

Primary Fallopian Tube Carcinoma: Case Report and Review of Literature

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Abstract: *Although benign lesions and metastatic deposits are common in the fallopian tube, primary carcinoma is rare. Presenting symptoms are varied and investigations are nonspecific. Preoperative diagnosis is rare and is often detected as an incidental finding on histopathology. Rigid guidelines are to be followed for the gross and histologic evaluation of a suspected case of primary fallopian tube carcinoma to differentiate it from the histologically similar and the more common epithelial ovarian carcinoma. A case of primary adenocarcinoma of the papillary serous type in the right fallopian tube occurring in a postmenopausal woman with procidentia is reported here with a review of literature. This article aims to review and summate the diagnostic criteria in primary carcinoma of the fallopian tube.*

INTRODUCTION

Primary carcinoma of the fallopian tube is the least common of all gynecologic malignancies.¹ Renaud was the first to describe this entity in 1847. The first genuine case report of fallopian tube carcinoma is attributed to Orthmann. It is seen most frequently in the fourth to sixth decades of life. The incidence ranges from 0.14 to 1.8% of all malignancies of the female genital tract. About 1500 to 2000 cases have been reported in literature so far. The diagnosis of primary fallopian tube carcinoma is usually first made by a pathologist on histopathological examination.² Owing to its rarity and resemblance to epithelial ovarian carcinoma, strict criteria have to be adopted for its diagnosis.^{1,2,3}

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CASE REPORT

An 80-year old multiparous postmenopausal woman was admitted to the hospital, with prolapsed uterus. No abnormality was detected on abdominal examination. PAP smears showed inflammatory cytology. Ultrasound examination showed an atrophic, prolapsed uterus; the right ovary showed a surface follicular cyst; the right fallopian tube and the left adnexae were unremarkable.

Hysterectomy with bilateral salpingo-oophorectomy was performed. On gross examination, the hysterectomy specimen did not show any significant pathology. Histologically, the right fallopian tube showed a malignant neoplasm composed of pleomorphic tumor cells arranged in papillary and glandular patterns invading the submucosa and muscularis without penetration of the serosa (Fig.1). Adjacent mucosa showed features of in-situ carcinoma. The left fallopian tube, bilateral ovaries, and endometrium were uninvolved. A diagnosis of primary papillary serous adenocarcinoma-moderately differentiated; of the right fallopian tube in stage IA (FIGO) was made.

DISCUSSION AND REVIEW OF LITERATURE

Primary fallopian tube carcinoma is a rare gynecologic malignancy,

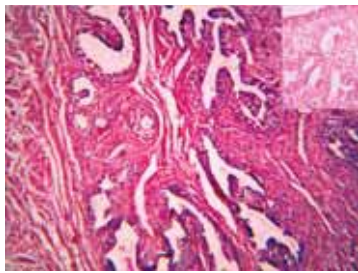


Figure 1: Primary Fallopian tube carcinoma – photomicrograph showing glands and papillae lined by neoplastic cells invading the submucosa (inset) and muscle layer. (H&E x 400)

similar to ovarian carcinoma in clinical behavior and morphology but with poorer prognosis. The annual incidence is 3.6 per million women, accounting for an average of 0.3% of all gynecologic malignancies.⁴ Most malignancies involving the fallopian tube are metastatic (80%), commonly from ovary, endometrium or gastrointestinal tract.

Its etiology remains unknown. High parity and use of oral contraceptives are considered to be protective. Late menopause, chronic salpingitis, and tubal endometriosis have been associated with this malignancy.⁵ The case discussed here was a multiparous, postmenopausal woman without any features of chronic inflammation of the fallopian tube.

Primary fallopian tube carcinoma is most common in the fourth to sixth decades of life, in postmenopausal women.^{1,6} The index case was an eighty year old woman, in menopause for twenty years at the time of diagnosis. The common presenting symptoms are palpable pelvic or abdominal mass (61%), abnormal vaginal bleeding (47.5%), lower abdominal pain (39%) and abnormal watery vaginal discharge (20%).⁴ The classic triad of symptoms and signs, described by Latzko in 1916, consisting of prominent bloody watery vaginal discharge (Hydrops tubae profluens), pelvic pain (due to tubal distension) and abdominal or pelvic mass is seen in fewer than 15% of patients. The case reported here did not have any symptoms related to the tube, which is common in these patients.

Carcinoma of the tube is rarely suspected pre-operatively as evidenced in our index case. This could be due to nonspecific symptoms and inconsistent diagnostic findings. In a study of 105 cases by Alvarado et al, a correct preoperative diagnosis was made in only 4.6% of cases.⁷ It should be considered in the differential diagnosis of a pelvic mass, when it is associated with abnormal vaginal bleeding or discharge, abnormal cytology and negative endometrial or cervical pathology. Transvaginal ultrasound and computed tomography (CT) scans are ancillary tools in the diagnosis of fallopian tube carcinoma. Sonographic features of the fallopian tube carcinoma are nonspecific and may include any or some of these features: a sausage-shaped mass, a fluid-filled cystic adnexal structure with solid component, a cog-and-wheel appearance within a cystic mass or pseudoseptae and papillary formations in a cystic mass.⁵ No significant finding was reported on cytology or ultra-sonogram in the present case. CA125 is a useful tumor marker for the diagnosis of fallopian tube carcinoma, although it is not specific. It is significant when considered with other abnormal findings on cytology and sonography.

