recurrence cases.

**Method**: This study is a descriptive retrospective, using secondary data taken from all endometrioma medical records of Clinic Aster and Medical Records Installation in Dr. Hasan Sadikin General Hospital, Bandung, from 1st January 2018 to 31st December 2022. Data were processed using Microsoft Excel.

**Results**: Of the 37 endometrioma recurrences, most of the patients are 20 to 35 in age. None of them has a parity history after the first surgical procedure. Both previous and recent cases are dominantly unilateral endometriomas. The history of postoperative medication is higher (54.1%). Obstetricians/Gynecologists appear to perform the most surgical procedure (67.6%). Mass is the main clinical manifestation of the recurrence, while menstrual and BMI profiles appear to be normal.

**Conclusions**: The characteristic of the recurrence of endometrioma is related to parity status after the first surgery, history of the previous medical treatment, and previous form of endometrioma which are related to the current characteristic of endometrioma (age, lesion form, clinical manifestation, and recurrence interval).

**Key words**: Characteristics, recurrence, endometrioma

# Karakteristik Pasien Endometrioma Rekuren

**Abstrak**

**Tujuan** : Mengetahui karakteristik dari pasien endometrioma rekuren.

**Metode**: Penelitian ini merupakan penelitian deskripsi retrospektif dengan menggunakan data sekunder yang diambil dari seluruh rekam medis pasien kista endometriosis rekuren di Klinik Aster dan Instalasi Rekam Medis di Rumah Sakit Umum Pusat Dr. Hasan Sadikin Bandung periode 1 Januari 2018 − 31 Desember 2022. Data yang diperoleh diolah menggunakan perangkat lunak Microsoft Excel.

**Hasil** : Dari 37 kasus endometrioma rekuren, sebagian besar pasien berusia 20 hingga 35 tahun. Seluruh pasien tidak mempunyai riwayat paritas setelah prosedur pembedahan sebelumnya. Baik kasus kista endometriosis sebelumnya maupun yang kambuh, keduanya dominan dalam bentuk unilateral. Riwayat pengobatan pasca operasi lebih tinggi (54,1%). Dokter Spesialis Obstetri/Ginekologi tampak melakukan tindakan pembedahan terbanyak (67,6%). Massa adalah manifestasi klinis utama dari kekambuhan. Selain itu, profil menstruasi dan BMI tampak normal.

**Simpulan** : Karakteristik endometrioma rekuren berkaitan dengan status paritas setelah operasi pertama, riwayat pengobatan medis sebelumnya, dan bentuk endometrioma sebelumnya berhubungan dengan karakteristik endometrioma saat ini (usia, bentuk lesi, manifestasi klinis, dan rentang rekurensi)

**Kata kunci**: Karakteristik, rekuren, endometrioma

## Introduction

Endometrioma is a cystic lesion form of endometriosis that is usually located on the ovaries.[1] Endometrioma is also called "chocolate cyst". This refers to its histological appearance where the cyst is lined with endometrial tissue and its internal fluid appears brown due to the accumulation of menstrual debris originating from the shedding of active implants within the cyst.[2] Endometrioma treatment usually consists of medical treatment and surgery. Medical treatments, such as analgesics and hormonal suppression, are administered preoperatively or postoperatively. Meanwhile, surgery, such as ovarian cystectomy, is the standard therapy for endometrioma.[2,3] However, surgical procedures still have a risk of recurrence. Endometrioma recurrence may be due to growth of residual lesions or retrograde menstruation after surgery. The prevalence of endometrioma recurrence after 2 years is 21.5% and after 5 years is 40 − 50%.[3] Cumulatively, the endometrioma recurrence rate ranges from 30 − 50%.[2]

Endometrioma recurrence affect every aspect of life. It causes economic burden, low quality of life and low confidence level.[4,5] The treatment cost can reach USD 2000 annually.[6] Moreover, these symptoms cause patients to have low levels of productivity and sexual insecurity.[4] Therefore, this needs to be prevented. Prevention of endometrioma recurrence must be supported by data regarding to characteristics of endometrioma recurrence. Hence, this study aimed to examine the characteristics of endometrioma recurrence patients related to age, marital status, parity status, body mass index, menstrual profile, range of recurrences, type of cyst and history of medical treatment.

## Method

This study is a descriptive study with a retrospective approach to describe characteristics of recurrent endometrioma patients at Dr. Hasan Sadikin General Hospital, Bandung. Subjects for this study are secondary data from medical records of endometrioma recurrence patients. The period of subjects is 1st January 2018 − 31st December 2022.

