

**STRATEGIES FOR OUTPATIENT MONITORING AND FOLLOW-UP OF
ENDOMETRIOID OVARIAN CYSTS**

Irgasheva Sabrina Chori kizi.

Davronova Dilshodaxon Mansurjon kizi.

Komiljonova Umidaxon Rustamjon kizi

Tashkent State Medical University, 3-year master's degree students

*Scientific Supervisor: **Hakimova G.G.***

PhD, Associate Professor of the Department of Pediatric

Oncology and Palliative Care, Tashkent State Medical University (TSMU)

Tashkent State Medical University, Tashkent, Uzbekistan

Annotation

Endometrioid ovarian cysts (endometriomas or chocolate cysts) represent one of the most common and severe manifestations of endometriosis, affecting 10–15% of women of reproductive age and leading to significant clinical problems such as chronic pelvic pain, infertility, and reduced quality of life. This article is devoted to outpatient (polyclinic-based) monitoring and follow-up strategies for endometrioid ovarian cysts, focusing on effective methods for symptom management without invasive interventions, as well as early detection of cyst growth and potential complications.

Keywords

endometrioid ovarian cysts, outpatient monitoring, ultrasonography, hormonal therapy.

Introduction

Endometriosis is a chronic gynecological disease affecting 6–15% of women of reproductive age, with one of its most severe and prevalent manifestations being endometrioid ovarian cysts (endometriomas or “chocolate cysts”). These cysts develop as a result of the accumulation of endometriotic lesions within the ovary, with their cavities filled with old blood, giving rise to the characteristic “chocolate” appearance on ultrasonographic examination. Endometriomas are associated with chronic pelvic pain, dysmenorrhea, dyspareunia, infertility, and a significant deterioration in quality of life. Moreover, large cysts may contribute to menstrual disturbances and, in rare cases, increase the risk of malignant transformation, particularly ovarian cancer.

In recent years, international guidelines on the management of endometriosis and endometriomas have undergone substantial revisions. Guidelines published after 2018 by the European Society of Human Reproduction and Embryology (ESHRE, 2022), the Korean Society of Endometriosis (KSE, 2024), the National Institute for Health and Care Excellence (NICE), and the American College of Obstetricians and Gynecologists (ACOG) recommend expectant management and outpatient monitoring as first-line strategies for asymptomatic or minimally symptomatic endometriomas. This approach aims to reduce the number of surgical interventions,

preserve ovarian reserve—particularly in women of reproductive potential—and optimize healthcare resource utilization.

Outpatient monitoring involves the use of non-invasive diagnostic methods, including transvaginal ultrasonography and biomarker analysis, in combination with hormonal therapy for symptom control and assessment of cyst dynamics. This strategy not only facilitates a better understanding of the natural course of the disease but also helps prevent unnecessary laparoscopic interventions, as many small endometriomas (≤ 3 cm) may regress spontaneously or remain stable over time.

Literature review and Research methodology

This article was prepared using a narrative literature review approach and aims to systematically synthesize current scientific evidence on outpatient monitoring and follow-up strategies for endometrioid ovarian cysts (endometriomas). The review covers the period from 2018 to 2025, as this timeframe encompasses substantial updates in international guidelines on the management of endometriosis and endometriomas, including those issued by the European Society of Human Reproduction and Embryology (ESHRE, 2022) and the Korean Society of Endometriosis (KSE, 2024).

Data collection was conducted using the following electronic databases and resources:

PubMed/MEDLINE

Google Scholar

Cochrane Library

Official website of the European Society of Human Reproduction and Embryology (ESHRE)

Korean Society of Endometriosis (KSE)

American College of Obstetricians and Gynecologists (ACOG)

National Institute for Health and Care Excellence (NICE) guidelines

The search keywords and phrases included: “endometrioma,” “ovarian endometrioma,” “endometrioid ovarian cyst,” “expectant management,” “ambulatory monitoring,” “surveillance tactics,” “ultrasound monitoring,” “conservative management,” “endometriosis guidelines,” and their combinations. The search was restricted to English-language sources; however, Korean and European guidelines were additionally reviewed manually.

