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Fallopian Tube Carcinoma In-situ in Endometrial Curettage

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ABSTRACT

Primary fallopian tube carcinomas (PFTC) are rare tumors with non-specific clinical presentations. The current case was unique since the tumor was first detected on endometrial curettage and clinicoradiologically was misdiagnosed as endometrial carcinoma.

A 48-year-old, post-menopausal female presented with one episode of vaginal bleeding. Endometrial curettage showed poorly differentiated carcinoma, while cervicovaginal Papanicolaou (Pap) smear was negative for malignant cells. Right sided fallopian tube carcinoma in-situ was diagnosed on histopathological examination of surgical hysterectomy with B/L salpingo-oophorectomy specimen.

As observed in the current case, unusual tumor histology with broad papillary fronds lined by pleomorphic cells showing nuclear stratification and focal involvement of endometrial curettage specimen may be considered a useful pointer for tubal malignancy.

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Introduction

Primary fallopian tube carcinoma (PFTC) is a rare tumor and accounts for 0.14%-1.8% of all gynecological malignancies (1). Around 1200 cases of PFTC are described in the literature (1,2). Patients may be asymptomatic or present with serous discharge, bleeding per vagina, and abdominal pain or mass. Even clinicoradiological examination may fail to provide a pre-operative diagnosis of tubal origin lesion, as observed in the current case. The lack of clinical suspicion, and delayed treatment could result in worse prognosis for the patients. The current case was unusual as it was a carcinoma in-situ and was initially detected pre-operatively on endometrial curettage, but was clinically and radiologically misdiagnosed as endometrial carcinoma with right tubal hematosalpinx.

Case Report

A 48-year-old postmenopausal female presented with one episode of bleeding per vagina lasting for eight days. Trans-vaginal ultrasonography (TVS) revealed a collection within endometrial cavity with a suspicious growth in lower part of cavity measuring 1.9 x 0.6 cm. Right ovary was 2.6 x 2 cm; left ovary was not visualized. Magnetic resonance imaging (MRI) showed dilated endometrial cavity filled with fluid suggestive of hematometra with a nodular, well defined growth in anterior wall of uterus. Right fallopian tube was dilated and tortuous suggestive of hematosalpinx. Routine biochemical investigations were normal. CA125 was 6.8 U/mL. Endometrial curettage was performed and sent for histopathologic examination.

Endometrial curettage showed atrophic endometrium with a fragment of tumor composed of stout papillary fronds lined by pleomorphic, stratified columnar epithelium with anisonucleosis, hyperchromatic nucleus with crowding and atypical mitotic figures (Figure 1). Tumor cells showed focal cytoplasmic mucin. As it was not possible to exactly type the tumor (papillary squamous/ papillary serous/transitional carcinoma), it was reported as poorly differentiated carcinoma.

Cervico-vaginal Papanicolaou (Pap) smear however, did not show any malignant cells.

Subsequently, patient underwent total abdominal hysterectomy with bilateral salpingo–oophorectomy and pelvic node dissection.

Grossly, uterus appeared atrophic with dilated and tortuous right fallopian tube, which measured 6 cm in length. Cut section of the tube showed a papillary growth occluding the lumen along with thickened wall (Figure 2).

Histopathology sections showed features of atrophic uterus with chronic cervicitis. Right fallopian tube showed thickened wall with mucosa showing an exophytic papillary tumor composed of branching papillary fronds lined by multilayered pleomorphic cells with enlarged, irregular, hyperchromatic nucleus with moderate amphophilic cytoplasm, brisk, and atypical mitosis. Focal solid sheets of tumor cells and areas of necrosis were also observed. The tumor was confined to the mucosa, with no evidence of invasion of the muscular layer (Figure 3). All isolated lymph nodes showed reactive changes.

A final diagnosis of papillary serous carcinoma – in-situ of right fallopian tube, Tis, N0, M0; FIGO stage 0 was made.

Subsequently, the patient received chemotherapy with paclitaxel and carboplatin. She was on regular follow-up for eight months with no tumor recurrence.