The research sample was taken and filtered using the total sampling technique with inclusion and exclusion criteria. The inclusion criteria for this study were (1) a medical record of a patient with recurrent endometrioma or endometriosis cyst after surgery, and (2) the first relapse case of endometrioma in the period from a patient who has more than one relapse case. Furthermore, the exclusion criteria of this study are incomplete data on patients with recurrent endometrioma. The collected samples are presented in the form of a table and displayed in frequency (n) and percentage (%).

This study was approved by the Research Ethics Committee Universitas Padjadjaran with ethical clearance number 613/UN6.KEP/EC/2023 and register number 2303010547.

## Results

In total there were 471 cases of endometrioma in which 56 of them are recurrent cases. However, only 37 data meet the criteria of this study. The average age of patients with recurrent endometrioma is 34 years old. It ranged from 25 to 49 years old (Table 1). Besides that, dominantly, patients in this study were operated at a younger age. The average age is 31 years old. It ranged from 17 to 44 years old. Furthermore, the average body mass index of these patients is 23.2 kg/m$^2$. It ranged from 16.2 to 34.5 kg/m$^2$. According to data from medical records, 28 patients are nullipara, followed with 6 patients are primipara and 3 patients are multipara.

The objective tool to identify the recurrent

endometrioma was ultrasonography. While, the previous case of endometrioma was confirmed through the result of anatomical pathology. Among 20 patients who received hormonal suppression injection, 15 patients received Gonadotropin Releasing Hormone Agonist (GnRH Agonist) (75%), 3 patients received GnRH analog or endrolin (15%), 1 patient received progestin or dienogest (5%), and 1 patient received androgenic hormones or danazol (5%).

The most prevalent case of previous endometrioma is unilateral, which consists of 17 cases lying at the left ovarium (60.7%) and 11 (39.3%) cases lying at the right ovarium while the rest is bilateral endometrioma. The recent case of endometrioma has an increased prevalence of bilateral endometrioma, however, unilateral endometrioma is still dominant, which consists of 11 cases lying at the left ovarium (52.4%) and 10 cases lying at the right ovarium (47.6%). (Table 2)

**Table 1 Demographic Characteristics of Research Subject (n=37)**

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| **Age (Years Old)** | | |
| <20 | 0 | 0 |
| 20 - 35 | 22 | 59.5 |
| >35 | 15 | 40.5 |
| **Marital Status** | | |
| Married | 37 | 100 |
| Unmarried | 0 | 0 |

**Table 2 Clinical Characteristics of Research Subject (n=37)**

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| **Menstrual Frequency** | | |
| Amenorrhea | 1 | 2.7 |
| >38 days | 2 | 5.4 |
| ≥24 − ≤38 days | 33 | 89.2 |
| <24 days | 1 | 2.7 |
| **Duration** | | |
| ≤8 days | 34 | 91.9 |
| >8 days | 3 | 8.1 |
| **Regularity** | | |
| ≤7-9 days | 35 | 94.6 |
| ≥8-10 days | 2 | 5.4 |
| **Body Mass Index (kg/m$^2$)** | | |
| <17 | 1 | 2.7 |
| 17-18,4 | 5 | 13.5 |
| 18,5-25,0 | 21 | 56.8 |
| 25,1-27,0 | 6 | 16.2 |
| >27,0 | 4 | 10.8 |
| **Parity Status Before Endometrioma Recurrence** | | |
| Yes | 0 | 0 |

| Variable | Frequency (n) | Percentage (%) |
|---|---|---|
| No | 37 | 100 |
| **Surgeon of The Previous Case of Endometrioma** | | |
| Obstetrician/Gynaecologist | 25 | 67.6 |
| Obstetrician/Gynaecologist Fertility Consultant | 5 | 13.5 |
| Obstetrician/Gynecologist Non-Fertility Consultant | 7 | 18.9 |
| **Previous Surgery** | | |
| Cystectomy | 32 | 86.5 |
| Salpingo-ophorectomy | 5 | 13.5 |
| **Previous Endometrioma** | | |
| Unilateral | 28 | 75.7 |
| Bilateral | 9 | 24.3 |
| **Recent Endometrioma** | | |
| Unilateral | 5 | 13.5 |
| Ipsilateral | 11 | 29.8 |
| Bilateral | 16 | 43.2 |
| Contralateral | 5 | 13.5 |
| **History of Postoperative Medication** | | |
| Yes | 20 | 54.1 |
| No | 17 | 45.9 |
| **Clinical Manifestation** | | |
| Mass | 16 | 43.2 |
| Pain | 11 | 29.8 |
| Both | 10 | 27.0 |
| **Dysmenorrhea** | | |
| Yes | 18 | 48.6 |
| No | 19 | 51.4 |
| **Dyspareunia** | | |
| Yes | 8 | 21.6 |
| No | 29 | 78.4 |
| **Recurrence interval** | | |
| ≤2 years follow-up | 15 | 40.5 |
| 2 - 5 years follow-up | 10 | 27.0 |
| ≥5 years follow-up | 12 | 32.5 |

