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Synchronous borderline ovarian tumor with endometrioid endometrial carcinoma - from diagnosis to treatment. A Case study

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Abstract

Introduction

The occurrence of two primary tumors at an interval of no more than two months is called a synchronous tumor. This also applies to female reproductive organs among which synchronous occurrence of ovarian and endometrial cancers is most frequently observed. This phenomenon is observed mainly in young women before menopause. A rare and problematic diagnostic situation is the synchronous co-occurrence of borderline ovarian carcinoma with

endometrioid carcinoma of the endometrium. The diagnostic problem and treatment of this combination of cancers are presented in the following case.

Case description:

A 30-year-old female patient presented to the Gynecologic Oncology Department with a suspected malignant lesions of both ovaries. She underwent fertility-sparing surgery with preservation of the left ovary and uterus. Examination of the resected tissues revealed an endometrioid borderline tumor. During the next hospitalization, an excision of uterine polyps was performed, during which no neoplastic lesion of the endometrium was observed. Ultrasound examination, in which the endometrial lesion was also invisible, raised suspicion of cancer recurrence on the left ovary. The patient was scheduled for resection of the left ovary with the recurrence and hysterectomy. The histopathological examination performed confirmed the recurrence on the ovary and showed foci of G1 endometrioid carcinoma of the uterus.

Conclusions

Cases that meet the criteria for synchronous tumor occurrence should be considered. Appropriate diagnosis and selection of radical treatment could affect the curability of patients. Further research on rare combinations of synchronous neoplasms could be helpful in clinical practice.

Keywords: synchronous cancer, borderline ovarian tumor, ovary cancer, endometrioid cancer, uterine cancer

Introduction

Synchronous neoplasms are called the presence of two or more primary tumors appearing no more than 2 months apart. The most common multiple primary tumors are located in the breast, head and neck, gastrointestinal tract, skin, lungs, and male and female reproductive organs [1]. Synchronous ovarian and endometrial cancers are the most common combination among all synchronous cancers of the female reproductive organs [2]. The incidence of synchronous cancers in the ovaries and endometrium is about 3-10% [3,4].

Endometrial ovarian and synchronous endometrial cancer (SEO-EC) is observed in young premenopausal women [5,6]. It also has a more favorable prognosis compared to other histologic subtypes of ovarian cancer [7,8]. It is a major clinical problem for gynecologists, as its diagnosis is very complicated and is based primarily on histopathological criteria [9,10,2]. It is important to distinguish between double primary cancer, or synchronous cancer, and metastatic disease as this helps establish an accurate diagnosis and assess the grade of the tumor and is also essential in selecting optimal follow-up treatment and predicting the patient's prognosis [11,12].

Endometrioid tumors of the epithelium of the ovary include endometrioid ovarian borderline tumors (EBOT), which are characterized by atypical or histologically malignant glands or cysts of the endometrioid type without infiltration of the lining [13]. With increased frequency, they occur in young women of reproductive age, and although the prognosis is favorable recurrence on the ovary on the same or opposite side is common[14,15].Ovarian cancer of the endometrioid subtype is particularly associated with an increased risk of synchronous endometrial cancer also of the endometrioid subtype[16,17].

Co-occurrence of synchronous primary endometrioid borderline ovarian tumors with endometrioid endometrial carcinoma is rare. The following description presents a study of such a case.

Case report

A 30-year-old premenopausal female patient presented to the Gynecologic Oncology Department in June 2022 due to tumor-like lesions in both ovaries. Additional tests

performed showed high values of HE4-144 and CA125 markers. The ROMA test to assess the risk of ovarian malignancy or malignancy of an already detected ovarian tumor obtained a value of 52.2%.

The patient was qualified for fertility-sparing surgery. A laparotomy was performed, which revealed a normal-sized uterus and bilateral appendages with smooth-walled tumors. During the operation, the decision was made to remove the right appendages including the right ovarian tumor and the left ovarian tumor lesion, sparing the left ovary and uterus. An intraoperative examination was performed. The examination included a tumor of the right ovary measuring 7x5x4.5cm, a right fallopian tube measuring 8 cm, and a tumor lesion of the left ovary measuring 8x6.6x4.5cm.A tumor of the rectovaginal tract/rectovaginal septum with a diameter of 1.5-2cm was also found, which was also removed. Also, specimens of the obturator ligament, specimens of the colonic gutter, peritoneum of the bladder, a fragment of the net, and adhesions of the left ovary with the small intestine were taken. The procedure and early postoperative course without complications.

