

Bilateral primary fallopian tube carcinoma involving ovaries : A case report

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Abstract: Primary fallopian tube carcinoma is a rare tumor and bilateral involvement of tubes is still rare. It is very rarely diagnosed pre-operatively. We hereby report a case of bilateral primary fallopian tube carcinoma with focal involvement of both ovaries, which presented with complaints of abnormal uterine bleeding. The patient underwent total abdominal hysterectomy and bilateral salphingo-oophorectomy. Post-operatively on histopathological examination it was diagnosed as bilateral primary fallopian tube carcinoma.

Date of Submission: 21-12-2017

Date of acceptance: 23-12-2017

I. Introduction

Fallopian tubes are mostly involved in benign gynaecological conditions. Most fallopian tube carcinoma occurs as secondary carcinoma with ovaries, endometrium and gastrointestinal tract as primary site of metastasis. Primary carcinoma of fallopian tube is rare with reported incidence of 0.16 to 1.6 % with an average of 0.3 %. The reported incidence of bilateral fallopian tube carcinoma, from the total number of cases is just 20%¹⁻³. These tumors clinically and histologically resemble epithelial ovarian carcinoma. Primary fallopian tube carcinoma (PFTC) is rarely seen clinically due to hidden lesions, absence of recommended screening methods, and relatively limited clinical experience, to the extent that most of cases have been detected accidentally during other gynaecological surgeries and in histopathological evaluation⁴⁻⁵. For diagnosing primary tubal carcinoma, both ovaries and uterus should appear normal on gross examination, and the tubes, at least in the distal portion, must be grossly abnormal.⁶⁻⁷ The most common signs and symptoms encountered are abnormal uterine bleeding/vaginal discharge, abdominal/pelvic mass, abdominal distention, and abdominal pain. We report a case where a patient underwent total abdominal hysterectomy and bilateral salphingo-oophorectomy for postmenopausal bleeding, and was diagnosed postoperatively as bilateral primary fallopian tube carcinoma on histopathology. Recently there are studies that showed that fallopian tube carcinoma has potential role in low and high grade serous tumor of the ovary.^{8,9}

II. Case Report

A 50 years old multiparous women , menopausal since three years came to out patient department with complaints of bleeding per vaginum from last one year. The bleeding was intermittent with no history of white discharge, bleeding from other sites, pain in abdomen, burning micturition, or weakness and fatigue. She had history of tubal ligation 23 years back. The patient was taking regular consultation for the present complain of bleeding per vaginum from another clinician. She had undergone dilation and curettage and cervical biopsy four months back. The histopathological features were suggestive of proliferative phase with benign endocervical polyp. Cytology was suggestive of severe acute inflammation. She had no history of diabetes, hypertension, tuberculosis, thyroid disease. Her routine haematological reports were within normal limit. Blood pressure was 140/90 and pulse 88/min. Pelvic Ultrasound showed uterus and ovary normal and showed no other significant abnormality. The patient underwent total abdominal hysterectomy with bilateral salphingo-oophorectomy. During procedure it was found that both fallopian tube were dilated and hydrosalpinx was suspected. The specimen was sent to pathology department for further evaluation. The specimen received was uterus with cervix and bilateral adnexa total measuring 10x 6x 2.5cm (Fig.1). Uterus with cervix total measuring 6.5x 3.5x 2.5cm. Right fallopian tube was distended, more towards fimbrial end total measuring 8x 1.7 cm. On cut section it showed grey friable tumor mass occupying the entire lumen (Fig2). The right ovary was 2x 1.3x 0.5 cm and showed tiny white dots. The left fallopian tube was 4x 0.6 cm, firm and distended. The cut surface showed yellow solid tumor mass (Fig.2). The left ovary was 2x 1.5x 0.8 cm and showed no abnormality on cut surface. The microscopic features were as follows: 1) Section from right fallopian tube showed tumor cells completely filling the tubal lumen. The tumor cells were arranged in papillary fronds, glandular pattern and few tumor cells were scattered. The tumor cells were large with round to oval hyperchromatic nuclei and prominent nucleoli with scanty cytoplasm. The nucleocytoplasmic ratio was high. Many cells with large, bizarre nuclei and few

multinucleated giant cells were seen. Many mitotic figures and areas of necrosis were present. Tumor cells were seen invading muscularis layer, serosa and few tumor cells were seen overlying serosa. Vascular invasion was present. Sections from left fallopian tube also showed tumor cells arranged in papillary fronds, glandular pattern and few tumor cells were scattered. Many cells with large, bizarre nuclei and few multinucleated giant cells were seen. Areas of necrosis were present. Sections from right and left ovary showed ovarian stroma with foci of tumor cells. Sections from endometrium showed proliferative phase and section from cervix showed chronic cervicitis with mild dysplasia. This case was reported as High grade serous carcinoma involving both Right and left fallopian tube, with tumor deposit in both ovaries. FIGO classification Stage IIB. The patient has started chemotherapy and is under follow up.

