Case Report

Bilateral Serous Adenocarcinoma of Ovary Coexisting with Mature Cystic Teratoma: Case Report and Review of Literature

Priyanka Bhagat, Pranab Dey*

Department of Cytology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

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ABSTRACT

Collision tumors represent occurrence of two histologically distinct tumors adjacently in the same organ without any admixture. The simultaneous occurrence of a serous adenocarcinoma with a mature teratoma is very rare. In this case report, we describe a rare case of bilateral serous adenocarcinoma of the ovary with bilateral mature teratoma and serous tubal intraepithelial carcinoma of the fallopian tube.

***Corresponding author:**
Dr Pranab Dey, MD, MIAC, FRCPath, Professor, Department of Cytology, Postgraduate Institute of Medical Education and Research, Chandigarh, India
Phone: +91- 172 2744401
E-mail: deypranab@hotmail.com

Introduction

Collision tumors represent occurrence of two histologically distinct tumors adjacently in the same organ without any admixture. Though these tumors have been described in other organs such as liver, kidney, brain, lung, stomach, esophagus and bone their occurrence in ovary is rare. Mucinous carcinoma of ovary in association with mature teratoma is very rare. Herein, we describe a case of bilateral serous adenocarcinoma of the ovary with bilateral mature teratoma and serous tubal intraepithelial carcinoma of the fallopian tube.

Case Report

A 50 year old female presented with history of distention of abdomen along with discomfort since 1 year. Physical examination revealed abdominal distension with abdominal tenderness.

Abdominal sonography revealed solid Cysts bilateral adnexal masses with moderate ascites. Her serum CA125 level was high >1000IU/ml (normal 0-35IU/ml). A diagnostic ascitic fluid tap was performed and subjected for analysis. Ascitic fluid cytology revealed tumor cells in sheets and 3D clusters favoring a diagnosis of metastatic adenocarcinoma. A preoperative diagnosis of bilateral ovarian carcinoma was made and an exploratory laparotomy with total abdominal hysterectomy and bilateral salpingo-oophorectomy, with omentectomy was performed.

Grossly, uterus with cervix was measuring 7x4x3cms, cut surface was unremarkable. Both ovaries were grossly replaced by tumor with multiple areas of capsular breach and surface nodular deposits on both sides. Right ovary was enlarged and measured 8x6x5cms (figure 1a), cut surface showed soft to firm tumor with focal cystic degeneration and areas of haemorrhage and necrosis (figure 1b). Capsule showed numerous deposits with papillary excrescences. Right ovary also showed a cystic area filled with mucoidy material measuring 2x1.5 cm along with cartilaginous areas. Left ovary was cystically enlarged and showed cystic filled with cheesy material. Bilateral fallopian tubes showed surface nodules. Omentum showed multiple tumor deposits ranging in size from 0.5 to 3 cm.

Microscopic examination of the right ovary revealed a cyst lined by pseudostratified ciliated columnar lining epithelium along with mucinous glands and cartilage. The adjoining areas showed high grade serous adenocarcinoma in the form of papillae; glands and solid sheets of tumor cells with moderately pleomorphic vesicular nuclei, conspicuous nucleoli and moderate cytoplasm (figure 2a. b). The left ovary revealed a cyst lined by stratified squamous epithelium and filled with keratin flakes. The adjacent areas showed high grade serous adenocarcinoma. Bilateral fallopian tubes also showed high grade serous adenocarcinoma along with serous tubal intraepithelial carcinoma (figure 2c) which was better highlighted on immunostaining with p53 which showed nuclear positivity (figure 3a) along with a high Ki 67 index (figure 3b).

Fig. 1a: Gross photograph of uterus, cervix with bilateral ovaries and fallopian tubes. Bothe the ovaries are enlarged and replaced by a tumor.