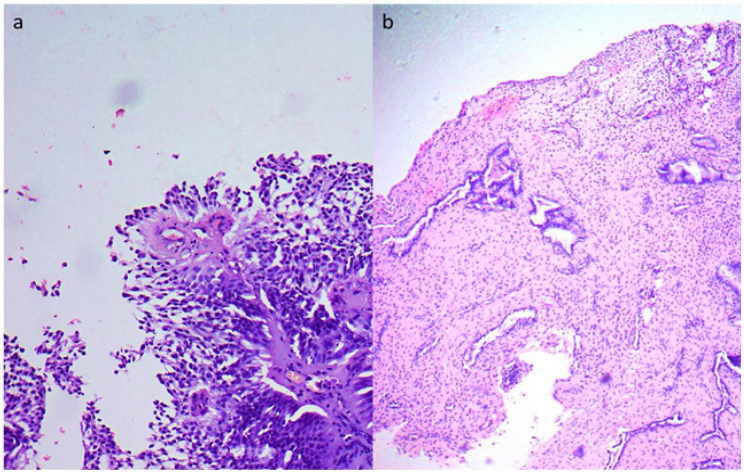

Figure 1. Endometrial curettage showing: a) tumor with papillary fronds with thick cores lined by pleomorphic cells (H&E stain, 200X); b) atrophic endometrium (H&E stain, 100X)

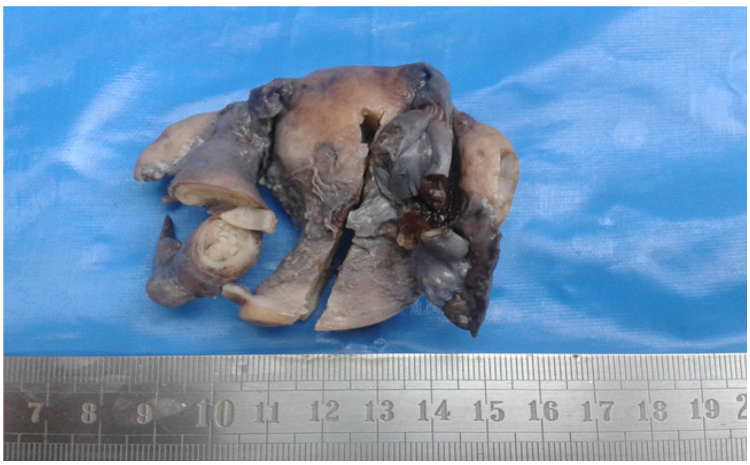

Figure 2. Gross specimen showing atrophic uterus with enlarged right fallopian tube and intraluminal papillary tumor.

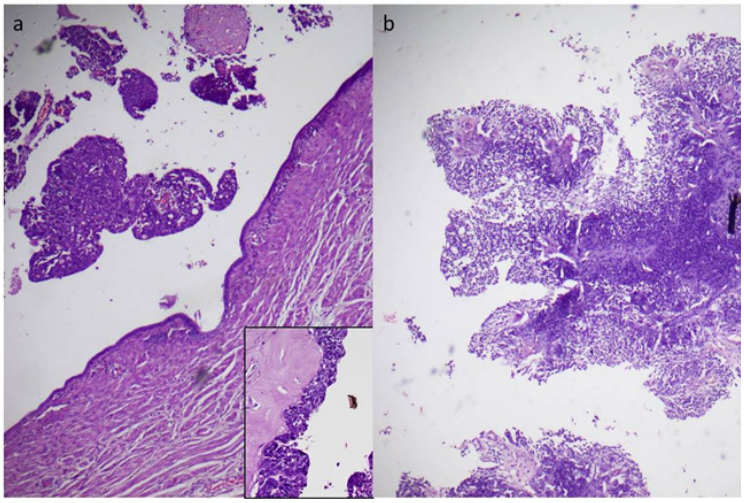

Figure 3. a) Section shows fallopian tube filled with a papillary tumor; wall invasion not observed (H&E stain, 40X); inset: carcinoma in–situ with pleomorphic cells (H&E stain, 200X); b) intraluminal papillary tumor similar to that of the endometrial curettage (H&E stain, 200X)

Discussion

PFTC is a rare gynecological malignancy and is usually recognized as a disease of postmenopausal females. Based on nine population based cancer registries, the incidence of PFTC is 3.6 per million females per annum in the USA. However, recent studies reported an increase in the incidence of PFTC (2). Until now, around 1200 cases of PFTC are reported. It is also noted that the true incidence of PFTC is generally underestimated as a result of incorrect diagnosis of PFTC as ovarian tumors during initial surgery and/or microscopic examination, as both of these neoplasms share similar histological and radiological features. Therefore, the primary diagnosis of PFTC is quite challenging and only 0%–10% of patients are diagnosed pre-operatively (3).

PFTC frequently occurs during the 4th to 6th decade of life with the age ranging 17 to 88 years (1). Patients generally present with non-specific symptoms such as abdominal pain, vaginal spotting, etc., of short duration. Latzko triad of symptoms are: colicky pain relieved by discharge, intermittent serosanguinous vaginal discharge, and abdominal or pelvic mass observed in 5% of cases (1). Abdominal pain due to tubal dilatation may be the reason for early stage detection of PFTC compared with ovarian tumors.

