Online: https://jurnal.fk.uisu.ac.id/index.php/stm

Jurnal Kedokteran STM (Sains dan Teknologi Medik)

ISSN 2614-610X (Print) | ISSN 2614-8218 (Online)

J. Ked STM (Sains dan Teknologi Medik)

Laporan Kasus

MASSA OVARIUM REKUREN DENGAN KADAR CA-125 SANGAT TINGGI YANG MENYERUPAI KEGANASAN: LAPORAN KASUS

RECURRENT OVARIAN MASS WITH EXTREMELY ELEVATED CA-125 MIMICKING MALIGNANCY: CASE REPORT

Andhika Budi Sentoso,[a*] Ronny Arjartha Tarigan,[a] Clarissa Anastasya,[a] Zacky Aufnouval Firja Barus [a]

[a] Fakultas Kedokteran, Institut Kesehatan Medistra Lubuk Pakam, Jl.Sudirman. No.38, Lubuk Pakam, 20512, Indonesia

Histori Artikel

Diterima:
17 April 2026

Revisi:
31 Mei 2026

Terbit:
01 Juli 2026

Kata Kunci

Endometrioma Ovarium, CA-125, Endometriosis, Massa Ovarium Rekuren

A B S T R A K

Endometrioma ovarium merupakan salah satu bentuk endometriosis yang sering menimbulkan tantangan diagnostik karena dapat menyerupai keganasan ovarium, baik secara klinis maupun biokimiawi. Peningkatan kadar CA-125 yang sangat tinggi sering kali memperkuat kecurigaan terhadap keganasan sehingga berpotensi menyebabkan overdiagnosis dan overtreatment. Dilaporkan kasus seorang wanita berusia 39 tahun dengan massa ovarium rekuren yang disertai keluhan dismenore progresif, pembesaran abdomen, dan gangguan menstruasi. Pemeriksaan menunjukkan massa abdomen berukuran besar dengan kadar CA-125 mencapai 1.500 U/mL. Ultrasonografi memperlihatkan lesi kistik dengan gambaran khas ground glass appearance tanpa komponen solid yang mengarah pada diagnosis endometrioma. Namun, temuan intraoperatif berupa adhesi luas menimbulkan kecurigaan kuat terhadap keganasan ovarium. Pemeriksaan frozen section menunjukkan lesi jinak yang konsisten dengan endometrioma dan selanjutnya dikonfirmasi melalui pemeriksaan histopatologi definitif tanpa ditemukan tanda keganasan. Pasien menjalani histerektomi total dan salpingo-ooforektomi unilateral, diikuti terapi agonis GnRH pascaoperasi. Kasus ini menunjukkan bahwa endometrioma ovarium dapat menyerupai keganasan ovarium, terutama pada kondisi dengan kadar CA-125 yang sangat tinggi. Pemeriksaan histopatologi tetap merupakan standar emas dalam menegakkan diagnosis definitif. Pendekatan diagnostik yang komprehensif dan individual diperlukan untuk menghindari tindakan yang tidak perlu serta mengoptimalkan luaran pasien.

Keywords

Ovarian Endometrioma, CA-125, Endometriosis, Ovarian Mass Recurrent

A B S T R A C T

Ovarian endometrioma is a form of endometriosis that often presents a diagnostic challenge due to its ability to mimic ovarian malignancy both clinically and biochemically. Markedly elevated CA-125 levels may further raise suspicion of malignancy, potentially leading to overdiagnosis and overtreatment. We report the case of a 39-year-old woman with a recurrent ovarian mass presenting with progressive dysmenorrhea, abdominal enlargement, and menstrual irregularities. Examination revealed a large abdominal mass with a significantly elevated CA-125 level of 1,500 U/mL. Ultrasonography demonstrated a cystic lesion with a characteristic "ground glass appearance" without solid components, suggestive of endometrioma. However, intraoperative findings of extensive adhesions raised strong suspicion of malignancy. Frozen section analysis suggested a benign lesion consistent with endometrioma, which was subsequently confirmed by final histopathological examination. The patient subsequently underwent total hysterectomy and unilateral salpingo-oophorectomy, followed by postoperative GnRH agonist therapy. This case highlights that ovarian endometrioma can closely mimic ovarian malignancy, particularly in the presence of markedly elevated CA-125 levels. Histopathological examination remains the gold standard for definitive diagnosis. A comprehensive and individualized approach is essential to avoid unnecessary aggressive management and to optimize patient outcomes.