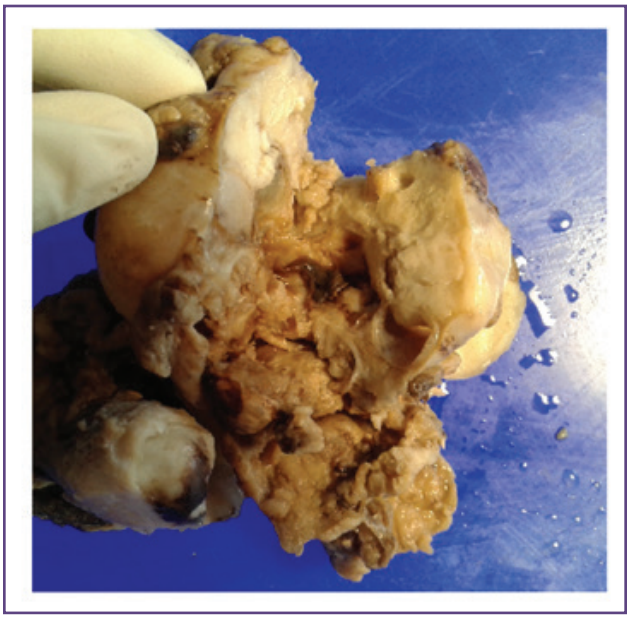

Fig. 1b: Cut surface of the ovary showing a tumor with a variegated appearance with solid areas, cystic areas and cartilage.

Discussion

Mature cystic teratoma (MCT) makes up to 25% of all ovarian neoplasm's and is commonly found in reproductive age group. It is unilateral in 88% of the cases. Tumor is usually uniloculated with average size of 7-8cms and can

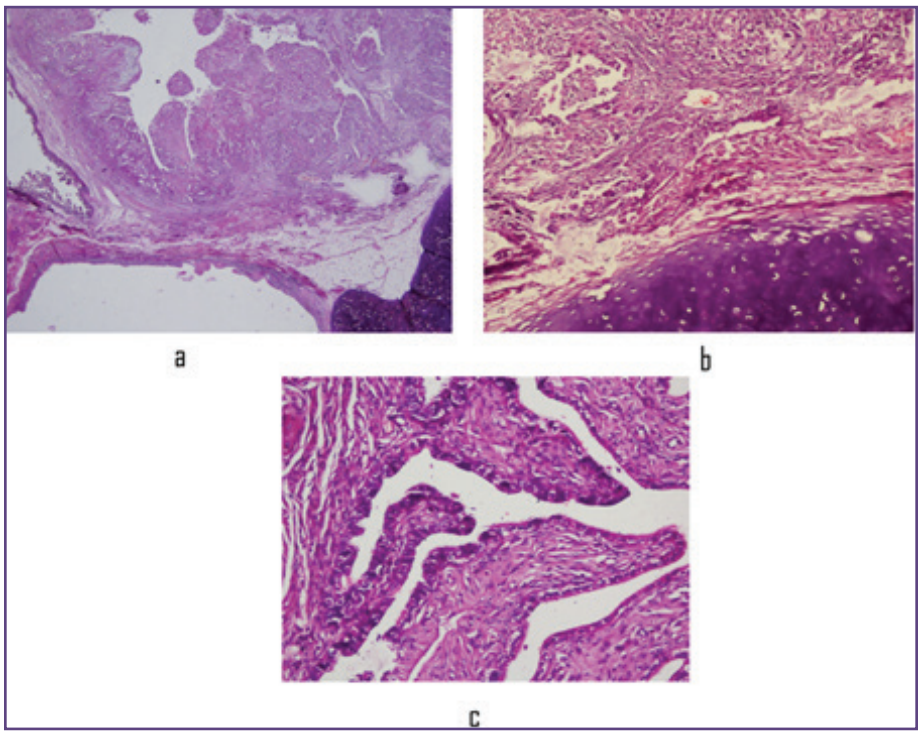

Fig. 2a: Photomicrograph showing a high grade serous carcinoma in the upper half along with components of teratoma comprising of cartilage (right lower quadrant) (Hematoxylin and Eosin X 240)

Fig. 2b: Higher magnification to show serous carcinoma and cartilage. (Hematoxylin and Eosin X 440)

Fig. 2c: Fallopion tube showing serous tubal intraepithelial Carcinoma (Hematoxylin and Eosin X 440)