Etiology of this uncommon neoplasm is not well understood. However, it is observed that multiparity and use of oral contraceptive pills decreases the risk. Infertility, chronic tubal inflammation, tubal endometriosis, and tuberculous salpingitis are known to be associated with PFTC. They are also described with *BRCA-1* and *BRCA-2* mutations (3).

Clinical suspicion of PFTC should arise in the following clinical settings: unexplained or persistent vaginal discharge, postmenopausal bleeding with negative diagnostic curettage, and Pap smear showing abnormal suspicious cells or glands alternating with negative smear (4). The current case was unique, since it was initially picked up on endometrial curettage.

Imaging modalities such as ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) routinely assist to diagnose gynecologic malignancies. Transvaginal and transabdominal ultrasounds are more useful imaging modalities in the patients with possible tubal pathology. Echogram shows a sausage-shaped mass with a cogwheel appearance, which, however, is not diagnostic of tubal mass (1,3). In addition, tumor markers, particularly CA-125, elevate in more than 80% of patients with PFTC (4). In the current case, the CA-125 was not elevated.

Cervicovaginal Pap smears are not useful diagnostic tools for PFTC. Literature shows that less than 23% of cases are reported positive on Pap smear. A diagnosis of PFTC can be considered if any discrepancy exists

between an abnormal Pap smear and negative findings on colposcopy, cervical biopsy, and endometrial curettage (5,6). The current case was different – it was negative on Pap smear, while endometrial curettage showed poorly differentiated malignancy.

PFTC is usually diagnosed during histological examination of the excised specimen. Various described histological variants include: serous, mucinous, clear cell, endometrioid, transitional, mixed, and undifferentiated. The serous variant is the most common type of PFTC (7,8). At least one of the following criteria should be fulfilled to diagnose PFTC over ovarian carcinoma: main bulk of the tumor should be within the tube; tumor cells should be similar to tubal mucosa and have a papillary configuration; transition between benign and malignant epithelium should be observed; ovaries and endometrium should be normal or show less tumor than the tube (1).

The spread of tubal carcinoma primarily occurs via transcoelomic exfoliation of cells to the abdominal cavity, leading to peritoneal carcinomatosis. Tumor may also spread by contiguous invasion, hematogenous dissemination, and transluminal migration (3).

The current case was initially picked up on endometrial curettage, while Pap smear was negative. A portion of the tumor proliferating in the tubal lumen might have detached and was probably sampled during the process of curettage.

Otsuka et al., observed that cytologic examination of samples from endometrial cavity can detect early stage ovarian, tubal, and peritoneal carcinomas without radiologically detectable masses (9). Minato et al., proposed that endometrial brush cytology can detect stage 0 fallopian tube carcinoma in the presence of atypical cells with papillary patterns in a clear background (10). To the best of the authors' knowledge, it was the first case of PFTC in-situ, which was picked up on endometrial curettage.

PFTC staging is based on surgical findings at laparotomy. In stage 0, either the primary tumor is inaccessible or there is no evidence of primary tumor. Carcinoma in-situ is also included in stage 0. In stage I, the tumor is confined to fallopian tube; in stage II, the tumor involves either one or both of the fallopian tubes with pelvic extension (below the pelvic brim), and in stage III the tumor spreads above the pelvic brim with or without nodal involvement. Most important prognostic factors for survival include patient age, stage, and among patients with advanced disease, residual tumor after initial surgery. The overall survival rate for patients with PFTC is approximately 30% - 50% (1).

Surgery is the treatment of choice for PFTC. As PFTC has an affinity for nodal spread, lymph node sampling is essential for accurate staging. Other lines of management include radiotherapy, platinum-based adjuvant chemotherapy, and hormonal therapy.

Conclusion

PFTC is a rare, aggressive, and multi-etiological malignancy of female genital tract. Clinically and histologically, it resembles ovarian malignancy. Preoperative diagnosis of PFTC is uncommon. The current case was unique since radiologically it was considered as endometrial malignancy with hematosalpinx. Pap smear was negative, while endometrial curettage showed malignancy. Unusual histology of tumor with broad papillary fronds lined by pleomorphic cells with nuclear stratification involving only portion of the endometrial curettage specimen should prompt the pathologist of a possible tubal malignancy.

Conflict of Interest

The authors declare that there was no conflict of interest

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