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SYNCHRONOUS ENDOMETRIOID CARCINOMA OF THE ENDOMETRIUM AND OVARY – A CASE REPORT

Pathology

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ABSTRACT

The occurrence of more than one malignant tumour is a well-known but rare phenomenon. Simultaneous occurrence of endometrioid carcinomas of the ovary and endometrium are most common and share histological and molecular alterations. We describe a case of synchronous endometrioid carcinoma of the endometrium and ovary. A 40 year old lady came with complaints of pain abdomen and abnormal uterine bleeding for 8 months. On per abdomen examination, a palpable, firm mass was present. Operative findings showed a large irregular left ovary. Total abdominal hysterectomy and bilateral salpingo-oophorectomy was done and sent for histopathological examination. Gross examination showed the uterus to be enlarged with a friable growth, measuring 1.5x0.3x0.2cm, arising from the fundus and both of the walls of the endometrial cavity. The left ovary was enlarged and bosselated, measuring 9x7.5x6.5cm and weighing 100 grams. The cut section showed the ovarian parenchyma to be replaced by a greyish white growth. Histopathological examination showed endometrioid carcinoma, FIGO grade 2 in the uterus, invading upto the inner one third of myometrium and infiltrating into the cervix. The left ovary also showed endometrioid carcinoma. Categorical diagnosis on histopathological examination is important since it can change the therapeutic and prognostic outcomes of the patient.

KEYWORDS

Endometrioid Carcinoma, Synchronous Carcinoma, Ovarian Endometrioid Carcinoma

INTRODUCTION

Synchronous endometrial and ovarian carcinoma (SEOC) is defined as the concurrent presence of carcinoma in the ovary and endometrium at the time of diagnosis. It is a rare phenomenon seen in about 1% of female genital tract malignancies.[1] Such cases may represent either two separate primary tumours or a single primary tumour with associated metastasis. Most cases are due to metastatic deposits from one organ to another, making synchronous carcinoma an uncommon phenomenon. A careful examination of the gross and microscopic findings along with immunohistochemistry can help distinguish metastasis from a primary tumour. This is important since it affects the treatment and prognostic outcomes of the patient.[2]

CASE REPORT

A 40 year old lady presented with the complaints of abnormal uterine bleeding since 8 months and pain abdomen since last 6 months. She had history of irregular periods for past few cycles. On per abdomen examination, an irregular, firm mass was palpated and there was no ascites clinically. Imaging findings were not available as the patient was from a remote rural area. She underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy.

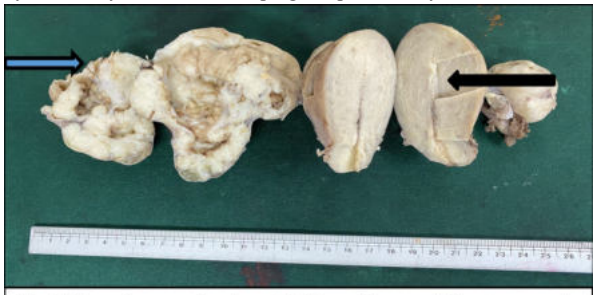

Fig 1-Gross image of endometrioid carcinoma of the uterus and ovary. (Blue arrow shows involvement of ovary by carcinoma and Black arrow shows thickened endometrium with the residual growth)

Gross examination of the specimen showed an enlarged, bulky uterus measuring 12x9x8cm. The cervix measured 2x1.5x0.8cm. Cut section through cervix showed greyish white areas along with Nabothian follicles in the wall. On serial sectioning through the uterus, the endometrial cavity had a thick, fleshy lining and showed a friable growth measuring 1.5x0.3x0.2cm, arising from the fundus and both the walls of the endometrial cavity. The maximum myometrial thickness was 2 cm and the myometrium appeared free of growth grossly. Bilateral parametrial surgical margins were free of growth grossly. The left ovary was enlarged and bosselated, measured 10x7.5x6.5cm and weighed 100grams. Cut section through the left ovary showed a greyish white solid growth, which measured 8x7.5x6.5cm, replacing the ovarian parenchyma. Serial sections through the growth showed multiple greyish white solid nodular areas along with areas of necrosis and mucoid areas. The right ovary measured 3.8x2.5x2.3cm and weighed 15grams. Cut section through the right ovary showed multiple subcentimetric cysts filled with greyish white mucoid material. Both the fallopian tubes showed hydatids of Morgagni externally and thickened wall on cut section.