III. Discussion:

Primary fallopian tube carcinoma (PFTC) is an uncommon gynaecologic malignancy, and is generally recognized as a disease of menopausal women. Less than 1500 cases have been reported in the medical literature till date⁶. The peak incidence is between 60 to 64 years of age, with the mean age of incidence being 55 years (age range: 17-88years)¹⁰⁻¹². Because of the low incidence of PFTC, only about 4% (0.3-15%) are diagnosed preoperatively¹. Fallopian tube carcinoma is not routinely suspected in a patient with a complex pelvic mass or in cases of abnormal uterine bleeding. The etiology behind primary fallopian tube tumors is unknown. The risk factors postulated are infertility, nulliparity or low parity, pelvic infection (chronic tubal inflammation), and a family history of ovarian cancer.³ Multiparity seems to be protective, and pregnancies and oral contraceptives decrease the risk of PFTC. The factors that are not associated with PFTC are age, weight, education level, pelvic inflammatory disease, infertility, previous hysterectomy or endometriosis. In the present case the patient presented with no risk factors. The demographic distribution of PFTC is similar to ovarian cancer, and the highest incidence is seen in white, non-hispanic women and women aged 60-79 years. An important molecular event involved in the development of hereditary fallopian tube carcinoma is germline mutation of tumor suppressor gene BRCA1 or BRCA2 located on chromosomes 17 and 13, respectively. The over-expression of the tumor suppression gene, p53 gene also causes the expression of carcinoma^{13,14}. The Latzko's triad of a watery vaginal discharge, a colicky lower abdominal pain and a pelvic mass is typical of a fallopian tube carcinoma, but this triad is noted only in less than 15% of the patients. The classic symptom complex "hydros tubae profluens" that involves intermittent colicky abdominal pain relieved by sudden discharge of watery fluid per vagina is seen in only very small percentage of affected patients. The study conducted by Vyas et al. enrolled 27 primary fallopian tube carcinomas, reported that only 11% of the patients had the classical Latzko's triad as clinical features. The authors also suggested that PFTC should be considered in the differential diagnosis of perimenopausal and postmenopausal women who presents with complex adnexal masses, an unexplained uterine bleeding, abnormal glandular cells on the cervicovaginal smears and complicated pelvic inflammatory disease.¹ Tubal carcinoma usually originates in the ampullary part of fallopian tube and its pattern of growth can be either nodular, papillary, or infiltrative.

These tumors are usually confined to the tube and may not cause any alteration in size and shape of the fallopian tube, but it may feature with diffuse swelling, a sausage shape resembling hydro, hemato, and pyosalpinx.⁶ About half of tubal carcinomas are serous, one fourth are endometrioid, one fifth are transitional or undifferentiated, and the remainder are of other rare epithelial cell tumors.⁶ Often, the diagnosis is mistaken for ovarian cancer or a tubo-ovarian mass. The imaging findings of ultrasound and CT/MRI of tubal cancer makes it difficult to differentiate from ovarian cancer. The suspicion of PFTC is raised with ultrasound showing a sausage-shaped mass or a multilobular mass with a cog-and-wheel appearance, or colour doppler showing low-impedance vascular flow within the solid components.¹² Fallopian tube cancers are often found incidentally in asymptomatic women at the time of abdominal hysterectomy and bilateral salpingo-oophorectomy as in the index case³. In general, bilateral fallopian tube tumor cannot be differentiated from secondary tumor metastasis to tube, as seen in 80% cases. Mostly ovarian and endometrial carcinoma are the primary lesion as the immunophenotype of adenocarcinoma of the fallopian tube is similar to that of ovarian carcinoma of the same histologic type. However, to make a correct diagnosis of PFTC, the following pathological criteria (given by Hu et al in 1950 and modified in 1978) should be fulfilled: (a) the tumor should arise from endosalpinx (b) histological pattern should produce the epithelium of tubal mucosa; (c) the tubal wall if involved, a transition from benign to malignant proliferation should be identified (d) ovary and endometrium should either be normal or with a tumor smaller than that in the tube^{6,13}. The tumor spread occurs by means of contiguous invasion, transluminal migration, and hematogenous dissemination⁶.

