

SYNCHRONOUS PRIMARY ENDOMETRIAL AND OVARIAN CARCINOMA:
A CASE REPORT**Dr. Sapna Puri**

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ABSTRACT

Synchronous primary cancers of the endometrium and ovary are rare tumours. They should be differentiated from primary endometrial or ovarian tumours with metastasis as the management and prognosis of synchronous endometrial and ovarian cancer (SEOC) is different from metastatic endometrial or ovarian cancer. Synchronous primaries show better survival outcome as compared to cases with a single primary having metastatic disease. We report a case of synchronous primary endometrial and ovarian carcinoma (SPEOC) occurring in both the ovaries and endometrium with two different histologies. She presented with abnormal discharge per vaginum and was found to have endometrioid endometrial carcinoma and serous carcinoma of bilateral ovaries. The case is presented with a brief review of references.

KEYWORDS : Synchronous Primary Ovarian Cancer Endometrial Cancer**INTRODUCTION**

Synchronous malignancies involving the female genital tract are rare, with an incidence ranging from 0.5% to 1.7% [1]

The most common synchronous tumour of the female genital tract is SEOC which accounts to 50%-70%. As the overall incidence of synchronous tumours is less, it is often mistaken for metastatic cancer, posing significant challenges to accurately differentiate between primary and metastatic cases. A comprehensive histopathological assessment along with immunohistochemical and molecular analysis may be necessary to establish a diagnosis, given the distinct therapeutic strategies and prognostic implications associated with each entity.

We present a case of a 39-year-old woman with synchronous endometrioid carcinoma of endometrium and bilateral ovarian serous carcinoma.

Case Report

A 39-year-old nulligravida, presented with complaints of foul-smelling, copious discharge per vaginum, on and off for the past 1 year. History of decreased blood flow during menstruation was also present, associated with 2 episodes of delayed cycles. She had history of primary infertility during the one and half years of marriage. The patient had no other comorbidities and no family history of malignancy.

On examination, her BMI was 22.5 kg/m² and her vitals were within normal limits. Per abdominally, she had 12-14 week size cystic mass in the right lower abdomen. On per vaginal examination, uterus was 8-10 week size, soft and boggy to touch, a right adnexal mass was felt around 12-14 week size and was mobile, cystic, smooth, tender with a palpable groove between the mass and uterus.

Transvaginal ultrasound showed a hyperechoic lesion of 4 × 3 cm having significant internal vascularity and extending from the lower endometrial cavity. CEMRI pelvis revealed large polypoidal lesion in relation to lower part of uterine cavity, with possibility of endometrial malignancy coexisting with endometrial polyps. Bilateral well defined and multilocular cystic mass lesions were seen arising from ovaries, with papillary projections into the cyst lumen (ORADS MRI 4 lesions).

PET-CT scan revealed heterogeneously enhancing lesion in the lower part of uterus, cervix and another hypodense intrauterine lesion in the fundus. No extraserosal extension was present. Also, bilateral multicystic ovarian lesions were present. No metabolically active disease elsewhere was seen.

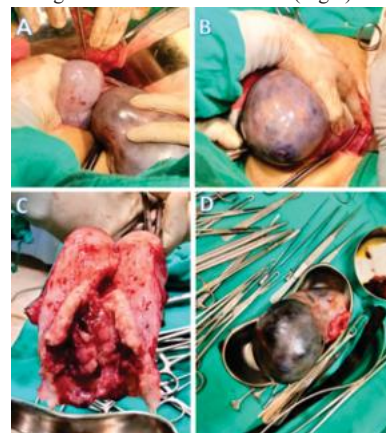
Cancer Antigen 125 (CA125) levels were raised to 392 U/ml. Endometrial biopsy showed adenocarcinoma of endometrium and Immunohistochemistry (IHC) markers were positive for ER, PR, p53, p16 and Vimentin, consistent with endometrioid endometrial carcinoma. (Table-1)

Table 1 IHC Markers of the Patient Following Endometrial Biopsy.

IHC Markers	Result
ER	Diffuse nuclear positive in tumour cells
PR	Diffuse nuclear positive in tumour cells
P53	Wild type nuclear positive in tumour cells
P16	Patchy mosaic positivity in tumour cells
Vimentin	Cytoplasmic positive in tumour cells
WT1	Negative in tumour cells
Napsin- A	Negative in tumour cells

A total abdominal hysterectomy with bilateral salpingo-ovariectomy with bilateral pelvic lymph node dissection, omentectomy and peritoneal fluid sampling was performed.

