

Synchronous Tumors of Endometrium and Bilateral Fallopian Tubes: A Rare Case Report

Dr Ashmeet Kaur*, Dr Mansi Faujdar and Dr Shubha Gupta

Dept. of Pathology, Santokba Durlabhji Memorial Hospital, Jaipur, India

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ABSTRACT

Although the simultaneous presentation of fallopian tube and ovarian carcinoma is well described, little is known about a similar phenomenon involving the fallopian tube and endometrium . We present a rare case of synchronous primary endometrial and bilateral fallopian tubes carcinoma seen in the Department of Pathology at Santokba Durlabhji Hospital, Jaipur. Fallopian tube tumors that could have represented luminal extension of the endometrial carcinoma or that represented an unequivocal metastasis to the fallopian tube were excluded.

***Corresponding author:**

Dr Ashmeet Kaur, Senior Resident, Dept. of Pathology, Santokba Durlabhji Memorial Hospital, Jaipur, India
E-mail: ashmeetkochar@gmail.com



Introduction

The primary fallopian tube carcinoma is a rare gynaecologic malignancy with the rates reported in the literature ranging from 0.1 to 1.8% .^[1] Though mutations of p53,^[2] and loss of heterozygosity at several loci on chromosome 13q play a role in the pathogenesis of BRCA1 related ovarian and fallopian tube cancer,^[3] no such association is documented for synchronous endometrial carcinoma and fallopian tube carcinoma. The occurrence of synchronous endometrial and bilateral fallopian tubes carcinoma is very rare, with only a few cases documented in literature so far.^[4,5-8]

Synchronous multiple tumors of female genital tract are relatively rare comprising only 1-6% of genital neoplasms. We present a rare case of a 60 year old postmenopausal woman operated by radical hysterectomy for endometrial carcinoma .Fallopian tubes on both sides also showed endometrioid tumor within its lumen, thereby manifesting synchronous adenocarcinoma-endometrioid type in uterus & bilateral fallopian tubes (with no direct communication between them).

Case Report

A 60 year old post menopausal female (Parity index – G2P2L2), presented with the complaints of white discharge and abdominal pain since 1 year duration. The abdominal pain was a dull ache in the right lower abdomen, which radiated to the back. On physical examination her BP was 140/80; her Body Mass Index (BMI) was 35. There was no history of fever and chills. The abdominal examination revealed tenderness in the right iliac fossa and there was no ascites. The general and other systemic examinations were unremarkable. The per-vaginal examination revealed a retroverted uterus and tenderness noted in the right fornix and the left fornix showed motion tenderness.

On investigations, hemoglobin was 7g/dl, total leucocyte count was $4.6 \times 10^3 / \mu\text{l}$, and platelet count was 1.5 lakh/ mm^3 . Sagittal T2-weighted MRI image showed a tumor of cervix that extended into the uterine cavity and had no lateral extension. A pelvic Ultrasound (US) was conducted reporting a 10-mm endometrial thickening. Subsequently endometrial biopsy was carried out which confirmed Invasive adenocarcinoma. Thereafter the patient underwent total hysterectomy with bilateral adnexa and bilateral pelvic lymph nodes.

On cutting, uterine canal was dilated & full of growth measuring 5x3x1.5cms. On microscopic examination it was diagnosed as moderately differentiated Adenocarcinoma-Endometrioid Type. The growth was superficially invading the myometrium (less than half the thickness of myometrium).

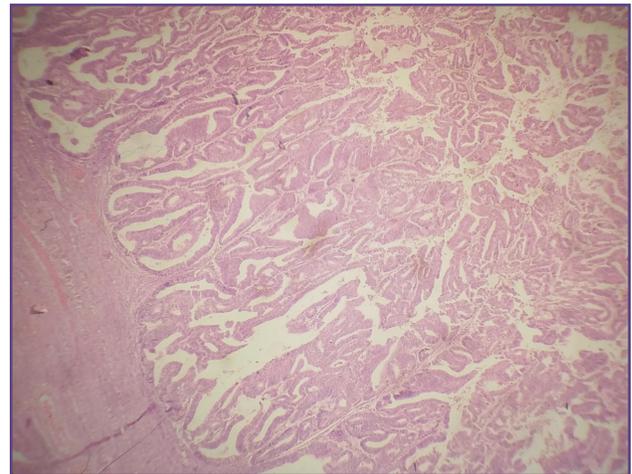


Fig. 1: Endometrial adenocarcinoma , endometrioid type involving the endometrial cavity (H &E, 10X)