## Discussion

Endometrioma recurrence is the presence of cystic mass after surgical procedure. It is confirmed by transvaginal ultrasonography to identify lesion with a minimum diameter of 20 mm, thick walls, irregular margins, homogenous low echogenic fluid content with scattered internal echoes, and the absence of papillary proliferations.[3] The recurrence of endometrioma is expected to be influenced by the form of the previous endometrioma, parity history, surgical procedure, and postoperative medical treatment.[7,8]

One study stated the rate of endometrioma recurrence for various ages, such as 43,3% for patients aged 20 − 29 years, 22.5% for patients aged 30 − 39 years and 10.2% for patients aged 40 − 45 years.[8] In that case, a woman who already reaches 40 years old has a lower risk of endometrioma recurrence.[9] The relationship between the patient's age and recurrent endometrioma can be found in this study result. From 37 patients, 22 patients (59.5%) were in the group of 20 − 35 years old, while only 15 patients (40.5%) were in the group of more than 35 years old. This shows the majority of patients had endometrioma recurrence at a younger age. These findings correspond with a meta-analysis study from Yang et al.[9] stated the younger the patient's age, the most likely the patient has a recurrent case of endometrioma after surgical procedure. This study also shows the average age of subject's first surgical procedure is 31 years old. Younger age at first surgery, especially less than 35 years old, tends to have a higher risk for recurrence of endometrioma. Younger patients tend to have a higher levels of circulating estrogen, this can increase the probability of endometrioma recurrence.[9]

Estrogen is the biggest contributor of endometriosis development which is related to a higher level of estrogen receptor Beta than estrogen receptor Alpha. This condition lead to inhibition of estrogen receptor Alpha. As a result, estrogen response is elevated. Enhancement of estrogen activity also correlates with an unbalanced enzymatic process by endometrial tissue. The result of this unbalanced process is a high level of more potent estradiol. Thus, this leads to a higher local estrogen activity contributing to the development of endometriosis.[10]

There are several suggested causes of endometrioma recurrence. One of them is in situ regrowth of microscopic residual lesions not completely removed during surgery.[11] Even though, surgical procedure is the main intervention in treating endometrioma, it cannot prevent this disease's recurrence.[3] The extensiveness of surgical procedures may affect the recurrence risk. The success of surgical procedures correlates with the disease severity and surgeon skills.[12] In this study, clinicians who perform the previous surgical procedure are mostly obstetrician/ gynecologists (67.6%). Although it may contribute to the recurrence rates, disease's severity plays a major role to elevate the risk of endometrioma recurrence. Cyst that is larger than 6 cm has risk of rupture. Ruptured endometrioma has a high chance of developing adhesion. Therefore, it enhances the growth of new lesion.[13] Adhesion increases the risk of deep pelvic pain associated with recurrent of endometrioma.[8]

Surgical procedure for endometrioma is mostly conservative surgery. It is typically performed laparoscopically. Conservative surgery consists of destruction of endometrial lesions, drainage of endometrioma and removal of cystic capsule. Elimination of cystic wall is substantial in order to decrease recurrence rates. However, the main concern of surgical procedure is maintaining the fertility of women, especially in reproductive age.[1] Cystectomy and salpingo-ophorectomy belong to Fertility-Sparing Treatment (FST).[14] Thus, this type of surgery is chosen as one of endometrioma treatment. However, surgical procedure still effects ovarian reserve, though

there still a chance of pregnancy.[1]

Another cause of endometrioma recurrence is the growth of microscopic endometriotic lesions undetected at surgery, de novo lesions, or a combination of the mentioned theory.[11] As shown in this study, recurrent endometrioma frequently showed up in the treated lesions or ipsilateral (29.8%) than contralateral (13.5%). All contralateral endometrioma recurrence' subjects have gone through unilateral salpingo-ophorectomy for their first endometrioma case. Meanwhile, ipsilateral endometrioma recurrence' subjects underwent cystectomy. It explains the low percentage of contralateral endometrioma recurrence in this study.