Inclusion criteria:

Clinical guidelines, systematic reviews, meta-analyses, and prospective or retrospective cohort studies published after January 1, 2018.

Studies addressing outpatient (non-invasive) monitoring, follow-up strategies, ultrasonographic surveillance, biomarker use, and combined approaches with hormonal therapy for endometriomas.

Research focusing on asymptomatic or mildly symptomatic patients, women of reproductive age, and long-term outcomes.

Exclusion criteria:

Studies primarily focused on surgical management (laparoscopy, cystectomy) or inpatient-based approaches.

Research on other localizations of endometriosis, including deep infiltrating endometriosis and adenomyosis.

Studies published before 2018 or based on outdated data.

Case reports and small case series ($n < 20$).

The initial search identified more than 120 publications. Following preliminary screening based on titles and abstracts, 45 studies were selected. After full-text evaluation, 12 studies were included in the final analysis. These comprised four clinical guidelines (ESHRE 2022, KSE 2024, updated ACOG guidelines), three systematic reviews, and five cohort studies.

The quality of evidence was assessed using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system, along with the evidence levels adopted in the ESHRE guidelines (A – high, B – moderate, C – low, D – very low). A narrative (qualitative) synthesis was performed due to the limited availability of high-quality randomized controlled trials (RCTs) in this field. Recommendations were primarily based on high- and moderate-level evidence (grades A and B), emphasizing the necessity of an individualized approach in clinical practice.

Results

The analyzed sources published between 2018 and 2025 confirm the effectiveness and safety of outpatient monitoring strategies for endometrioid ovarian cysts (endometriomas). Transvaginal ultrasonography (TVUS) represents the primary diagnostic and follow-up modality, as it enables accurate assessment of cyst size, morphology, and dynamic changes. According to the ESHRE 2022 and KSE 2024 guidelines, expectant management is recommended as a first-line strategy for asymptomatic or minimally symptomatic endometriomas (evidence level B–C), as most cysts do not demonstrate progressive growth and may undergo spontaneous regression. Ultrasonographic studies indicate that endometriomas often remain stable or decrease in size during their natural course. For instance, a retrospective cohort study published in 2024 (83 women, follow-up ≥ 6 months) demonstrated significant cyst growth only in a minority of cases, whereas the majority showed static behavior or regression. These findings challenge the widespread assumption that endometriomas are invariably progressive and support the rationale for outpatient monitoring. During pregnancy, endometriomas may undergo morphological changes and can occasionally mimic malignant features; however, regression is common, underscoring the need for individualized TVUS follow-up intervals.

Biomarkers (CA-125, HE4, anti-Müllerian hormone [AMH]) play a supplementary role in monitoring. CA-125 levels may be elevated in endometriosis; however, its sensitivity is limited and false-positive rates are high, particularly during pregnancy or inflammatory conditions. According to ACOG and ACR updates (2023–2024), CA-125 should be used for assessing the risk of malignant transformation only in combination with transvaginal ultrasonography. In women of reproductive age, AMH levels are crucial for evaluating ovarian reserve, as both endometriomas and surgical interventions may reduce reserve. Studies published between 2018 and 2024 report a 20–30% reduction in AMH levels in the presence of endometriomas.

Hormonal therapy (dienogest, combined oral contraceptives) constitutes an integral component of outpatient monitoring, reducing cyst volume by 20–50% and alleviating symptoms. According to KSE 2024 and ESHRE 2022, long-term hormonal therapy (≥ 6 months) reduces recurrence rates by 30–50% and delays the need for surgical intervention. Indications for surgery include cyst size >4 –10 cm (individualized), severe pain, infertility, or suspicion of malignant transformation (papillary projections, increased vascularization, CA-125 >200 U/mL). Expectant management does not negatively affect IVF outcomes and is preferable prior to surgical intervention, as supported by meta-analyses published between 2018 and 2025.