Metastasis to the para-aortic lymph nodes have also been documented in at least 33% of women with all stages of disease.¹ The most important prognostic factor in the fallopian tube carcinoma is stage of disease at laparotomy. Fallopian tube adenocarcinoma carries five year survival rates of about 68 to 76% for Stage I disease, 27 to 42% for Stage II disease and 0 to 6% for Stage III and IV disease, showing importance of early stage diagnosis of these neoplasms.⁸⁻⁹ Tumor marker such as CA 125 have shown some promising results in the

diagnosis of fallopian tube carcinoma. Levels of CA 125 rise with the advancement in the stage of tumor. Primary tubal carcinomas are generally CK7 positive and CK20 negative. They typically display strong and diffuse nuclear staining for PAX8. Serous carcinoma of the fallopian tube shows diffuse strongly positive nuclear staining for WT1 and are CK7 positive and CK20 negative¹⁵. The new concept introduced recently which implicates PFTC as cause of ovarian tumors. This concept have important clinical implication, because screening and early detection of high grade serous tumor has been unsuccessful, as these tumors presents in advanced stage. Thus future method of prevention of ovarian serous tumors should be directed at the fallopian tube.^{8,9}Surgery is the treatment of choice for PFTC, and the surgical principles are the same as those used for ovarian cancer. The procedure of choice is abdominal total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, selective pelvic and para-aortic lymphadenectomy for any stage for fallopian tube carcinoma. Postoperative adjuvant chemotherapy similar of ovarian carcinoma is employed with present drug of choice being intravenoustaxol and cisplatin. We report this case due to its rarity of occurrence.

IV. Conclusion:

Primary Fallopian tube carcinoma is a rare type of genital cancer, which is difficult to diagnose early and carries a poor prognosis. PFTC is infrequently diagnosed preoperatively or intraoperatively because of its rarity, and nonspecific presentation. Only 6.3% of the patients had typical symptoms suggestive of tubal carcinoma. Due to its rare presentation and with introduction of new concept of PFTC as etiological factor in ovarian serous carcinoma more extensive clinical research is needed to define aetiology, and diagnostic features for early diagnosis and better management of both fallopian tube and ovarian serous tumors. This will benefit surgeon and patient survival rate.



Fig 1.A and B: Blue arrow- Right fallopian tube , Red arrow – Left fallopian tube (both tubes appear dilated with normal ovary



Fig 2: Blue arrow – Right fallopian tube, the cut surface shows greyish white tumor mass.Red arrow- Left fallopian tube, the cut surface shows white and yellow firm areas



Normal appearance of uterus

Right ovary showing white areas(blue arrow).Left ovary showing no abnormality(red arrow)

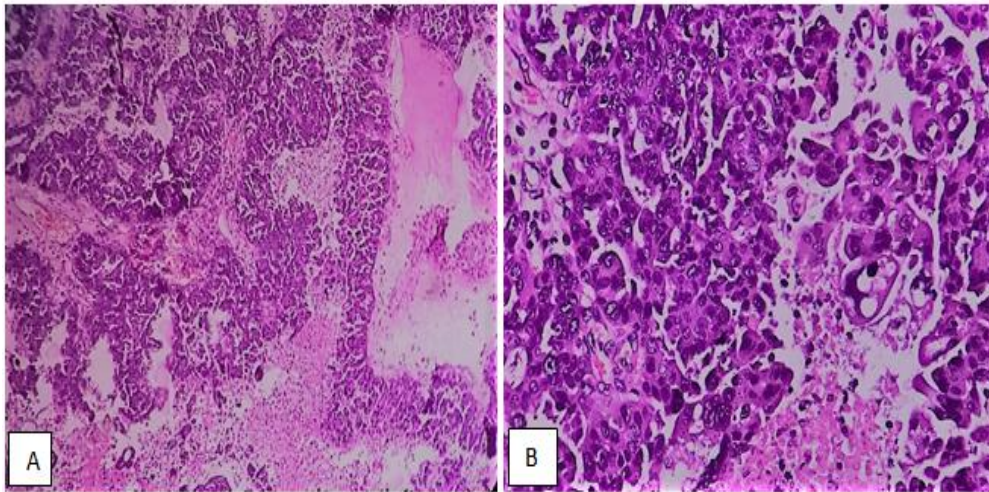


Fig 3. A and B- Right fallopian tube: A- Tumor mass arranged in sheets,papillary fronds (scanner view)
B- Tumor cells with hyperchromatic nuclei, high nuclear cytoplasmic ratio, few multinucleated cells also seen (40x)