Microscopic examination of the uterus showed a malignant epithelial tumour displaying glandular architecture, solidified areas in <5%total tumour with moderately pleomorphic nuclei. The tumour was invading the inner one third of the myometrium and involving both walls and fundus. There was peritumoral stromal desmoplasia with lymphocytic infiltrates in the stroma. No lymphovascular invasion was identified. The tumour was also seen extending into the cervical stroma which also showed chronic cervicitis and Nabothian follicles. Microscopic examination of the left ovary also showed endometrioid carcinoma with focal areas of necrosis and squamous differentiation. No lymphovascular invasion was seen in the ovarian tumour. The right ovary showed cystic follicles and was free of tumour involvement.

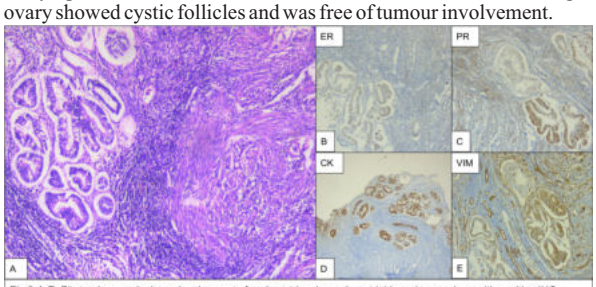

Fig 2-A-E: Photomicrograph shows involvement of endometrium by endometrioid carcinoma along with positive IHC markers.(H&E,100x)

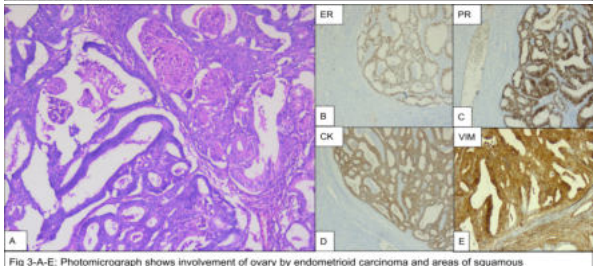

Fig 3-A-E: Photomicrograph shows involvement of ovary by endometrioid carcinoma and areas of squamous differentiation along with positive IHC markers. (H&E,100x).

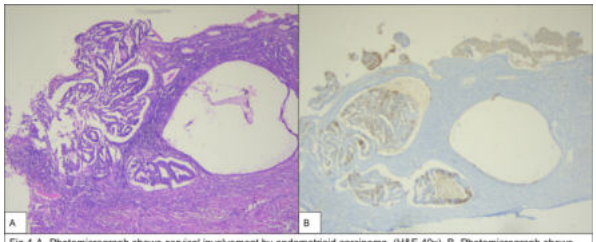

Fig 4-A- Photomicrograph shows cervical involvement by endometrioid carcinoma. (H&E,40x). B- Photomicrograph shows p16 positivity by IHC. (40x)

Immunohistochemistry (IHC) was done on the tumour sections of the endometrium, ovary and the cervix. Estrogen receptor (ER), Progesterone receptor (PR), Cytokeratin (CK), Vimentin were done on the tumour sections of the endometrium and ovary. ER and PR were found to be positive, however PR was stronger than ER. CK and Vimentin were also positive in the tumour cells of both the sections in keeping with the IHC pattern of endometrioid carcinoma and indicating the synchronicity of the tumours. IHC for p16 was done on the tumour section with cervical extension which showed patchy positivity, thereby ruling out adenocarcinoma of the cervix.

Finally diagnosed as endometrioid carcinoma, endometrium FIGO grade 2 (architectural grade 1, nuclear grade 2) FIGO stage II, uterus and endometrioid carcinoma, ovary (FIGO grade 2).