This study also demonstrated that either primary or secondary, unilateral endometrioma frequently lies in the left ovary. The frequent case of left endometrioma is due to anatomic variables, such as decreased fluid movement on the left side because of the presence of the sigmoid colon and left broad ligament. Furthermore, compression syndrome of the left renal vein causes venous congestion and results in hypoxia, increased concentrations of sex hormones, and cytokines. Thus, the left side is more at risk of developing endometrioma.[15]

In addition to the history of previous endometrioma, some studies suggest that bilateral endometrioma has the more prevalent state of recurrence due to the severity of the disease. Thus, it may leave residue to make new lesions.[7] However, this study shows unilateral endometrioma as the dominant form of the previous case of endometrioma. Other factors may contribute to this finding. Other types of ovarian cyst (dermoid or cystadenoma) that develop between the first and second endometrioma may contribute to development of endometrioma recurrence.[11]

Since endometriosis is an estrogen-dependent disease, hormonal treatment was recommended to be the first-line treatment.[13] Postoperative medical treatment proven by most studies decreases the risk of endometrioma recurrence. Gonadotropin releasing hormone agonists, progestin and steroids are the choice of therapy against endometriosis.[2] In this study, patients who received medical treatment and those who did not were almost equally distributed. However, patients who received the medical treatment has a higher percentage. This result may be due to short term use of medication and low medication adherence.[16] In addition to medication usage, most of the patients were using GnRH agonists as their postoperative treatment. Gonadotropin releasing hormone (GnRH) agonist is one of the endometriosis medical treatments that is short-term use. According to European Society of Human Reproduction and Embryology (ESHRE) guidelines, postoperative medical treatment is recommended to be used for 18 to 24 months to prevent the recurrence.[17] As stated in one study, short-term postoperative medical treatment may higher the risk of recurrence.[11] This may be due to other factors such as some patients trying to conceive or who had to stop the medication due to its adverse effect.[11]

Postoperative hormonal treatment has an impact on the clinical manifestation of endometrioma recurrence.[11] European Society of Human Reproduction and Embryology guidelines recommend the use of hormone treatment after surgery to prevent the recurrence of symptoms related to endometriosis.[17] The prevalence of pain-related symptoms (dysmenorrhea and dyspareunia) from endometrioma recurrence is lower than those who experienced it. It also shows the clinical manifestation of the recurrence case is mostly the recurrence of the mass. Most of the patients did not show pain symptoms may be due to the high rate of postoperative hormone treatment history.[23] (Table 2)

According to a study conducted by Jiang et al.[3] the recurrence of endometrioma is estimated to be 21.5% after 2 years of follow-

up and 40 − 50% after 5 years of follow-up. In this study, it is recorded that the recurrence rate of endometrioma is higher from the follow-up period of ≤2 years (40.5%), followed by ≥5 years (32.5%) and 2-5 years (27.0%) follow-up. As stated above, the samples in this study may have an ineffective postoperative hormone treatment. Therefore, it may influence the recurrence interval.[2]

Furthermore, all subject of this study is a married woman. Even though most of the parity status is nullipara and none of the subjects had history of parity after the first surgical procedure of endometrioma. This finding is in line with a study conducted by Li et al.[8] stated that a successful pregnancy after surgical treatment of endometrioma decreases the risk of endometrioma recurrence. It also stated that postoperative pregnancy may have a protective effect against the recurrence of endometrioma.[7] In order to attempt postoperative pregnancy, patients may undergo treatment to enhance the possibility of pregnancy, such as ovarian stimulation. However, ovarian stimulation may elevate the risk of developing endometrioma recurrence as it elevates the peripheral estrogen level.[18]

The association between body mass index and endometriosis is varied according to some studies. As shown in table, the BMI level of this study is within normal range. The exact mechanism of the influence BMI level with endometrioma recurrence is still unidentified.[19] However, obesity may decrease the level of pain in general, thus it could lead to insensitivity of pain and cause delayed diagnosis.[20] Liu and Zhang[21] suggested that a higher BMI is related to a lower risk of endometriosis. Several studies demonstrated that higher BMI has high risk for recurrence.[19] According to a German case control study, there is no association between body mass index and endometriosis.[22] To consider, relative frequency of endometriosis has been higher in Asian than Caucasians, different distribution of BMI level may be required.[19] According to the various result of studies, further studies about correlation between BMI level of woman with endometrioma recurrence are suggested.

Besides BMI, the menstrual profile also does not show any anomaly in women with recurrent endometrioma. Only a fraction of patients with recurrent endometrioma show a longer period of menstrual cycle. These findings may have associated with ineffective postoperative hormonal treatment. Cyclic administration of hormonal contraceptive avoiding cyclic menstrual flows.[23] On the contrary, in this study it shows that menstrual cycle is mostly normal. Thus, it is contradictive with the previous study.

In conclusion, the characteristic of endometrioma recurrence is related to younger age, absence of parity after the previous case and surgeon skills of the previous surgical procedure. Most of the recurrent cases tend to be asymptomatic. However, postoperative hormone treatment is prevalent in endometrioma recurrence. Both previous and recurrent endometrioma is mostly in unilateral form. The unilateral form appears to be more prevalent at the left side ovary, either the previous or recurrent endometrioma. The recurrence range of endometrioma appears to be dominantly less than 2 years. Further studies on association between postoperative medication and history of previous lesion with endometrioma recurrence are suggested.

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