***Korespondensi**

Andhika Budi Sentoso, Fakultas Kedokteran, Institut Kesehatan Medistra, Lubuk Pakam, Email: dhikasentoso@gmail.com

DOI: https://doi.org/10.30743/stm.v9i2.1263

INTRODUCTION

Ovarian masses represent one of the most common gynecological conditions encountered in women of reproductive age. Their clinical spectrum ranges from benign functional cysts to ovarian malignancies.[1] One particular entity that frequently poses a diagnostic challenge is ovarian endometrioma. Ovarian endometrioma is a manifestation of ovarian endometriosis resulting from ectopic implantation of endometrial tissue, which undergoes cyclic hemorrhage in response to hormonal stimulation.[6],[7] Endometriosis is also recognized as a major contributor to infertility and chronic pelvic pain in woman of reproductive age.[8] The lesion is commonly referred to as a "chocolate cyst" due to the presence of thick, dark brown hemolyzed blood within the cyst cavity.

Serum CA-125 levels are often elevated in advanced endometriosis and may reach markedly high values that mimic ovarian malignancy.[11,12] This may create significant diagnostic and therapeutic dilemmas, particularly in patients presenting with large masses and extensive pelvic adhesions. Distinguishing ovarian endometrioma from ovarian malignancy remains a major clinical challenge in gynecological practice. Misinterpretation of markedly elevated CA-125 levels may lead to unnecessary aggressive surgical procedures, overtreatment, increased healthcare burden, and psychological distress for patients. Although elevated CA-125 is commonly associated with ovarian cancer, several benign gynecological conditions, including endometriosis, may also produce extreme elevations of this biomarker.

Therefore, reporting cases of ovarian endometrioma with markedly elevated CA-125 levels is important to improve clinician awareness and support more accurate diagnostic and therapeutic decision-making. This case report aims to describe a recurrent ovarian endometrioma presenting with extremely elevated CA-125 levels that clinically and biochemically mimicked ovarian malignancy, and to highlight the importance of comprehensive clinical, radiological, intraoperative, and histopathological evaluation in establishing an accurate diagnosis.

CASE ILLUSTRATION

A 39-year-old multiparous woman was referred from a regional hospital in Kota Pinang with a presumptive diagnosis of ovarian malignancy based on a markedly elevated serum CA-125 level of 1,500 U/mL (reference value <35 U/mL). The patient's chief complaint was progressively worsening dysmenorrhea during the previous three months. She also reported gradual lower abdominal enlargement accompanied by menstrual irregularities characterized by bleeding occurring twice monthly for approximately one year. The symptoms had progressively worsened and began to interfere with her daily activities. The patient denied significant weight loss, changes in bowel habits, urinary complaints, fever, or gastrointestinal symptoms.

Her past medical history was unremarkable for hypertension, diabetes mellitus, tuberculosis, or other chronic systemic diseases. The patient had undergone ovarian cystectomy in 2012 concomitantly with cesarean

section delivery, and the ovarian mass was reported as benign based on histopathological examination. The patient reported previously regular menstrual cycles before the onset of symptoms. She had completed childbearing and had no desire for future fertility. There was no history of infertility treatment, hormonal therapy, or previous diagnosis of endometriosis. The patient reported no family history of ovarian cancer, breast cancer, or other gynecological malignancies. She was a non-smoker and denied alcohol consumption or other significant social risk factors.

On physical examination, the patient was hemodynamically stable with blood pressure of 120/80 mmHg, pulse rate of 80 beats/minute, respiratory rate of 20 breaths/minute, body temperature of 36°C, and oxygen saturation of 98%. Abdominal examination revealed lower abdominal distension with suprapubic tenderness and a palpable firm, immobile pelvic mass measuring approximately 20 × 10 cm. Laboratory evaluation confirmed a serum CA-125 level of 1,500 U/mL. Routine hematological and biochemical examinations were performed as part of the preoperative assessment and showed no contraindication to surgery. Preoperative chest radiography revealed no cardiopulmonary abnormalities. Electrocardiography demonstrated sinus tachycardia without other significant abnormalities. Differential diagnoses included ovarian endometrioma, ovarian malignancy, and functional ovarian cyst.