Intraoperatively, haemorrhagic peritoneal fluid was found. There was a cystic mass of around 12 × 10 cm arising from the right ovary and a 6 × 7 cm cystic mass arising from left ovary. The uterus was 10-12 cm in size. On cut section, an endometrial growth was seen arising in the fundal region and another fleshy growth seen in the lower uterine segment extending into the endocervical canal (Fig.1)

**Fig.1 Intraoperative and Specimen Findings. A and B Intraoperative Findings of Bilateral Large Ovarian Masses. C Cut**

Section of Uterus Showing Endometrial Growth with Necrotic Tissue. D Specimen of Ovarian Mass

Histopathological examination revealed endometrioid endometrial carcinoma, FIGO grade 2 with involvement of lower uterine segment and endocervix, without cervical stromal invasion. The tumour was confined to less than 50% of the myometrium (inner half) and lymphovascular invasion was not seen. Bilateral ovaries showed low grade serous carcinoma, with intact capsules and presence of surface implants on left ovary and left fallopian tube. Peritoneal fluid was positive for malignancy. No lymph node involvement was seen.

Final diagnosis of FIGO I A endometrioid endometrial cancer and FIGO II A serous carcinoma of bilateral ovaries was made.

Postoperatively, the patient is on chemotherapy with Paclitaxel and Carboplatin.

DISCUSSION

SEOC is characterised by the concurrent presence of malignant tumours in the endometrium and ovaries and is seen in nearly 5% of endometrial cancer and 10% of ovarian cancer cases.

In SEOC, tumours at the two sites may exhibit either identical or different histologies, with endometrioid carcinoma being the predominant type at both sites, accounting for about 50-70% of cases. Other types which include mucinous, clear cell, and mixed-type tumours, can also be seen.

Differentiating SEOC from metastatic disease arising from a single primary is relatively easy when the histological findings of the two tumours are distinct, as in our case. However, when both the tumours exhibit identical histologies, distinction between independent primary tumours and metastatic lesions can be challenging. These tumours can be distinguished after histopathological examination of the surgical specimen, utilization of criteria set by Ulbright and Roth, later modified by Scully *et al.*, and immunohistochemical studies [2].

The exact etiology and pathogenesis of SEOC is unclear. Theories suggest that epithelial linings of the uterus, cervix, fallopian tubes and ovaries share a common origin from the embryological Müllerian duct and when exposed to identical carcinogenic stimuli, it can lead to independent emergence of multiple primary neoplasms.

The concept of microenvironment confinement in SEOC suggests that tumour cells detach from primary lesion, disseminate locally and relocate within specific microenvironments without extensive metastasis. This contrasts with the widespread metastatic spread seen in endometrial or ovarian cancer and is associated with the favourable prognosis observed in SEOC patients [3].

Studies show that SEOC commonly occurs in young, premenopausal women, suggesting a potential role of estrogen in its pathogenesis. The median age of SEOC diagnosis is 50 years and over 50% of cases occur in premenopausal women [3]. About 40% of patients with synchronous endometrioid/serous tumours are nulliparous. Our patient too had history of nulliparity.

Rapid advancement of second-generation gene sequencing technology has proposed a molecular clonality association in the vast majority of SEOC cases, indicating that most SEOCs are the result of primary tumours accompanied by metastasis [4]. The most common mutation identified is PTEN (over 75% cases), followed by ARID 1A; with less common mutations being PIK3CA, HNF1B, KRAS, CTNNB1 [2].

Some cases of ovarian and endometrial cancers are associated with Lynch syndrome and women carrying mutations in Mismatch Repair (MMR) genes have a higher risk of developing gynaecological cancers [3]. The study conducted by Soliman PT. *et al.* in SEOC patients, using IHC analysis and Microsatellite instability (MSI) testing, found that 7% of patients had clinical or molecular criteria suggestive of Lynch syndrome [3]. Genetic testing plays a crucial role in guiding clinical decisions for young SEOC patients seeking fertility preservation. However, further studies are needed to validate its role in influencing treatment outcomes and prognosis.

SEOC patients lack specific clinical manifestations. Most SEOC patients are identified at an early stage owing to the characteristic symptoms of endometrial cancer namely abnormal vaginal bleeding,

seen in 56.2% patients of SEOC. 17% of patients have abdominal or pelvic pain and 13% of patients have abdominal or pelvic mass. Our patient had symptoms of discharge per vaginum and hypomenorrhoea.

Systematic surgical staging is the treatment of choice in SEOC. It includes total abdominal hysterectomy with bilateral salpingo-oophorectomy, total omentectomy, pelvic and para-aortic lymphadenectomy± appendicectomy and resection of all disease after sampling of ascitic fluid/saline washings for cytology [2].

SEOC patients with disease limited to the uterine body and adnexa have a reduced risk of recurrence and may not need adjuvant chemotherapy/radiotherapy. Patients having advanced stage disease, high-grade lesions or non-endometrioid histology, and features suggestive of metastatic disease, require aggressive postoperative adjuvant therapy [2].

SEOC is associated with favourable survival outcomes, with reported 5-year and 10-year survival rates of 86% and 80%, respectively. Therefore, accurate diagnostic differentiation and appropriate management play a pivotal role in optimizing clinical outcomes.

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Declarations

Conflict of Interest: The authors declare no conflicts of interest.

Ethical Approval: This article involves one human participant, whose informed consent was taken for publication. Ethical Committee permission is not needed for this case report.

Informed Consent: Written informed consent was taken from the patient for the publication of the case report.

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