The collected material was sent to the path morphology laboratory for histopathological examination. The test revealed the endometrioid borderline tumor, the presence of foci of transformation to intraepithelial high-grade G1 endometrioid carcinoma, and the presence of micro invasion of G1 endometrioid carcinoma not exceeding 5mm in diameter. On the external surface of the right fallopian tube, the most likely imposition of detached small pieces of borderline endometrial tumor can be seen. Rectal nodules with the presence of foci of external endometriosis. Adhesions of the left ovary with the small intestine and left side colon gutter specimen present foci of internal endometriosis.Other specimens without neoplastic tissue. A consultative examination performed at reference center confirmed the histopathological diagnosis.

in September 2023, due to usg suspicious of an endometroid polyp a hysteroscopic procedure removing the lesion was performed.No other patholologic of the uterine cavity were found. Hysteroscopic excision of a lesion in the uterus. During the surgical procedure, no other lesions on the uterine cavity was not noticed .In addition, a papillary lesion of the vulva on the right side was excised.

A follow-up ultrasound examination showed a cystic lesion on the left ovary, which raised suspicion of recurrence, and no neoplastic lesion of the endometrium was observed in the uterus.

A CT scan of the chest, abdomen, and small pelvis was ordered, which showed an 11 mm soft-tissue enhancing lesion in the uterine cavity. It was decided to perform a hysterectomy with the left adnexa spared from the earlier surgery, which was now suspected of recurrence. The uterine cavity showed mucosa with features of proliferation with nuclear atypia(EIN), squamous metaplasia, and a superficial mucosa-limited focus of endometrioid carcinoma of the uterus G1. Reactive lymph nodes are present.

All results indicated the synchronous occurrence of ovarian borderline neoplasm together with endometrioid subtype uterine carcinoma. Inadequate diagnosis of the uterus and choice of fertility-sparing treatment led to an undiagnosed endometroid cancer case.

Discussion

Synchronous multiple primary malignancies occurring at the same time are not uncommon in clinical oncology practice nowadays [18].It is possible to have double primary cancer, endometrial cancer with ovarian metastasis, and ovarian cancer with endometrial metastasis [19]. Distinguishing between independent primary tumors and metastasis from one site to another can be difficult based on clinical and pathological features alone, which contributes to the search for significant symptoms of these cancers [20]. Numerous studies have been conducted to improve knowledge of synchronous ovarian and endometrial cancers.

A study of 109,054 patients aged ≥18 years who were diagnosed with primary solid cancer showed a strong synchronous association between endometrial cancer and ovarian cancer. The median time from the diagnosis of uterine cancer to the development of another cancer was 55 days. Moreover, the results suggested that most patients with multiple primary cancers were older at the time of diagnosis of first cancer than those diagnosed with a single primary cancer. In addition, the results suggested that the occurrence of synchronous endometrial and ovarian cancer could be explained by mutation or overexpression of BRCA1/BRCA2 and MMR genes [1]. Another study showed significant differences in sonographic images in synchronous primary endometrial and ovarian cancers compared to endometrial cancer with ovarian metastasis. On ultrasound, ovarian tumors in the synchronous group were more often multicellular and less often bilateral compared to the

metastatic group. It was also noted that the median largest diameter of the endometrial tumor lesion was smaller in the synchronous tumor group compared to the metastatic group. The results raise the observation that knowledge of the ultrasound features of synchronous neoplasms may facilitate their preoperative identification, helping the surgeon determine the optimal management for the patient [21].

In addition, there are indications that foci of endometriosis which were also found in the described case may contribute to the occurrence of SEO-EC, which should arouse the vigilance of the clinician and could also be another diagnostic indicator [22,23].

Studies have shown important characteristics of synchronous multiple primary cancers of the female genital organs and especially synchronous endometrial and ovarian cancers. Knowledge of the presence of specific mutations, gene overexpression, and sonographic features could serve as a screening test for confirmation of synchronous cancer type.

