ECRONICON OPEN ACCESS

EC PAEDIATRICS
Case Report

Collision Tumor of Ovary Mimicking Ovarian Carcinoma - A Rare Case Report

Monica Vincent*

Department of Pathology, The Tamil Nadu Dr MGR Medical University, Dhanalakshmi Srinivasan Medical College and Hospital, Tamil Nadu, India

***Corresponding Author:** Monica Vincent, Department of Pathology, The Tamil Nadu Dr MGR Medical University, Dhanalakshmi Srinivasan Medical College and Hospital, Tamil Nadu, India.

Received: May 28, 2020; **Published:** June 22, 2020

Abstract

Collision tumors are intermixture of two different neoplasms occurring in same organ without intermixture of cell types [1]. These tumors have been reported in various organs, such as the esophagus, stomach, liver, thyroid gland, ovary and lung [1]. Ovarian collision tumor is a rare entity [1]. The mechanism of origin is uncertain. The majority of these tumors are a collision between carcinomas and sarcomas or lymphomas but rarely between two types of carcinoma [2]. The most common histological combination of collision tumor is the coexistence of Ovarian Teratoma with Mucinous cystadenoma or cystadenocarcinoma [1].

Here we report a very unusual combination of papillary serous cystadenofibroma with benign mature cystic teratoma in bilateral ovaries along with peritoneal implant of the Papillary serous cystadenofibroma component over the bladder mimicking a carcinoma in a young woman with history of infertility.

Keywords: *Ovary; Collision Tumor; Surface Epithelial Tumor; Teratoma*

Introduction

Collision tumors are intermixture of two different neoplasms occurring in same organ without intermixture of cell types [1].

Case Report

A 25-year-old, young woman married for 4 years was seen in OBG outpatient department, with complaints of anxiousness to conceive. She had normal menstrual history. Routine hematological profile was unremarkable. Per abdomen examination revealed irregular masses felt in lower abdomen. Ultrasonography revealed multiloculated large cystic and solid masses in bilateral adnexa.

Radiology imaging: A contrast enhanced computed tomography (CECT) scan revealed bilateral cystic masses, the right side mass measuring (30 x 25 x 7 cm) and left side mass measuring (23.5 x 20 x 9 cm). The mass were seen occupying the entire pelvis and extending into the abdomen, with a well delineated solid area measuring (9 × 5 cm) and multiple areas of calcifications noted within the left adnexal masses. Uterus showed normal attenuation and enhancement. Posterior wall of uterus, adjacent small bowel and sigmoid colon were not made out clearly. Few calcified peritoneal nodules were also noted. There was associated omental thickening and mild ascites. There

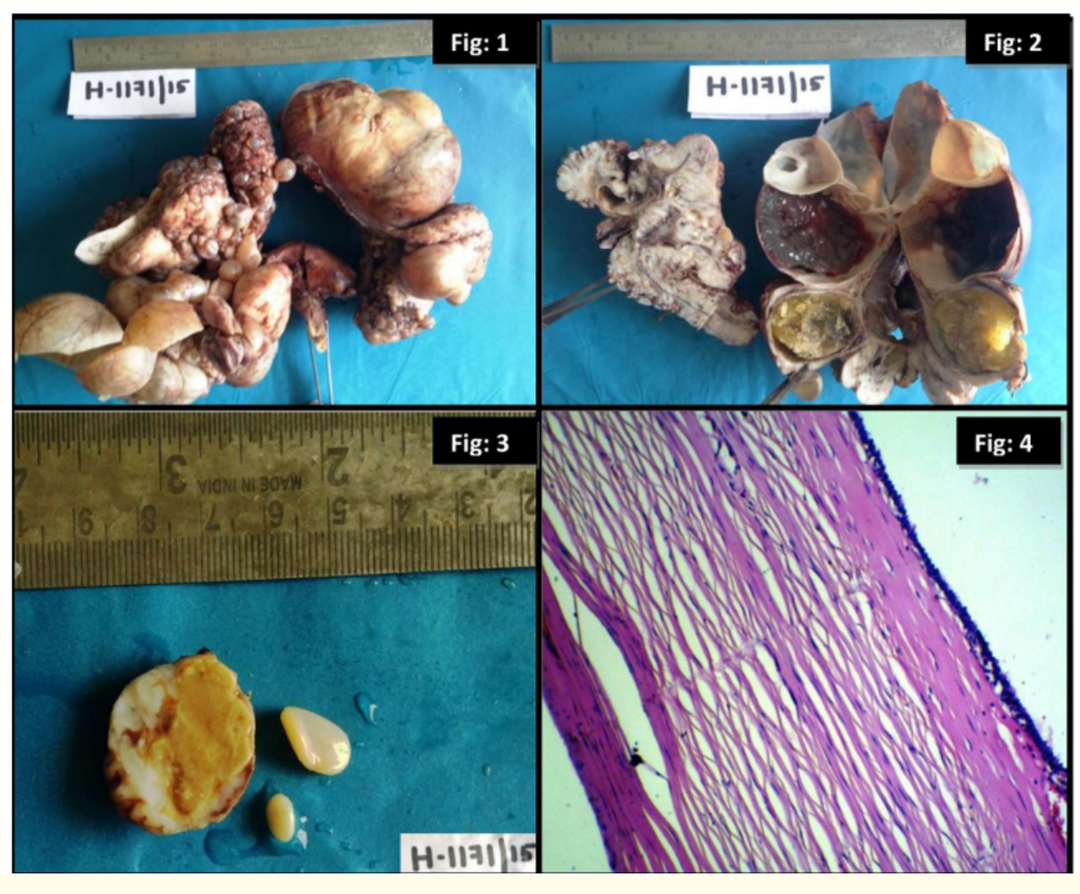
was no evidence of para-aortic or mediastinal lymphadenopathy. Based on the USG findings a malignant neoplasm of the ovaries was suspected.