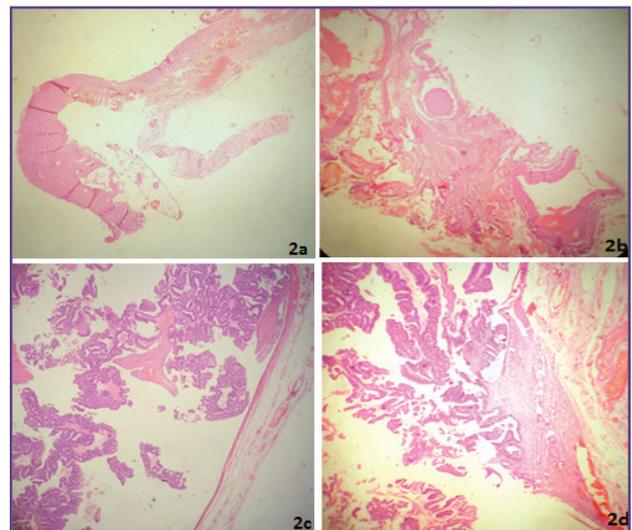


Fig. 2a: Proximal end of one fallopian tube which is unremarkable (H &E, 4X). Fig 2b, Proximal end of other fallopian tube which is unremarkable (H &E, 4X) Fig 2c, Middle part of one fallopian tube showing endometrioid carcinoma (H &E, 10X) Fig 2d, Middle part of other fallopian tube showing carcinoma in situ changes (H &E, 10X)

Each fallopian tube was dilated .Serosal surface was unremarkable. On opening, a well defined nodule measuring 1x1 and 0.5x1cm is seen in both the tubes. On microscopic examination, both fallopian tubes showed tumor with features of endometrioid carcinoma with adjoining epithelium showing carcinoma in situ. The tumor was superficially invading the muscle layer. Although the proximal part of both fallopian tubes were unremarkable. Bilateral ovaries were unremarkable. Both sided parametrium and vaginal cuff were negative for the presence of tumor. All lymph nodes showed features

of reactive hyperplasia and were negative for metastasis. There was no lymphatic or vascular permeation. Final FIGO staging for endometrium was stage 1A and fallopian tubes as 1B. Case was opined as Synchronous Adenocarcinoma - Endometrioid type in uterus & bilateral fallopian tubes (with no direct communication between them)

Discussion

The occurrence of synchronous primary endometrial and fallopian tube carcinomas is very rare, with only a few cases documented in the literature.^[4,6,7,8] Patients are usually postmenopausal, obese and nulliparous.^[4,8] The main symptoms are abdominal pain, vaginal bleeding and palpable pelvic mass.^[4,7,8] In our case, the patient was postmenopausal and presented with white discharge.

The mechanism of multiple primary cancers is not fully known, but many hypotheses have been suggested, such as family history, immunologic and genetic defects, prolonged exposure to carcinogens, radiation and chemotherapy for the primary cancer. While the etiology and pathogenesis of these tumors remain unclear, it has been proposed that embryologically similar tissues, when simultaneously subjected to either hormonal influences or carcinogens may develop synchronous neoplasms in genetically susceptible individuals.^[9]

Eifel et al suggested that the response of uterine corpus, fallopian tubes, and ovarian epithelium as a morphological unit could explain the development of synchronous endometroid tumors in different components of mullerian system.^[10,11] The theory of “secondary Mullerian system” proposed that the **epithelia** of cervix, uterus, fallopian tubes, ovaries, and peritoneal surface had shared molecular receptors responding to carcinogenic stimulus leading to the development of multiple primary malignancies synchronously.^[6,11-14] The hypothesis could provide explanation to synchronous malignancies of similar histology. The epithelial linings of endometrium, fallopian tubes, ovaries and peritoneum have molecular receptors (the so called secondary Mullerian system) responding to the **same** carcinogenic stimulus and therefore development of synchronous primary tumors of similar histology.^[12-14]

A similar phenomenon may also be valid for tubal endometrioid lesions. Culton et al⁴ published 13 cases of synchronous independent primary endometrial and tubal carcinomas.

It is also possible that the synchronous presence of these cancers is an indicator of an etiologically distinct condition.^[8,16] Perhaps patients have a more fragile genome and prior genetic damage may predispose them to synchronous cancers.^[8,16-18] Thus, embryologic, hormonal or other

phenomena may be associated with the development of malignancies arising simultaneously in genital tissues.^[6,11,16-19]

The diagnostic criteria for synchronous tumors include either the detection of similar histological subtypes or all of the following rules if histologic subtypes are similar; (1) both tumors confined to primary sites, (2) no direct extension between tumors, (3) no lymphovascular tumor emboli, (4) no or only superficial myometrial invasion, (5) no distant metastasis.^[20-22]

In our case, the endometrium and fallopian tube carcinomas both showed similar histopathology - adenocarcinoma (endometrioid type). However, extension to fallopian tube from endometrial carcinoma was ruled out considering the fact that there was no direct extension of the endometrial tumor to the tube as the proximal part of the fallopian tubes on both sides was unremarkable histologically, there being a gap of about 2 cms. There was no serosal involvement of the fallopian tube. Lesion was arising as a discrete nodule from the tubal mucosa projecting into the lumen, distending the lumen and metastasis was ruled out as the fallopian tube lining and endometrium showed carcinoma in situ changes. Thus, both were considered as primaries.

Conclusion

Synchronous tumors of bilateral fallopian tubes and endometrium are very rare. It is very important for a pathologist to sample extensively all components of hysterectomy specimen for diagnosis of synchronous tumors and to confidently identify all tumors as primary neoplasms. Overall survival and treatment would vary considerably as multiple primary neoplasms of endometrium and bilateral fallopian tubes have good prognosis in terms of survival as compared to single primary with metastatic disease. The prognosis for these synchronous early stage tumors is good.

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Competing Interests

None Declared

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