Special attention should be paid to the selection of therapeutic options in patients with uncommon endometrial ovarian borderline tumors (EBOT). A study by Shuang-Zheng Jia et al. showed an increased incidence of endometrial lesions (including neoplastic type) in women with EBOT. Therefore, attention was drawn to the need for endometrial biopsy in women diagnosed with EBOT. In addition, younger women who were unborn and experienced abnormal vaginal bleeding were more likely to have synchronous endometrial disorders [24]. Another study noted that due to the young age of the incidence of BOT in patients, fertility-sparing procedures were the preferred treatment option. However, it has also been shown that the endometrial subtype of BOT has an increased risk of endometrial changes which outweighs the benefit of treatment with radical hysterectomy [25]. In cases where there is a desire to preserve the uterus, a uterine curettage would be required, which could still be an inadequate prophylaxis [26]. A deeper study and knowledge of these characteristics would make it possible to refer patients such as the woman described in the above case who have EBOT for additional diagnostic tests that would enable earlier diagnosis of endometrial lesions. And a decision on more radical but more appropriate treatment with hysterectomy would increase the chances of recovery, or prevent the occurrence of pathology in the endometrium. It is also important to extend the follow-up time for patients with malignant tumors, as early detection and treatment of other primary malignancies can prolong survival and improve quality of life [27].

Conclusions

In the diagnosis of cancers of the female reproductive organs after one primary cancer, the patient should always be observed with increased caution because there is a likelihood of another primary cancer as well. In the borderline subtype of ovarian cancer described in this case, there is a particularly increased risk of an endometrial lesion, which is why it is so important to know the histological subtype of ovarian cancer. Knowledge of this relationship would allow early detection of potentially pathological lesions which would have a beneficial effect on the curability of patients. However, the choice of appropriate treatment for this particular combination of synchronous cancers remains a difficult decision. Fertility-sparing treatment with increased risk of endometrial lesions seems as in the above case not sufficient which outweighs in favor of radical hysterectomy. However, in many situations, it is a desirable treatment for premenopausal women. The opportunity can be associated with early diagnosis thanks to the knowledge of the characteristics and the presence of specific mutations. The presence of mutations is an important diagnostic indicator, which moreover seems to be an opportunity for appropriate targeted immuno-oncological treatment. More studies are needed to solve this therapeutic problem.

Bibliography:

1. Tanjak P, Suktitipat B, Vorasan N, Juengwiwattanakitti P, Thiengtrong B, Songjang C, Therasakvichya S, Laiteerapong S, Chinswangwatanakul V. Risks and cancer associations of metachronous and synchronous multiple primary cancers: a 25-year retrospective study. BMC Cancer. 2021 Sep 23;21(1):1045. doi: 10.1186/s12885-021-08766-9. PMID: 34556087; PMCID: PMC8461969.
2. Zhan X, Li L, Wu M, Lang J. The prognosis of stage IA synchronous endometrial endometrioid and ovarian carcinomas. Arch Gynecol Obstet. 2019 Oct;300(4):1045-1052. doi: 10.1007/s00404-019-05288-5. Epub 2019 Sep 14. PMID: 31520260; PMCID: PMC6759754.
3. Shin W, Park SY, Kang S, Lim MC, Seo SS. How to manage synchronous endometrial and ovarian cancer patients? BMC Cancer. 2021 May 1;21(1):489. doi: 10.1186/s12885-021-08220-w. PMID: 33933018; PMCID: PMC8088669.
4. Yoneoka Y, Yoshida H, Ishikawa M, Shimizu H, Uehara T, Murakami T, Kato T. Prognostic factors of synchronous endometrial and ovarian endometrioid carcinoma. J

Gynecol Oncol. 2019 Jan;30(1):e7. doi: 10.3802/jgo.2019.30.e7. Epub 2018 Sep 17. PMID: 30479091; PMCID: PMC6304406.