Cytology and tumor markers: Of the ascitic fluid showed few reactive mesothelial cells and was negative for malignant cells. Carcinoma Antigen 125 (CA-125) levels were elevated (234 IU/mL), Alpha Fetal Protein levels (1.3 ng/ml) and Beta Hcg (0.5 mIU/ml) remained normal.

Gross examination: Total abdominal hysterectomy with bilateral salphingo-oopherectomy was done and the specimen was submitted for histopathological examination. The Uterus with cervix measured 9 x 6 x 2 cm. Outer surface and cut surface of cervix appeared unremarkable. Endometrium measured 0.1 cm and average myometrial thickness measured 1.4 cm. Right ovarian mass measured 19 x 15.5 x 13 cm, outer surface was bossellated with multiple cystic structures showing areas of congestion. No capsular breach was evident. Cut surface showed multiple cystic spaces in between the solid area, the largest cyst measured 6.5 x 6 cm along with solid area measuring 14.5 x 12 cm, few cystic locules were filled with clear fluid and few filled with gelatinous material. Right tube measured 6 cm in length, on cut section of the right tube lumen identified. Left ovarian mass measured 19 x 9 x 7.5 cm, outer surface appeared capsulated and bossellated. No capsular breach.

Cut surface showed multiple loculations; largest cyst measuring 8.5 x 4.5 cm. Maximum cyst wall thickness is 0.6 cm along with grey white solid area measuring 4.2 x 4.2 cm. One foci of cyst filled with pultaceous material with hair structures. Inner wall of another cyst in some areas showed few papillary projections. Left tube measured 12 cm in length. On cut section of left tube, lumen identified. Also received were four grey brown, grey white nodules taken from the surface of bladder, largest one measured 3 x 2.5 x 1.5 cm and smallest one measured 0.5 x 0.3 x 0.1 cm. Outer surface of the nodule was capsulated, cut surface showed yellowish pultaceous material along with grey white areas. Representative sections were taken.

Microscopy: Multiple sections taken from the bilateral ovaries showed solid and cystic areas. The solid area comprised of spindle shaped cells with bland nuclear morphology arranged in sheets and fascicles. These spindle cells with bland nuclear morphology arranged in sheets and fascicles. These spindle cells had bipolar cytoplasm. Areas of collagenisation were noted around the spindle cells. Embedded within these spindle cells were seen many dilated glands lined by columnar to flattened epithelium with basally located nucleus. Focally, the cyst wall also lined by similar type of epithelium with foci of psammomatous calcification. Focally cyst wall showed papillary projections with dense sub epithelial fibrosis. Sections from the teratoid part showed hair shafts, adipose and muscle tissues. No evidence of nuclear atypia, mitosis or necrosis was noted in the multiple sections studied. The microscopy was consistent with an ovarian collision tumor comprising of papillary serous cystadenofibroma and mature teratoma.