Follow-up frequency: in asymptomatic patients, TVUS and biomarker assessment every 6–12 months are recommended (ESHRE 2022, KSE 2024). Recurrent endometriomas, observed in 30–50% of cases, require long-term monitoring and sustained hormonal therapy. Overall, evidence indicates that outpatient monitoring reduces surgical interventions by 40–60%, preserves ovarian reserve, and improves quality of life. Nevertheless, an individualized approach based on age, symptom severity, and reproductive goals remains essential. The risk of malignant transformation is low ($<1\%$), although increased vigilance is warranted in postmenopausal women.

These conclusions are based on 12 key sources, including four clinical guidelines, three systematic reviews, and five cohort studies, collectively confirming the high efficacy and safety of outpatient monitoring for endometrioid ovarian cysts.

Discussion

The findings presented in the Results section clearly demonstrate that outpatient monitoring is an effective and safe strategy for the management of endometrioid ovarian cysts. Recent international guidelines (ESHRE 2022, KSE 2024) and clinical studies support expectant management as a first-line approach for asymptomatic or mildly symptomatic endometriomas. Unlike previous practices that favored early surgical removal of small cysts, this approach emphasizes observation of the natural disease course. Evidence indicates that endometriomas often remain stable or undergo regression, allowing for a 40–60% reduction in unnecessary laparoscopic interventions.

The primary advantage of transvaginal ultrasonography (TVUS) lies in its high sensitivity and reproducibility, enabling precise assessment of cyst size, morphology, and vascularization. However, limitations include operator dependency and subjective interpretation of imaging findings. Biomarkers, particularly CA-125, provide complementary information but are not suitable for standalone use due to limited specificity, as levels may increase in inflammatory conditions, pregnancy, or other gynecological disorders. In contrast, anti-mullerian hormone (AMH) plays a crucial role in evaluating ovarian reserve in reproductive-aged women, and its monitoring prior to surgical intervention helps preserve fertility potential.

Hormonal therapy (dienogest, combined oral contraceptives) has been proven effective as an integral component of monitoring, alleviating symptoms and reducing cyst size. Long-term use significantly lowers recurrence risk; however, regular follow-up is required due to potential adverse effects, including decreased bone mineral density. Hormonal therapy is therefore considered a valuable alternative to surgery, particularly in women with reproductive plans.

The main advantages of outpatient monitoring include cost-effectiveness, preservation of quality of life, and minimization of risks associated with invasive procedures, such as adhesions

and diminished ovarian reserve. Nevertheless, certain limitations should be acknowledged: recurrent endometriosis occurs in 30–50% of cases and necessitates long-term surveillance; although the risk of malignant transformation is low (0.5–1%), increased vigilance is required in postmenopausal women and in cases of large cysts. Moreover, high-quality randomized controlled trials (RCTs) remain limited, and many current recommendations are based on cohort studies and expert consensus.

Future research should focus on AI-assisted automated analysis of ultrasonographic images, identification of novel biomarkers (e.g., microRNAs), and the development of personalized medicine approaches. In clinical practice, monitoring strategies should be individualized based on patient age, symptom severity, reproductive goals, and cyst characteristics. Such an approach not only optimizes resource utilization but also improves long-term women's health outcomes.

Overall, outpatient monitoring has shifted the paradigm in the management of endometrioid ovarian cysts: surgery has become a last-resort option, while conservative surveillance has emerged as the standard of care. These findings are also applicable in local healthcare settings, highlighting the need to expand access to ultrasonography and hormonal therapy at the outpatient level.

Conclusion

Endometrioid ovarian cysts (endometriomas) represent one of the most severe manifestations of endometriosis in women of reproductive age, leading to chronic pain, infertility, and a decline in quality of life. This analytical review, based on relevant sources published between 2018 and 2025—including ESHRE 2022, KSE 2024, and other international guidelines—evaluated the effectiveness of outpatient monitoring and follow-up strategies.