Carcinomas of the fallopian tube and ovary are difficult to differentiate owing to similar cytological and histological features. This is due to their common mullerian origin. Hence, rigid criteria have been established for the diagnosis of primary fallopian tube carcinoma and to differentiate it from other primary tumors:^{1,2,3}

- The tumor arises from the endosalpinx.
- The histologic pattern reproduces the epithelium of tubal mucosa.
- Transition from benign to malignant epithelium is found.
- The ovaries are either normal or with smaller tumor than that in the tube.

Patients with at least one of the above criteria should be diagnosed as

primary fallopian tube carcinoma. Our case fulfilled the above criteria. In situations where the above criteria cannot be applied, the following standard practices serve to maintain consistency in diagnosis and classification: Significant ovarian or endometrial involvement excludes a primary in the tube. When the tube and the ovary are fused to form a mass, with destruction of landmarks, the tumor is assumed to be a primary ovarian carcinoma because of its greater frequency. An ovarian tumor limited to the surface, with minimal parenchymal involvement (≤ 0.5 cm) compared to the tube is likely to be a primary in the tube. Endometrial involvement with invasion of the myometrium and cervix is likely to be a primary in the endometrium.⁸ In metastatic involvement, the tumor usually grows from the serosa into the wall and tubal mucosa does not show neoplastic transformation.

Adenocarcinoma of the papillary serous type, reported in our case is the most common histologic pattern among fallopian tube carcinomas, with a frequency of 49.5% - 83.3%, followed by endometrioid (8.3% -50%) and mixed types (3.9% -16.7%).^{1,2,4,7} Most authors use a three-tier system for grading tubal carcinomas, as recommended by the Association of Directors of Anatomic and Surgical Pathology (ADASP) and the Gynecologic Oncology Group (GOG):⁸

- Grade I - well differentiated
- Grade II - moderately differentiated
- Grade III - poorly differentiated

Most of these carcinomas are poorly differentiated or grade III.^{2,4,7} The case discussed in our report was grade II or moderately differentiated.

The prognostic factor that directly correlates with clinicopathological findings and survival is stage of the disease at the time of surgery. The FIGO surgical-pathological staging system for fallopian tube carcinoma is based on tumor penetration through the layers of the tube and local and distant spread (Table 1). In the reported case, the tumor was limited to the fallopian tube, involving the submucosa and muscle. The serosa and contralateral tube were free. There was no ascites. With these findings, the tumor was assigned to stage I A (FIGO). In a retrospective study of 143 cases of fallopian tube carcinoma by Rosen et al,⁶ sixty (42%) tumors were FIGO stage I, twenty eight (20%) were stage II, thirty eight (27%) were stage III and seventeen (12%) were stage IV. Most fallopian tube carcinomas are detected in stage I, as was our index case.

Table 1: Staging of Carcinoma of the Fallopian tube: FIGO and TNM staging²

FIGO	TNM	Nomenclature
Stage 0	Tx T0 Tis	primary tumor cannot be assessed No evidence of primary tumor Carcinoma in situ (Limited to tubal mucosa)
Stage I	T1	limited to the Fallopian tube
Ia	T1a	Tumor limited to one tube, with extension into the submucosa and/or muscularis, but not penetrating the serosal surface; no ascites
Ib	T1b	Tumor limited to both tubes, with extension into the submucosa and/or muscularis, but not penetrating the serosal surface; no ascites
Ic	T1c	Tumor either Stage Ia or Ib, but with tumor extension through or onto the tubal serosa, or with ascites containing malignant cells, or with positive peritoneal washings
Stage II	T2	Tumor involving one or both Fallopian tubes with pelvic extension
Ila	T2a	Extension and/or metastases to the uterus and/or ovaries
Ilb	T2b	Extension to other pelvic tissues
Ilc	T2c	Tumor either Stage Ila or Ilb with ascites containing malignant cells or with positive peritoneal washings
Stage III	T3 &/or N1	Tumor involving one or both Fallopian tubes, with peritoneal implants outside the pelvis and/or positive retroperitoneal or inguinal nodes. Superficial liver metastasis equals Stage III.
IIIa	T3a	Tumor grossly limited to the true pelvis, with negative nodes, but with histologically confirmed microscopic seeding of abdominal peritoneal surfaces
IIIb	T3b	Tumor involving one or both tubes, with histologically confirmed implants of abdominal peritoneal surfaces, none exceeding 2 cm in diameter. Lymph nodes are negative
IIIc	T3c &/or N1	Abdominal implants more than 2 cm in diameter and/or positive retroperitoneal or inguinal nodes
Stage IV	T4, M1	Tumor involving one or both Fallopian tubes with distant metastases. If pleural effusion is present, there must be positive cytology to be Stage IV. Parenchymal liver metastases equals Stage IV

The most important prognostic factors are patient age, FIGO stage, histologic grade and residual tumor.⁶ CA125 level, histologic type, depth of invasion, peritoneal fluid cytology and size of the metastatic deposits are other factors of prognostic significance.⁷

CONCLUSION

Primary fallopian tube carcinoma is a rare gynecological malignancy. It is clinically and morphologically similar to the more common epithelial ovarian carcinoma. More often than not, diagnosis is first made by the pathologist. Management and staging is along the lines of ovarian carcinoma. Surgery is the mainstay of treatment. Surgical stage and residual tumor are the most important prognostic factors.

Further research is necessary to identify the etiology and diagnostic features of fallopian tube carcinoma. Definite diagnosis is essential, not only for management and prognosis, but also to document its incidence as distinct from ovarian carcinoma.

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