DISCUSSION

The presence of two genital tumours at the same time is relatively uncommon. Carcinoma of the ovary and the endometrium can occur simultaneously in about 10% of women with ovarian carcinoma. This may be attributed to the development of the surface epithelium of the ovary which has the same embryologic derivation from the mullerian duct.[3]

Synchronous primary endometrial and ovarian carcinoma is observed among the younger age group as compared to endometrial or ovarian cancer alone. Usually the age at time of diagnosis is 40-50yrs.[2] Our patient was also a relatively young 40 year old female in the premenopausal group. Abnormal uterine bleeding is the most common presentation of synchronous endometrial and ovarian cancer, though some patients may present with pelvic pain or a palpable pelvic mass as was seen in our case where patient had both abnormal uterine bleeding and a palpable mass per abdomen as also seen by Matsuo et al and Soliman et al.[2,4]

Endometrioid ovarian carcinomas comprise of about one-tenth of ovarian malignancies. It can arise in association with endometriosis, use of hormone replacement therapy and in patients with history of breast carcinoma.[5,6] In our patient there was no previous history of hormone therapy or carcinoma and no history of evidence of endometriosis clinically, grossly and microscopically. Endometrial cancer is the second most common malignancy of the female genital tract. The endometrioid subtype of both the primary tumours is the most common histological finding which is found in 50%–70% of cases.[7]

The gross and microscopic findings of the specimen can give an indication as to whether the tumour is a primary or metastatic deposit. Features suggesting metastasis include deeply invasive endometrial carcinoma, bilateral ovarian involvement, surface implants on the ovaries, small multinodular tumour and characteristic extra-ovarian deposits. Along with these features, lymphovascular metastatic emboli and unusual microscopy like goblet cells or an Indian file pattern also indicate metastasis.[3] In our case however, the tumour was not deeply invasive, involved unilateral ovary, replacing the entire parenchyma with no surface implants or extra ovarian deposits. There was no lymphovascular invasion or unusual pattern on microscopy though the ovarian tumour showed squamous differentiation.

Low risk SEOC that are grade 1 or 2 'endometrioid' carcinoma at both sites, with risk of recurrence equivalent to a combination of stage IA endometrial and stage IA ovarian carcinomas, have absence of all of the following: deep myometrial invasion, cervical involvement, significant lymphovascular space invasion, bilateral ovarian involvement, ovarian surface involvement, positive washings, or extra-uterine/extra-ovarian involvement, including nodal spread.[8] However in this case <50% myometrial involvement and cervical metastasis were seen. The primary independent tumours are often grade 1 or 2.[9] In our case, it was the endometrioid subtype FIGO grade 2.

The pathogenesis of SEOC is multifactorial. The similar embryological origin of the tissues of female genital tract explains their common response to hormonal stimulation and carcinogenic factors. SEOCs have a dominant trait of microenvironment restriction which contributes to low potential of metastasis unlike primary ovarian tumours that metastasise by transcoleomic spread.[10]

Immunohistochemically, endometrioid carcinoma is often positive for CK with co-expression of Vimentin, ER, PR, PAX8 and hepatocyte nuclear factor 1-β and almost always negative for WT-1.[11] In this case, IHC showed ER and PR positivity (PR>ER), along with CK and Vimentin co-expression which along with microscopic features clinched the diagnosis of synchronous endometrioid carcinoma in the endometrium and ovary.

Synchronous tumours of the endometrium and ovary usually have good prognosis. The survival rates range from 86% at 5 years to 80% at 10 years.[12] These usually depend on FIGO stage, histology of tumour and treatment modalities.

CONCLUSION

The diagnosis of synchronous primary endometrial and ovarian carcinoma is relatively difficult and depends on careful consideration of clinical picture, chronology of tumour discovery, tumour histology and immunohistochemical findings. It is important to distinguish between metastasis and primary synchronous carcinomas of the endometrium and ovary as it changes the treatment options as well as the prognostic outcomes of the patient.

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