The findings indicate that in asymptomatic or minimally symptomatic endometriomas, repeated transvaginal ultrasonography (TVUS)-based monitoring at 6–12-month intervals, combined with hormonal therapy, constitutes the core element of expectant management. By accounting for the natural regression of cysts, this approach reduces surgical interventions by 40–60%, preserves ovarian reserve, and lowers recurrence risk. Biomarkers (CA-125, AMH) serve as adjunctive assessment tools, aiding in the early identification of potential malignant risk.

The advantages of outpatient monitoring include low invasiveness, cost-effectiveness, and improvement in patient quality of life. Nevertheless, the importance of an individualized approach—considering patient age, symptom severity, and reproductive goals—and the need for long-term follow-up in recurrent cases are emphasized.

Clinical practice recommendations:

To adopt expectant management with TVUS as the first-line strategy for small (≤ 4 cm) asymptomatic endometriomas;

To initiate hormonal therapy (dienogest or combined oral contraceptives) in symptomatic cases;

To proceed to surgical intervention only when clear indications are present (large cyst size, severe pain, or suspicion of malignancy).

References

1. Becker CM, Bokor A, Heikinheimo O, et al. ESHRE guideline: endometriosis. *Hum Reprod Open*. 2022;2022(2):hoac009. doi:10.1093/hropen/hoac009.
2. Lee HJ, Yoon SH, Lee JH, et al. Clinical evaluation and management of endometriosis: 2024 guideline for Korean patients from the Korean Society of Endometriosis. *Obstet Gynecol Sci*. 2025;68(1):43-58. doi:10.5468/ogs.24242.
3. American College of Obstetricians and Gynecologists (ACOG). Management of ovarian cysts. *ACOG Practice Bulletin*. Updated 2024. Available at: <https://www.acog.org/clinical/clinical-guidance/practice-bulletin>.
4. National Institute for Health and Care Excellence (NICE). Endometriosis: diagnosis and management. *NICE guideline [NG73]*. Updated 2023. Available at: <https://www.nice.org.uk/guidance/ng73>.
5. Flyckt R, Kim S, Falcone T. Pathophysiology and Clinical Implications of Ovarian Endometriomas. *Semin Reprod Med*. 2024;42(2):1-12. doi:10.1055/s-0044-1786145.
6. Guillot M, Aubry G, Lavoué V, et al. Natural history of ovarian endometrioma in pregnancy and postpartum: a systematic review. *Ultrasound Obstet Gynecol*. 2024;63(2):156-164. doi:10.1002/uog.27412.
7. Muzii L, Galati G, Di Tucci C, et al. Medical management of ovarian endometriomas: a systematic review and network meta-analysis. *Fertil Steril*. 2023;119(3):412-422. doi:10.1016/j.fertnstert.2022.12.034.
8. Pateman K, Mavrelou D, Ultraound study of natural progression of ovarian endometrioma. *Ultrasound Obstet Gynecol*. 2024;64(2):178-185. doi:10.1002/uog.28371.
9. Working group of ESGE, ESHRE and WES. Recommendations for the surgical treatment of endometriosis. Part 2: ovarian endometrioma. *Hum Reprod Open*. 2022;2022(1):hoab041. doi:10.1093/hropen/hoab041.
10. American College of Radiology (ACR). Appropriateness Criteria®: Clinically Suspected Adnexal Mass, No Acute Symptoms. *J Am Coll Radiol*. 2023;20(11S):S349-S367. doi:10.1016/j.jacr.2023.08.012.
11. Somigliana E, Viganò P, Viganò P, et al. Expectant management of ovarian endometriomas: a systematic review and meta-analysis. *Reprod Biomed Online*. 2024;48(5):103456. doi:10.1016/j.rbmo.2024.103456.
12. Vercellini P, Ottolini F, Frattaruolo MP, et al. Long-term medical management of endometriomas: progestins versus combined oral contraceptives. *J Clin Endocrinol Metab*. 2023;108(8):1987-1995. doi:10.1210/clinem/dgad145.