Abdominal ultrasonography demonstrated a hypoechoic cystic adnexal lesion without septations or papillary projections, consistent with a “ground glass appearance.” Ultrasonography is recommended as the first-line imaging modality for the evaluation of ovarian endometriosis.[2] The absence of solid components, papillary projections, or thick septations favors a benign etiology and helps differentiate endometrioma from ovarian malignancy.[9]

Based on the clinical presentation and imaging findings, ovarian endometrioma was considered the most likely diagnosis, although ovarian malignancy could not be excluded. Intraoperatively, a large ovarian mass with

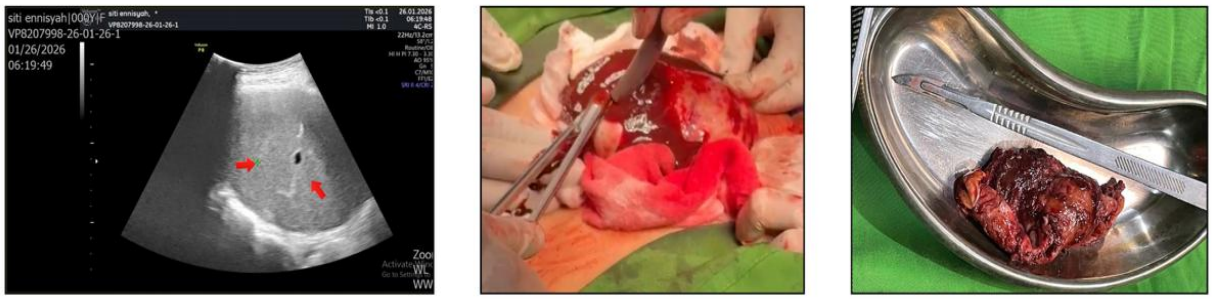

Figure A. Abdominal Ultrasound. Abdominal ultrasound demonstrating an adnexal cystic lesion with a homogeneous hypoechoic ground glass appearance, without septations (septa negative) or papillary projections (papillae negative). Doppler examination showed normal blood flow without increased vascularization, suggestive of an ovarian endometrioma. **Figure B**. **Intraoperative**. Intraoperative findings revealed a large ovarian cystic mass with extensive adhesions to the uterus and surrounding pelvic organs; incision of the cyst released thick dark brown fluid resembling old blood, characteristic of endometrioma. **Figure C. Macroscopic Specimen.** Gross specimen showing a thick-walled cystic mass containing dense dark brown material without solid components or papillary projections, consistent with ovarian endometrioma.

extensive adhesions to the uterus, omentum, and adjacent pelvic structures was identified, initially raising strong suspicion of malignancy.[3]

Intraoperative frozen section analysis revealed benign pathology consistent with endometrioma. During surgery, a large ovarian mass with extensive adhesions involving the uterus, omentum, and surrounding pelvic structures was identified. Because the intraoperative findings strongly resembled ovarian malignancy, frozen section examination was requested to guide surgical decision-making. Frozen section analysis demonstrated a benign lesion consistent with ovarian endometrioma. Final histopathological examination of the surgical specimen subsequently confirmed ovarian endometrioma without evidence of malignancy. Considering the patient's age, completed parity, and severe endometriosis with extensive adhesions, right salpingo-oophorectomy and total hysterectomy were performed. A surgical drain was placed due to extensive adhesiolysis. During hospitalization, the patient underwent regular clinical monitoring before and after surgery. Prior to surgery, she remained hemodynamically stable despite persistent abdominal discomfort. Following total hysterectomy and unilateral salpingo-oophorectomy, the patient experienced expected postoperative wound pain but remained clinically stable. Postoperative management included intravenous fluids, antibiotics, analgesics, and close observation for bleeding and other surgical complications. No major postoperative complications were observed, and the patient was subsequently scheduled for GnRH agonist therapy to reduce the risk of recurrence.[4] Daily postoperative assessment demonstrated stable vital signs and satisfactory recovery. The patient tolerated the procedure well and showed no evidence of immediate postoperative complications

DISCUSSION

Ovarian endometrioma represents an advanced form of endometriosis and is frequently associated with extensive pelvic adhesions and chronic inflammation. Repeated cyclic hemorrhage within the cyst leads to iron accumulation, oxidative stress, and a persistent inflammatory response, contributing to fibrosis and potential impairment of ovarian reserve. Recent studies have also highlighted the role of oxidative stress and inflammatory biomarkers in the pathophysiology of endometrioma, further explaining disease progression and tissue damage.[19,20] In the present case, extensive pelvic adhesions and recurrent disease were observed intraoperatively, suggesting advanced-stage endometriosis. Chronic peritoneal inflammation and repeated hemorrhagic activity may have contributed to significant mesothelial activation and excessive production of CA-125. This mechanism may explain the markedly elevated CA-125 levels observed in this patient despite the absence of ovarian malignancy. Similar cases have been reported in the literature, indicating that extremely elevated CA-125 levels should not automatically be interpreted as evidence of cancer.

