Case Report

DOI: 10.7860/JCDR/2017/24867.9940

Pathology Section

Bilateral Primary Papillary Serous Carcinoma of the Fallopian Tube

H.K. MANJUNATHA[1], BHARGAVI MOHAN[2], V. GEETHAMANI[3]

ABSTRACT

Primary fallopian tube carcinoma is considered one of the rarest female genital cancers, and its bilateral occurrence is even rarer. Because of the rarity of fallopian tube carcinomas as well as the clinical presentation which simulates an ovarian cancer, a correct preoperative diagnosis of fallopian tube carcinoma is seen only in 4% of cases, and is usually first appreciated by Pathologists. We are reporting our experience of a case of bilateral primary serous carcinoma of the fallopian tube in a 36-year-old female.

Keywords: Cystadenocarcinoma-serous, Fallopian tube neoplasms, Tubal intraepithelial neoplasia

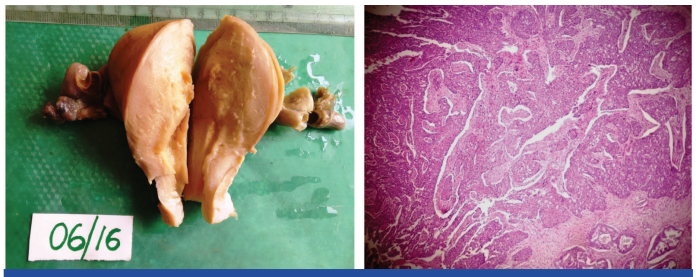
CASE REPORT

A 36-year-old female (para 3 living 3) presented with menorrhagia since one year. On general physical examination, pallor was present with no other significant findings. Speculum examination showed mild erosion of cervix and per vaginal examination revealed an anteverted bulky uterus with clear fornices. Ultrasound revealed an enlarged uterus with endometrial thickness of 1.2 cm with no other significant findings. Dilatation and curettage revealed disordered proliferation. No other findings were appreciated. Thus, patient was then clinically diagnosed to have dysfunctional uterine bleeding and was subjected to total abdominal hysterectomy with bilateral salpingo-oophorectomy and the specimen was sent for histopathological examination.

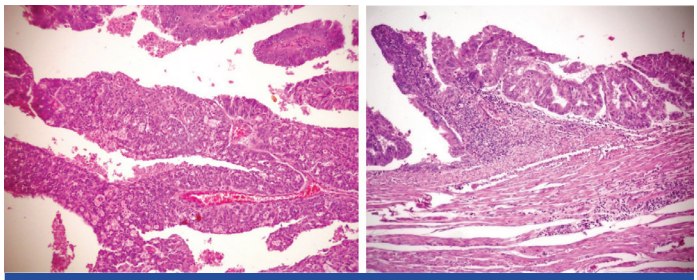
The uterus was bulky measuring 9 × 8 × 4 cm with endometrial thickness of 1 cm and endomyometrial thickness of 2.8 cm. The myometrium showed tiny haemorrhagic spots with grey white trabeculations. Left fallopian tube was oedematous and tortuous, measuring 5 cm in length. On cut section lumen was dilated, with blood clot present in the lumen. Right tube was oedematous and measured 5 cm. On cut section, lumen was dilated with tiny, grey white granular excrescences over the thinned out wall. Bilateral ovaries appeared unremarkable [Table/Fig-1].

Sections from the endometrium revealed simple hyperplasia without atypia. Myometrium showed features of adenomyosis. Cervix showed mild chronic non specific cervicitis with nabothian cyst and ulceration. Bilateral fallopian tubes revealed features of primary papillary serous adenocarcinoma extending from the mucosa up to the muscularis propria [Table/Fig-2,3]. Bilateral intra tubular epithelial neoplasia was present [Table/Fig-4]. Sections from both the ovaries were unremarkable.

Following the report of bilateral papillary serous carcinoma of tube, explorative laprotomy was done and lymph nodes with omentum were submitted. Microscopy revealed that they were free of malignant cells, thus, patient did not receive any adjuvant chemotherapy. Patient has been on biannual follow up and is doing fine.