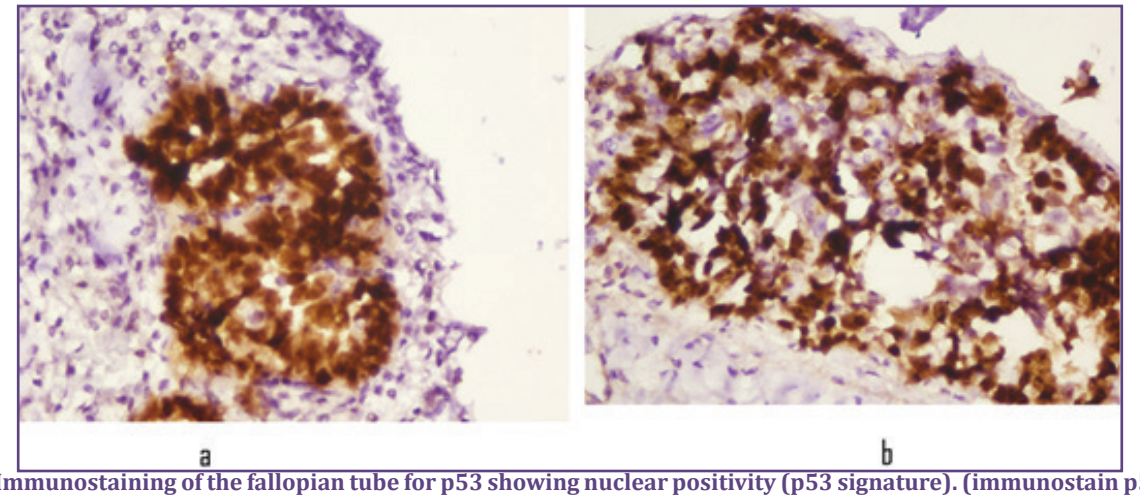

Fig. 3a: Immunostaining of the fallopian tube for p53 showing nuclear positivity (p53 signature). (immunostain p53 X 440)

Fig. 3b: Immunostaining of the fallopian tube with high Ki 67 index . (immunostain Ki67 X 440)

undergo malignant transformation in 1% of cases.[1] MCT of ovary is frequently associated with mucinous tumors of ovary.[2] High grade serous carcinoma is the most common type of ovarian cancer accounting for approximately 50% of ovarian carcinomas. Malignant neoplasm's may arise from mature cystic teratoma, which occurs in 0.2 - 1.4% of cases and, are a result of malignant transformation of one of the benign components of the teratoma, such as squamous epithelium (squamous cell carcinoma), adnexal glands (adenocarcinoma), or cartilage (chondrosarcoma).[3] Collision tumors represent a coexistence of two adjacent but histologically distinct tumors, without histologic admixture in an organ. Thus, the case presented here represents a collision tumor, in which a mature teratoma

of germ cell origin occurred incidentally adjacent to a high grade serous carcinoma of surface epithelial origin.

In 2007, Kajo et al reported a collision tumor comprising of an invasive serous adenocarcinoma and a mature cystic teratoma in a 45 year old female. [4] In 2009, Bige et al, described an invasive serous cystadenocarcinoma, along with a dermoid cyst in the same ovary, in a 45 year old female.[5] The index case is the third one in English literature describing simultaneous occurrence of a serous adenocarcinoma with a mature teratoma, and is the first case with such a tumor occurring bilaterally.

The common collision tumors of the ovary comprise of mature teratoma with mucinous cystadenomas. Okada et al, have reported eleven cases of mucinous tumors coexisting with dermoid cysts out of which 6 were benign, 3 were low-grade, and 2 were malignant. [6] Kim et al, have reported collision tumors of ovary comprising of teratoma coexisting with mucinous cystadenoma (4 cases), borderline mucinous tumour (1 case) and mucinous cystadenocarcinoma (1 case).[7] Lin et al have reported a uterine papillary serous carcinoma along with a mature cystic teratoma of ovary. [8] In 2010, Shetty et al reported a case of uterine papillary serous carcinoma with mature cystic teratoma of left ovary. [9] Papaziogas et al reported a case of serous cystadenoma and mature cystic teratoma in the same ovary. [10] Kefeli et al, have reported a case of 65-year-old patient having mature cystic teratoma, with rhabdomyosarcomatous transformation and contra lateral serous carcinoma. [11]

Thus we have seen that mature cystic teratoma forms a common component of ovarian collision tumors and identifying the other component is important because the treatment and prognosis vary depending on how much sinister the other component is. As in the index case a serous carcinoma with omental deposits would require adjuvant chemotherapy. Also adequate sampling of the specimen is required so that one does not miss a tumor occurring in collision with a mature cystic teratoma.

Conclusion

Recognizing the potential for the coexistence of these two neoplasms in the same ovary is essential for making a correct diagnosis. Treatment and prognosis depends on the malignant component and its spread. To the best of our knowledge this is the third case report describing a mature teratoma coexisting with a serous adenocarcinoma in the same ovary and the first case report describing such an occurrence in both ovaries.

Conflict of interest

We have no conflict of interest

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