

Bilateral endometriotic cyst with extremely high Ca-125 and Ca-19-9 levels caused by chronic leakage of cyst fluid: A case report

 Belma Gozde Ozdemir,  Serkan Kahyaoglu,  Kadir Cetinkaya

Clinic of Gynecology and Obstetrics, Ankara City Hospital, Bilkent, Turkey

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Abstract

Endometriosis is a chronic and enigmatic disease that affects reproductive-age women exhibiting chronic pelvic pain and infertility. The advanced stage of the disease can be diagnosed when a cystic ovarian lesion called endometrioma exists. Endometrioma is a condition that occurs when endometriotic cells invade the ovarian cortex and manifest themselves as a mass within the ovary on ultrasonography. In general, malignant transformation of ovarian endometriomas is rare, but the possibility of underlying malignancy requires individualization and caution in managing these patients. Serum tumor markers, imaging modalities, clinical conditions of the patient, and risk scoring algorithms should be taken into account for evaluating endometriotic cysts as other adnexal masses. In this rare case, we tried to present the importance of the preoperative estimation of serum HE-4 level and Risk of Malignancy Algorithm (ROMA) risk scoring index in a patient with colossal endometrioma and extremely high CA-125 and CA-19-9 levels.

Keywords: Endometriosis; laparoscopic; pain; surgery

INTRODUCTION

Endometriosis may appear in different clinical scenarios such as infertility, dysmenorrhea, and chronic pelvic pain, depending on the severity and location of endometriotic implants. Endometrioma is typically visualized as a ground-glass appearance within ovaries on pelvic ultrasonography endometriotic, also called a chocolate cyst. Endometriomas can be asymptomatic, incidentally detected (1). On sonography, and symptomatic when a cyst rupture or infection occurs or when pelvic pain like dysmenorrhea, dyspareunia, dysuria exists. Most endometriomas can be followed up with close observation and medical treatment modalities like hormonal treatment. About 1 percent of endometriomas, including malignant transformation and malignancy risk scoring, is also essential because clear cell and endometrioid ovarian cancer can occur (2). Therefore, it is necessary to perform surgery in any situation with an atypical presentation, mainly when endometriomas include solid, papillary, and vascularized areas, which are predictive ultrasonographic parameters for malignancy. Although the use of tumor markers is valuable, especially the low sensitivity of the

serum CA-125 level has led us to use new calculations and values in terms of approach.

Some conditions that cause the increase in CA-125 value have a wider range of scales, including ovarian malignancies, ectopic pregnancy, menstrual cycle, pregnancy, peritoneal irritation non-gynecological abdominal pathologies (3).

Various parameters are used to approach each patient individually because a single value may not give us healthy results. One of these calculations is the Risk Of Malignancy Algorithm (ROMA Index) (4). This calculation, which was approved in 2011, considers the use of CA-125 and HE-4 and whether or not the menopausal state has been reached to implement a regression analysis. As a result, premenopausal under 13.1% and menopausal under 27.7% are considered safe ranges. The predictive value of HE-4 that the FDA approved in 2008 is used both solely and as a component of malignant risk evaluation algorithms' parameters.

CASE REPORT

In this case, a 23-year-old virgin patient came to us with chronic pelvic pain, which increased with the menstrual

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Corresponding Author: Belma Gozde Girgin, Clinic of Gynecology and Obstetrics, Ankara City Hospital, Bilkent, Turkey

E-mail: gzdgrgn35@gmail.com

cycle for about three years. The physical examination of the patient was unremarkable except for painful sensitivity on the right lower quadrant. The description of chronic pelvic pain of the patient was suggested as endometriotic pain. On transabdominal ultrasonographic examination, a cystic mass approximately 11 cm in the right ovary and a cystic mass about 6 cm in size compatible with the endometrioma were detected in the left ovary. Serum laboratory evaluations like biochemistry, complete blood count, and hormonal parameters were within normal ranges except high C reactive protein (CRP), detected as 11.6 mg/ dl. Due to fertility concerns, we have performed a serum antimüllerian hormone level test of the patient, which was seen as 3.51 mg/ dl. Serum tumor markers evaluation revealed that the CA-125 value was determined as 3069 U/ ml and CA 19-9 value as 696 U/ ml. Extremely high values were a warning for a possible malignancy. Therefore, the patient was evaluated with advanced imaging methods. A hemorrhagic cyst with a diameter of 6 cm in the left ovary of the patient in the T2 sequence in the MR image and an endometrioma of 7 cm in diameter was detected in the right ovary (Figure 1).

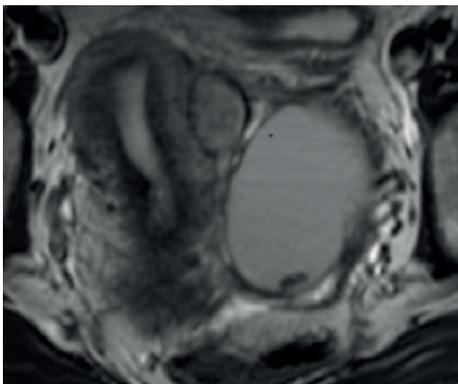


Figure 1. Left ovary magnetic resonance imaging view on T2 sequence which demonstrates haemorrhagic cyst as a bright cystic mass inlike endometrioma



Figure 2. Intraoperative view of the complicated endometriotic cyst in the right ovary

Thereupon, due to the patient's young age, fertility request, and urgency for proof of histological examination of the cystic masses, she was operated on with laparotomy and frozen section examination of the surgical specimen. The serum HE-4 level of the patient was studied by using the Roche Cobas E601 device and ECLIA method

preoperatively. The result was reported as 47 pmol / l as <60 pmol/ l defines a low probability of ovarian malignancy among women younger than 40. ROMA index result of the patient was 8% which was in favor of a benign mass. Her result was <11.4% which is a cut-off value of increased risk for ovarian epithelial malignancy.