[Table/Fig-1]: Gross photograph of the surgical specimen showing bilateral hydro-salphinx. Note that the ovaries are normal. **[Table/Fig-2]:** Microphotograph showing features of adenocarcinoma involving the muscularis propria (H&E, 10X).



[Table/Fig-3]: Higher power showing complex papillary pattern of arrangement of tumour cells. (H&E, 45X). **[Table/Fig-4]:** Microphotograph of bilateral tubal intraepithelial neoplasia (H&E, 10X).

DISCUSSION

Primary fallopian tube carcinoma is an uncommon tumour and accounts for approximately 0.7-1.5% of female genital malignancies [1]. It occurs between the fourth and sixth decades of life, with a median range of occurrence of 55 years (range, 17-88 years) [2]. Bilaterality of fallopian tube carcinoma is infrequent and tubal malignancy in women less than 40 years of age is very uncommon. There has been a sudden interest in primary tubal carcinomas in the last several years. Early tubal carcinomas have been diagnosed more frequently due to complete histological examination of all fallopian tube tissue from prophylactic bilateral salpingo-oophorectomy specimens [1]. Thus, we present our case of bilateral primary fallopian tube carcinoma in a 36-year-old female.

Clinical symptoms of tubal malignancy are not specific. Latzko's triad of symptoms consisting of intermittent serosanguineous vaginal discharge, colicky abdominal pain and pelvic mass are seen in only 15% of cases [3]. A diagnosis of fallopian tube malignancy could be assisted by ultrasonography with CA 125 levels which are high in 65% of the cases [4].

Diagnostic criteria to differentiate primary fallopian from primary ovarian/ endometrial carcinoma was developed by Hu et al., and later modified by Sidles [5]. Accordingly, primary fallopian tube

carcinoma is diagnosed if: grossly, the main tumour arises from the endosalpinx; histologically the pattern of tumour resembles tubal mucosa; presence of transition from benign to malignant epithelium; and ovary/endometrium are normal or have a much smaller volume of tumour [5]. All the above criterias were fulfilled in our case. However, many a times it is difficult to differentiate primary fallopian tube cancer from ovarian cancer, fortunately, as of today, the management remains the same. But the five year survival rate of fallopian tube carcinoma on an average is 50% as compared to ovarian cancer which is at 77% [6].

Tubal intraepithelial neoplasia is the earliest morphologically recognizable form of carcinoma. It is characterized by absence of invasion of underlying stroma and the presence of cytological atypia in the lining epithelium alone. Before signing out a diagnosis of intraepithelial neoplasia in a routine specimen, the remaining fallopian tube should be submitted for histopathological examination to rule out invasive carcinoma component. Frequently, early tubal carcinomas and tubal intraepithelial carcinomas are located in the fimbriated end of fallopian tube, and recent models have been suggested, linking p53 signature with tubal intraepithelial carcinoma [1].

p53 signature is the earliest step in the pathogenesis of fallopian tube carcinomas. p53 signature is composed of histologically normal mucosal epithelium and characterized by immunohistochemical overexpression of p53, which has been defined as a linear extent of >= 12 consecutive secretory cells showing strong expression [1]. The "p53 signature" shares many characteristics with tubal intraepithelial carcinoma, including: 1) location in the fimbria (80%); 2) secretory cell phenotype; 3) evidence of DNA damage; 4) p53 mutation; and 5) occasional direct continuity with tubal intraepithelial carcinoma [7].

"IMP3 signature" defined as 10 or more consecutive secretory cells in benign tubal mucosa stained positively for insulin-like growth factor II, is a newer defined entity. IMP3 is an oncofetal protein involved in embryogenesis, rarely expressed in normal adult tissue. Overexpression of IMP3 may be involved in the initial process of tubal or pelvic serous carcinogenesis. Therefore, it may be a useful biomarker for tubal or pelvic serous carcinomas in women [8].

CA-125 is a sensitive marker for the tumour progression during follow-up [9]. The most important prognostic factor in fallopian carcinoma is stage of disease at laparotomy [10]. Also, the 5-year survival of fallopian tube carcinoma (stage I and II) is poorer at 50.8% than that of ovarian cancer at 77.5% [11]. This reflects the need to identify fallopian tube carcinomas at the earliest.