5. Wang Y, Yu M, Yang JX, Cao DY, Zhang Y, Shen K, You Y. [Clinicopathologic and survival analysis of synchronous primary endometrial and ovarian cancer]. Zhonghua Fu Chan Ke Za Zhi. 2018 Dec 25;53(12):816-822. Chinese. doi: 10.3760/cma.j.issn.0529-567x.2018.12.004. PMID: 30585019.
6. Soliman PT, Slomovitz BM, Broaddus RR, Sun CC, Oh JC, Eifel PJ, Gershenson DM, Lu KH. Synchronous primary cancers of the endometrium and ovary: a single institution review of 84 cases. Gynecol Oncol. 2004 Aug;94(2):456-62. doi: 10.1016/j.ygyno.2004.05.006. PMID: 15297188.
7. Sozen H, Vatansever D, Iyibozkurt AC, Topuz S, Ozsurmeli M, Salihoglu Y, Guzelbey B, Berkman S. Clinicopathologic and survival analyses of synchronous primary endometrial and epithelial ovarian cancers. J Obstet Gynaecol Res. 2015 Nov;41(11):1813-9. doi: 10.1111/jog.12826. Epub 2015 Sep 14. PMID: 26369625.
8. Schultheis AM, Ng CK, De Filippo MR, Piscuoglio S, Macedo GS, Gatius S, Perez Mies B, Soslow RA, Lim RS, Viale A, Huberman KH, Palacios JC, Reis-Filho JS, Matias-Guiu X, Weigelt B. Massively Parallel Sequencing-Based Clonality Analysis of Synchronous Endometrioid Endometrial and Ovarian Carcinomas. J Natl Cancer Inst. 2016 Feb 1;108(6):djv427. doi: 10.1093/jnci/djv427. PMID: 26832770; PMCID: PMC4909128.
9. Yoneoka Y, Yoshida H, Ishikawa M, Shimizu H, Uehara T, Murakami T, Kato T. Prognostic factors of synchronous endometrial and ovarian endometrioid carcinoma. J Gynecol Oncol. 2019 Jan;30(1):e7. doi: 10.3802/jgo.2019.30.e7. Epub 2018 Sep 17. PMID: 30479091; PMCID: PMC6304406
10. Sethi N, Sharma R, Khunteta N, Vijay MK, Mehrol C, Yadav ML. Synchronous uterine serous carcinoma and ovarian sex cord stromal tumor (thecoma)-A rare first case report. Indian J Pathol Microbiol. 2022 Apr-Jun;65(2):437-439. doi: 10.4103/IJPM.IJPM_1424_20. PMID: 35435389.
11. Perrone AM, Girolimetti G, Procaccini M, Marchio L, Livi A, Borghese G, Porcelli AM, De Iaco P, Gasparre G. Potential for Mitochondrial DNA Sequencing in the Differential Diagnosis of Gynaecological Malignancies. Int J Mol Sci. 2018 Jul 13;19(7):2048. doi: 10.3390/ijms19072048. PMID: 30011887; PMCID: PMC6073261.

12. Shimizu M, Yamanaka K, Azumi M, Tomimoto M, Washio K, Takahashi R, Nagamata S, Murata Y, Yamasaki Y, Terai Y. A case of synchronous serous ovarian cancer and uterine serous endometrial intraepithelial carcinoma. J Ovarian Res. 2021 Jun 29;14(1):87. doi: 10.1186/s13048-021-00835-8. PMID: 34187525; PMCID: PMC8244197.
13. Zhang W, Jia S, Xiang Y, Yang J, Jia C, Leng J. Comparative study of endometrioid borderline ovarian tumor with and without endometriosis. J Ovarian Res. 2018 Aug 11;11(1):67. doi: 10.1186/s13048-018-0440-x. PMID: 30098603; PMCID: PMC6087536.
14. Nebgen DR, Lu KH, Bast RC Jr. Novel Approaches to Ovarian Cancer Screening. Curr Oncol Rep. 2019 Jul 26;21(8):75. doi: 10.1007/s11912-019-0816-0. PMID: 31346778; PMCID: PMC6662655.
15. Machida H, Matsuo K, Yamagami W, Ebina Y, Kobayashi Y, Tabata T, Kanauchi M, Nagase S, Enomoto T, Mikami M. Trends and characteristics of epithelial ovarian cancer in Japan between 2002 and 2015: A JSGO-JSOG joint study. Gynecol Oncol. 2019 Jun;153(3):589-596. doi: 10.1016/j.ygyno.2019.03.243. Epub 2019 Mar 21. PMID: 30905436; PMCID: PMC7526703.
16. Cybulska P, Paula ADC, Tseng J, Leitao MM Jr, Bashashati A, Huntsman DG, Nazeran TM, Aghajanian C, Abu-Rustum NR, DeLair DF, Shah SP, Weigelt B. Molecular profiling and molecular classification of endometrioid ovarian carcinomas. Gynecol Oncol. 2019 Sep;154(3):516-523. doi: 10.1016/j.ygyno.2019.07.012. Epub 2019 Jul 21. PMID: 31340883; PMCID: PMC6736779.
17. Gilks CB, Kommoss F. Synchronous tumours of the female reproductive tract. Pathology. 2018 Feb;50(2):214-221. doi: 10.1016/j.pathol.2017.10.007. Epub 2017 Dec 14. PMID: 29249564.
18. Luo ZH, Qi WL, Jin AF, Liao FX, Liu Q, Zeng QY. The role of 18F-FDG PET/CT in patients with synchronous multiple primary malignant neoplasms occurring at the same time. Front Oncol. 2022 Dec 2;12:1068055. doi: 10.3389/fonc.2022.1068055. PMID: 36530987; PMCID: PMC9757168.
19. Pecorino B, Laganà AS, Chiantera V, Ferrara M, Di Stefano AB, Di Donna MC, Sorrentino F, Nappi L, Mikuš M, Scollo P. Progression Free Survival, Overall Survival, and Relapse Rate in Endometrioid Ovarian Cancer and Synchronous Endometrial-Ovarian Endometrioid Cancer (SEO-EC): Results from a Large