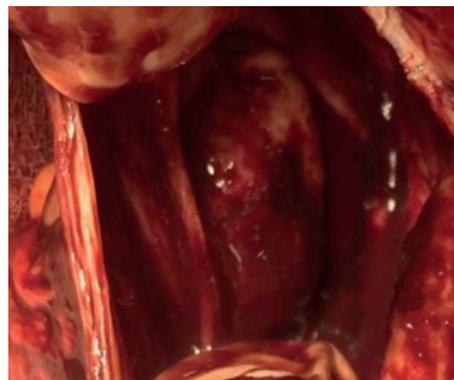


Figure 3. Intraabdominal leakage of endometriotic fluid which is detected at the beginning of the surgery

The patient was prepared for the operation, taking into account clinical, imaging, and laboratory tests. Laparotomy was performed with a midline incision. Upon observation of the abdominal cavity (Figure 2), it was observed that the abdomen and peritoneum were covered with brown cyst fluid. Bilateral endometrioma was detected, and cystectomy was performed (Figure 3). The cystic masses have been sent to the frozen section examination, which was reported as benign, and the final pathology result was declared to be compatible with endometrioma. The reason for the high CA-125 and CA19-9 was attributed to the irritation of the peritoneum with cyst fluid, which was high enough to suggest ovarian malignancy. The patient's postoperative course was uneventful, and she was discharged on the 4th day of her operation. During the 2nd-month follow-up, serum CA-125 and CA 19-9 values have decreased significantly.

DISCUSSION

Ovarian cancer is essential in gynecological malignancies in terms of a short survey and requiring advanced surgery. Ovarian malignancies that develop based on the endometrium floor should also not be overlooked. For this reason, various premenopausal and postmenopausal biomarkers and algorithms were suggested. These are stimulating in terms of ovarian malignancies in the follow-ups and treatments (5).

Among these, CA-125 has been used since the 1980s. Mullerian-originated can be secreted from peritoneal mesothelium and ovarian malignancies and has a mucin structure with a high molecular weight. It is not secreted from normal cells. Although it is helpful, especially in the management, follow-up, treatment response, and recurrence, its low specificity and rising in many pathologies can lead to misleading results because the CA 125 value increases not only in ovarian malignancies but

also in many benign pathologies and in non-gynecological pathologies, which include the gynecological menstruation period. It significantly increases in the case of tumors and inflammation of the peritoneum (6). Increased tumor markers in endometriosis might be associated with ruptured endometrium because of peritoneal irritation. It can also manifest itself in endometriosis, which involves the intra-abdominal organs' surfaces in the same way. The sudden reduction in the Ca125 levels after washing the peritoneum mesothelium confirms this. As a matter of fact, in the intraoperative period, the accuracy of this was verified in our case. In the intraoperative observation of the patient who had elevated Ca125 and Ca19-9 values, it was observed that the contents of the endometriotic cyst emerging from the ruptured mass had infection and irritation.

Although its elevation is lower than the synthesis in ovaries, HE-4 is a more specific marker.

Also, it does not show a significant change in the menstrual cycle. It is also a valuable method in determining the recurrences and treatment responses (7). ROMA calculation and the algorithms in which three of HE-4 Ca-125 values are evaluated are essential. This calculation is even more critical in the premenopausal period (8).

Differential diagnosis is most important for adnexal mass. For example, although endometriosis is a benign disease, it can cause malignancies with activity mechanisms, genetic changes, microenvironment, and oxidative stress. The importance of observing the patient and determining the medical and surgical preference is excellent in this context (9). In our case, to achieve this prediction, some tumoral markers and algorithms were calculated. Here, especially the low specificity of Ca125 is an important step. The calculation of these parameters in combination is more valuable than the individual evaluation of these markers.

Assessments are more critical, especially in reproductive patients. Decision-making and individualization of treatment planning on a patient basis are essential because early diagnosis in a premenopausal woman will determine the management and the fertility status, ovarian reserve, survey, and the size and shape of the surgery.

Further studies are needed to determine our management on this issue in terms of cost-benefit and standardization, which will bring more detailed data for malignancy scoring.

CONCLUSION

In conclusion, adnexal masses should be thoroughly evaluated to detect the possibility of malignancy for all age groups of women. Endometriomas can be observed or treated surgically based on symptomatology and imaging and serum tumor marker evaluation criteria favoring malignancy. Serum tumor markers, imaging modalities, and risk scoring algorithms can be performed during the evaluation of endometriomas. Slightly increased levels for serum CA-125 are a typical finding in patients

with endometriosis. Clinicians should keep in mind that highly high CA-125 and CA 19-9 levels can be caused by widespread irritation of the peritoneum by cyst fluid chronically leaked.

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