An important question arises. Do small occult carcinomas/tubal intraepithelial neoplasia/p53 signatures behave in a fashion similar to bulky symptomatic tumours? Thus, is it mandatory to submit the entire fallopian tube in all routine cases for histopathological examination, in order to pick up early tubal cancer? More extensive research is needed to bring in clarity.

CONCLUSION

Bilateral primary papillary serous carcinoma of fallopian tube is one of the rarest female genital tract malignancies. Preoperative diagnosis rate could be increased by using CA-125 levels with ultrasonography especially when ovaries are unremarkable. As in any case, diagnosis at an earlier stage provides better prognosis and survival. Thus, more extensive research must be performed to establish the utility of p53 signatures and tubal intraepithelial neoplasia in the diagnosis and prognostication of fallopian tube carcinomas.

REFERENCES

[1] Vang, Russel, et al. Diseases of the Fallopian tube and paratubal region. In, Kurman R, Ellenson L & Ronnett B (Eds.) Blaustein's Pathology of the Female Genital Tract. 6th ed. Springer, New York, 2011;529-78.
[2] Pectasides D, Pectasides E, Economopoulos T. Fallopian tube carcinoma: A Review. Oncologist. 2006;11:902-12.
[3] Bhavani C, Babu PVR, Reddy ES, Neeraja M. Bilateral primary fallopian tube adenocarcinoma – a rare case. Int J Med Res Rev. 2014;2:393-96.
[4] Jheung IC, Lee YS, Lee HN, Park EK. Primary carcinoma of the fallopian tube. Report of two cases with literature review. Cancer Res Treat. 2009;41:113-16.
[5] Tekwani D, Jaison J, Pathak S, Nagle SB, Sampath MM. Bilateral primary papillary serous carcinoma of fallopian tube- a case report. Inte Jour of Medi Res & Health Sci. 2013;3:40-42.
[6] Vyas NM, Rai S, Manjeera L, Shetty D. Bilateral primary fallopian tube carcinoma with classical clinical features: a case report. J Clin Diagn Resc. 2013;7:726-28.
[7] Folkins AK, Jarboe EA, Roh MH, Crum CP. Precursors to pelvic serous carcinoma and their clinical implications. Gynecol Oncol. 2009;113:391-96.
[8] Wang Y, Li L, Wang Y, Yuan Z, Zhang W, Hatch KD, et al. IMP3 as a cytoplasmic biomarker for early serous tubal carcinogenesis. J Exp Clin Cancer Res. 2014;33:60.
[9] Medhi P, Dowerah S, Sarma M, Ahmed FZ. Bilateral primary fallopian tube carcinoma: a histopathologist's perspective. JCR. 2015;5:316-18.
[10] Niloff JM, Knapp RC, Schaetzl E, Reynolds C, Bast RC Jr. CA125 antigen levels in obstetric and gynecologic patients. Obstet Gynecol. 1984;64:703-07.
[11] Rosen AC, Sevelda P, Klein M, Graf AH, Lahousen M, Reiner A, et al. A comparative analysis of management and prognosis in Stage I and II fallopian tube carcinoma and epithelial ovarian cancer. Br J Cancer. 1994;69:577-79.

PARTICULARS OF CONTRIBUTORS:
1. Professor, Department of Pathology, BGS Global Institute of Medical Sciences and Hospital, Bangalore, Karnataka, India.
2. Assistant Professor, Department of Pathology, BGS Global Institute of Medical Sciences and Hospital, Bangalore, Karnataka, India.
3. Professor, Department of Pathology, BGS Global Institute of Medical Sciences and Hospital, Bangalore, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. H.K. Manjunatha,
Professor, Department of Pathology, BGS Global Institute of Medical Sciences and Hospital, Uttarahalli Main Road, Kengeri, Bangalore - 560060, Bangalore, Karnataka, India.
E-mail: hk_manjunath70@yahoo.in

FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Oct 19, 2016**
Date of Peer Review: **Oct 30, 2016**
Date of Acceptance: **Apr 04, 2017**
Date of Publishing: **May 01, 2017**