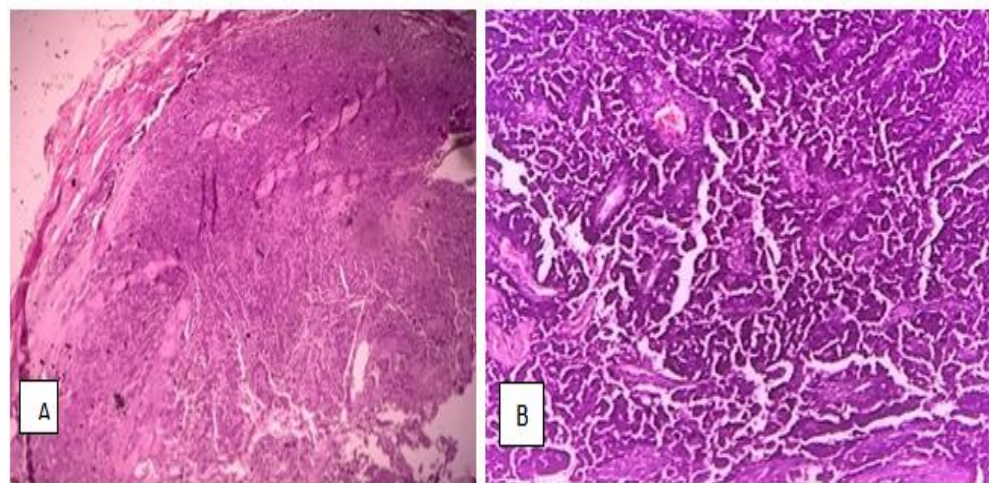
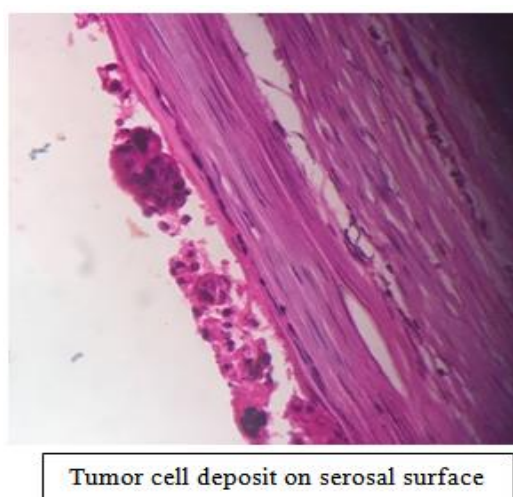
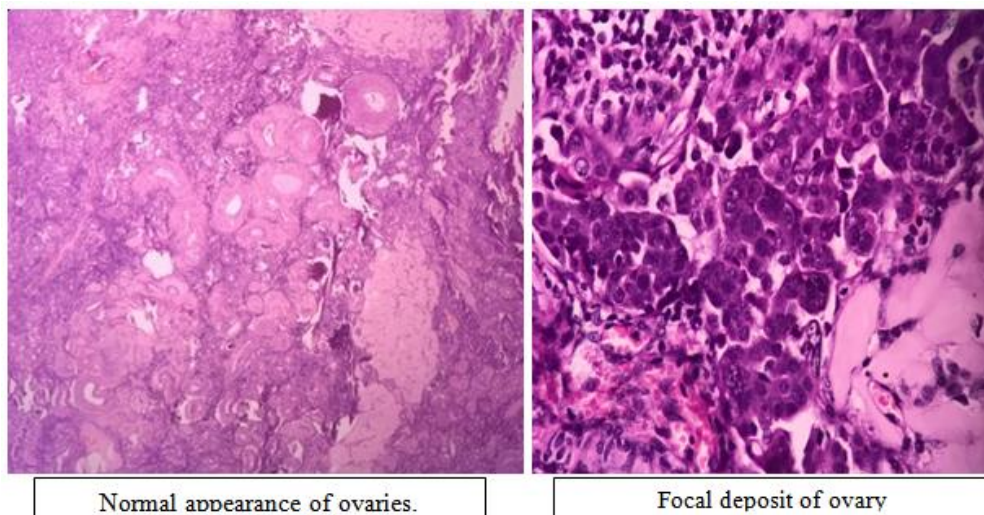


Fig A and B: Left fallopian tube
A: Tumor mass occupying entire tubal wall B: Tumor cells arranged in papillary frond and glandular pattern



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*Dr. Sweta Shastri. " Bilateral primary fallopian tube carcinoma involving ovaries : A case report "
IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.12 (2017): 77-82