Retrospective Analysis. Medicina (Kaunas). 2022 Nov 23;58(12):1706. doi: 10.3390/medicina58121706. PMID: 36556908; PMCID: PMC9784653.

20. Sakamoto I, Hirotsu Y, Amemiya K, Nozaki T, Mochizuki H, Omata M. Elucidation of genomic origin of synchronous endometrial and ovarian cancer (SEO) by genomic and microsatellite analysis. J Gynecol Oncol. 2023 Jan;34(1):e6. doi: 10.3802/jgo.2023.34.e6. Epub 2022 Oct 6. PMID: 36245225; PMCID: PMC9807354
21. Moro F, Leombroni M, Pasciuto T, Trivellizzi IN, Mascilini F, Ciccarone F, Zannoni GF, Fanfani F, Scambia G, Testa AC. Synchronous primary cancers of endometrium and ovary vs endometrial cancer with ovarian metastasis: an observational study. Ultrasound Obstet Gynecol. 2019 Jun;53(6):827-835. doi: 10.1002/uog.20213. Epub 2019 May 3. PMID: 30620432.
22. Amaral PI, Silva A, Lacerda A, Barros C. Synchronous endometrioid endometrial and ovarian cancer in a 34-year-old woman. BMJ Case Rep. 2015 Sep 8;2015:bcr2015210940. doi: 10.1136/bcr-2015-210940. PMID: 26351313; PMCID: PMC4567756.
23. Treloar SA, Wicks J, Nyholt DR, Montgomery GW, Bahlo M, Smith V, Dawson G, Mackay IJ, Weeks DE, Bennett ST, Carey A, Ewen-White KR, Duffy DL, O'connor DT, Barlow DH, Martin NG, Kennedy SH. Genomewide linkage study in 1,176 affected sister pair families identifies a significant susceptibility locus for endometriosis on chromosome 10q26. Am J Hum Genet. 2005 Sep;77(3):365-76. doi: 10.1086/432960. Epub 2005 Jul 21. PMID: 16080113; PMCID: PMC1226203.
24. Jia SZ, Zhang JJ, Yang JJ, Xiang Y, Liang Z, Leng JH. Risk of synchronous endometrial disorders in women with endometrioid borderline tumors of the ovary. J Ovarian Res. 2018 Apr 19;11(1):30. doi: 10.1186/s13048-018-0405-0. PMID: 29673382; PMCID: PMC5909205.
25. Reichenbach J, Schmoeckel E, Mahner S, Trillsch F. Diagnostic workup for endometrioid borderline ovarian tumors (eBOT) requires histopathological evaluation of the uterus. J Ovarian Res. 2021 Jul 7;14(1):89. doi: 10.1186/s13048-021-00839-4. PMID: 34233728; PMCID: PMC8265084.
26. Uzan C, Berretta R, Rolla M, Gouy S, Fauvet R, Darai E, Duvillard P, Morice P. Management and prognosis of endometrioid borderline tumors of the ovary. Surg Oncol. 2012 Sep;21(3):178-84. doi: 10.1016/j.suronc.2012.02.002. Epub 2012 Mar 13. PMID: 22418038.

27. 14 Song L, Li Q, Yang K, Yin R, Wang D. Three primary synchronous malignancies of the uterus, cervix, and fallopian tube: A case report. Medicine (Baltimore). 2018 Jun;97(24):e11107. doi: 10.1097/MD.0000000000011107. PMID: 29901630; PMCID: PMC6024067.