One of the main challenges in managing ovarian endometrioma is its ability to mimic ovarian malignancy. Several benign gynecological conditions, including ovarian

endometrioma, may mimic malignancy both clinically and biochemically. Serum CA-125 levels in endometriosis can be markedly elevated, occasionally exceeding 1,000 U/mL, leading to diagnostic challenges and potential overtreatment, particularly in the presence of large adnexal masses and extensive adhesions.[10,12] Recent evidence suggests that CA-125 alone has limited specificity in differentiating endometrioma from ovarian malignancy, and its diagnostic accuracy improves when combined with other clinical parameters and biomarkers.[16,18] This limitation explains why markedly elevated CA-125 levels may lead to misinterpretation and unnecessary aggressive surgical approaches. The present case illustrates this diagnostic challenge clearly. The combination of a large recurrent ovarian mass, extensive pelvic adhesions, and a markedly elevated CA-125 level initially raised strong suspicion for ovarian malignancy. However, ultrasonographic findings demonstrated a characteristic ground-glass appearance, and subsequent frozen section and histopathological examination confirmed benign ovarian endometrioma. These findings emphasize that tumor marker elevation should always be interpreted in conjunction with clinical history, imaging characteristics, and intraoperative findings.

Furthermore, systematic reviews have emphasized that overlapping clinical, biochemical, and imaging findings between benign and malignant ovarian masses remain a major diagnostic challenge, reinforcing the importance of comprehensive evaluation.[16,17] Similar diagnostic dilemmas have been described in recent case reports where benign conditions mimicked malignant processes, emphasizing the importance of careful intraoperative assessment and histopathological confirmation.[14,15]

Radiologically, endometriomas typically appear as homogeneous cystic lesions with low-level internal echoes described as a “ground glass appearance” on ultrasonography. The absence of papillary projections or thick septations supports a benign etiology. However, imaging findings may overlap with malignancy in complex cases, and therefore histopathological confirmation remains essential, particularly in patients with markedly elevated tumor markers.

Management of ovarian endometrioma depends on patient age, fertility desire, cyst size, symptom severity, and the degree of suspicion for malignancy. In the present case, definitive surgical management with salpingo-oophorectomy and hysterectomy was selected due to completed parity and severe endometriosis with extensive adhesions. This case underscores the importance of intraoperative frozen section analysis in patients with adnexal masses and inconclusive preoperative findings. Frozen section examination provides rapid pathological assessment that may assist surgeons in distinguishing benign from malignant lesions during surgery. In the present case, frozen section played a crucial role in confirming a benign diagnosis and supporting appropriate surgical decision-making. Histopathological examination subsequently confirmed ovarian endometrioma without evidence of malignancy.

This case highlights the importance of a comprehensive diagnostic approach in women presenting with adnexal masses and markedly elevated CA-125 levels. Clinical history, imaging findings, intraoperative assessment, and histopathological confirmation should be considered together to avoid misdiagnosis and ensure appropriate management.

CONCLUSION

This case demonstrates that recurrent ovarian endometrioma may closely mimic ovarian malignancy, particularly when accompanied by extremely elevated CA-125 levels and extensive pelvic adhesions. Despite a CA-125 level of 1,500 U/mL, histopathological examination confirmed a benign ovarian endometrioma without evidence of malignancy. Healthcare professionals should avoid relying solely on tumor marker levels when evaluating adnexal masses and should integrate clinical history, imaging findings, intraoperative assessment, and histopathological examination to establish an accurate diagnosis. A comprehensive and individualized approach is essential to prevent misdiagnosis, avoid unnecessary aggressive treatment, and optimize patient outcomes.

REFERENCE

1. European Society of Human Reproduction and Embryology (ESHRE). Endometriosis guideline 2022. Hum Reprod Open. 2022;2022(2):hoac009.
2. National Institute for Health and Care Excellence (NICE). Endometriosis: diagnosis and management (NG73). London: NICE; 2024 update.
3. American College of Obstetricians and Gynecologists. Management of endometriosis. Practice Bulletin No. 218. Obstet Gynecol. 2021;137(3):e63–e87.
4. Daniilidis A, Grigoriadis G, Kalaitzopoulos DR, et al. Surgical management of ovarian endometrioma: impact on ovarian reserve and recurrence. J Clin Med. 2023; 12(16):5324.
5. Eberle AE, Nguyen DB, Papillon-Smith J, et al. Medical management of ovarian endometriomas: a systematic review and meta-analysis. Obstet Gynecol. 2024; 143(1):123–134.
6. Bulun, S. E. (2009). Endometriosis. The New England Journal of Medicine, 360(3), 268–279. https://doi.org/10.1056/NEJMra0804690
7. Giudice, L. C. (2010). Endometriosis. The New England Journal of Medicine, 362(25), 2389–2398. https://doi.org/10.1056/NEJMcp1000274
8. Practice Committee of the American Society for Reproductive Medicine. (2012). Endometriosis and infertility: A committee opinion. Fertility and Sterility, 98(3), 591–598. https://doi.org/10.1016/j.fertnstert.2012.05.031
9. Timmerman, D., Testa, A. C., Bourne, T., Ameye, L., Jurkovic, D., Van Holsbeke, C. Valentin, L. (2010). Simple ultrasound-based rules for the diagnosis of ovarian cancer. BMJ, 341, c6839. https://doi.org/10.1136/bmj.c6839
10. Daniilidis, A., Chatzis, P., Kougioumtzi, I., & Papageorgiou, S. (2023). Surgical management of ovarian endometrioma: Impact on ovarian reserve and recurrence. Journal of Clinical Medicine, 12(16), 5324. https://doi.org/10.3390/jcm12165324
11. Chan, A., azzaroni, E., & Milani, R. (1994). Ovarian endometrioma associated with very high serum CA-125 levels. Gynecologic and Obstetric Investigation, 38(2), 123–125. https://doi.org/10.1159/000292460
12. Musawwir, R., Akhter, S., & Begum, F. (2018). High CA-125 in endometrioma: An unusual presentation. KYAMC Journal, 9(3), 135–138. https ://doi.org/10.3329/kyamcj.v9i3.38788
13. Nisenblat V, Bossuyt PMM, Shaikh R, et al. Blood biomarkers for the non-invasive diagnosis of endometriosis. Cochrane Database Syst Rev. 2021;5(5):CD012179. doi:10.1002/14651858.CD012179.pub2
14. Shibahara M, Kondo E, Shibata E, et al. Spontaneous rupture of an ovarian artery aneurysm complicated by postpartum

hypertensive disorders of pregnancy after caesarean section: a case report and literature review. J Med Case Rep. 2024;18:553. doi:10.1186/s13256-024-04871-y
15. Le ND, Nguyen PN. Uterine arteriovenous malformation or uterine artery pseudoaneurysm secondary to uterine aspiration in cesarean scar ectopic pregnancy: a case report and review of the literature. J Med Case Rep. 2025; doi:10.1186/s13256-025-05312-0
16. Feduniw S, Pruc M, Ciebiera M, et al. Current evidence on CA-125 levels in differentiation between endometriomas and endometriosis-associated ovarian cancer: a systematic review and meta-analysis. J Endometriosis Pelvic Pain Disord. 2024. doi:10.1177/22840265241275349
17. Yang X, Zhang H, He H, Li Y, Yang Y, Ye Q. Clinical value of clinical symptoms, serum biomarkers, and coagulation parameters for ovarian endometrioma diagnosis. J Ovarian Res. 2026. doi:10.1186/s13048-026-02027-8
18. Li T, Hou N, Mao L, Liu F, Ma Z, Wang L. Tumor markers in differential diagnosis of benign ovarian masses. Int J Womens Health. 2024;16:XX–XX. doi:10.2147/IJWH.S471058
19. Capozzi VA, Scarpelli E, Dell'Omo S, Rolla M, et al. Atypical endometriosis: a comprehensive systematic review of pathological patterns and diagnostic challenges. Biomedicines. 2024;12(6): 1209. doi:10.3390/biomedicines12061209
20. Aksoy RT, Tonyalı NV, Dayanan R, Bulan DD, et al. May serum advanced oxidation protein products levels be diagnostic markers in endometrioma? BMC Womens Health. 2025;25:XX. doi:10.1186/s12905-025-04145-9