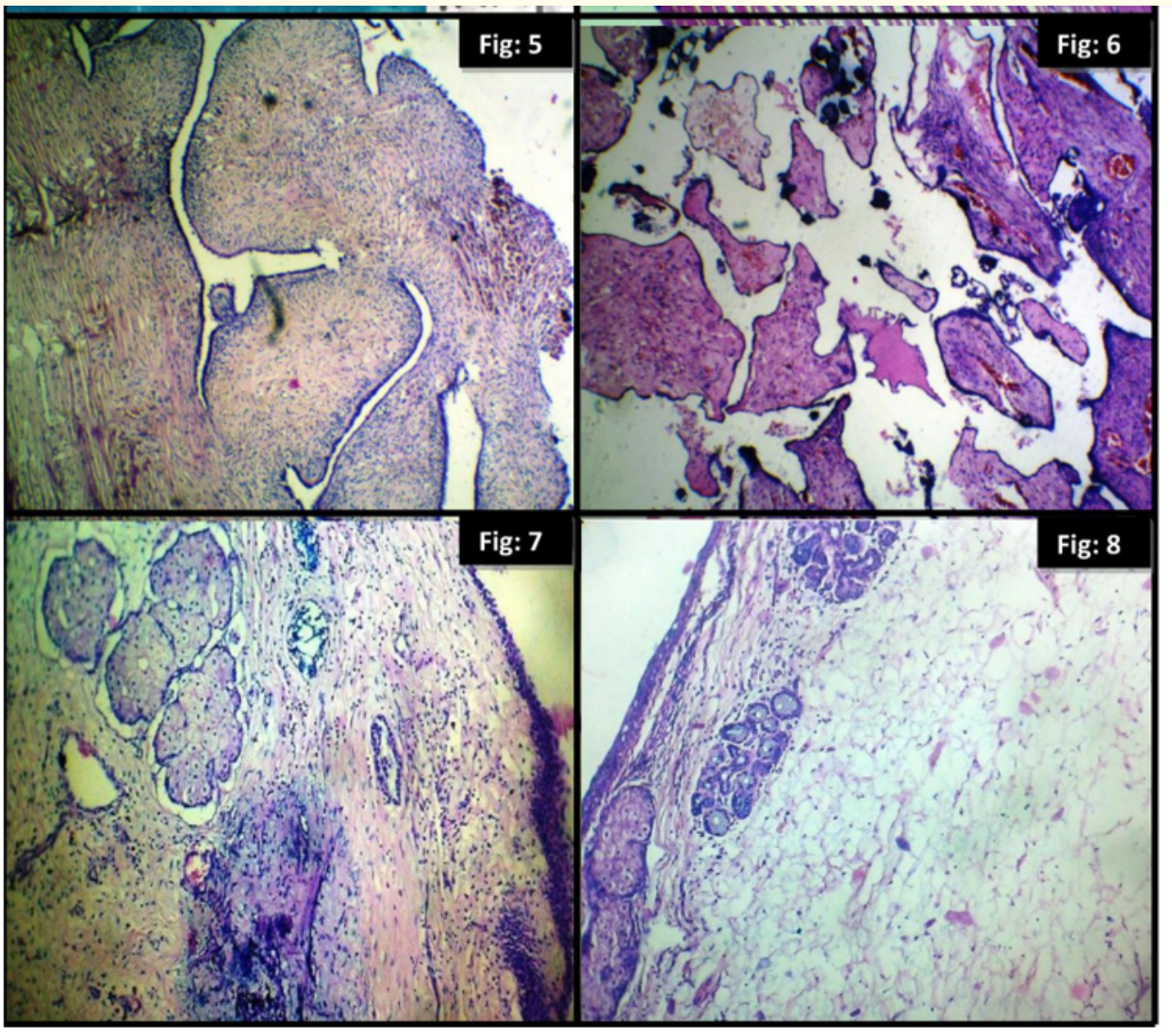


Figure 1: *Gross specimen showing uterus with bilateral ovarian masses.*

Figure 2: *Gross - Cut surface of the ovarian masses exhibiting solid and cystic spaces.*

Figure 3: *Gross - Picture showing peritoneal nodule*

Figure 4: *Microscopy - Cyst wall lined by single layer of ciliated columnar epithelium (H&E, 40X).*

Figure 5: *Microscopy - Cyst wall showing broad papillary structure with underlying fibrocollagenous tissue (H&E, 40X).*

Figure 6: *Microscopy - Cyst wall showing papillary structures with psammomatous calcification (H&E, 10X).*

Figure 7: *Microscopy - Cyst wall showing teratomatous components (Sebaceous glands) (H&E, 10X).*

Figure 8: *Microscopy - Cyst wall lined by squamous epithelium with underlying teratomatous components (adnexal glands) (H&E, 4X).*

Discussion

Collision tumor is combination of two distinct tumors in the same organ without any intermixing of cell types [1]. These tumors have also been reported in various other organs [1]. Ovarian collision tumor is relatively rare [1]. Evolution of collision tumors has remained controversial [3]. Teratoma is the most common component of collision combination [3]. Many hypothesis have been put forth to explain the rare phenomenon of collision tumor: coincidental occurrence, carcinogenic agents of a primary tumor, growth factors produced by a metastatic tumor, alterations in the microenvironment, simultaneous proliferation of two cell lines, common origin from pluripotent stem cell that differentiates into two components [4-10].

Collision tumors are more often unilateral and vary in size from 2 to 200 cm as it was noted in our case. Teratoma is germ cell neoplasm whereas papillary serous cystadenofibroma which is a surface epithelial tumor is explained by metaplasia of ovarian surface epithelium [11,12]. So, in this case, the reason for collision of these two tumors may be due to a Teratoma originating from a germ cell rest [13]. Another possibility could be that the teratoma resulted from failure of evolution of ovum into a Graafian follicle which failed to rupture, together with the papillary serous cystadenoma from the epithelial metaplasia of the follicular lining [14]. A diagnosis of collision tumor involving in the ovary is often made postoperatively. The collision of teratoma and papillary serous cystadenofibroma is a rare combination. Peritoneal implants also showing similar benign morphology.

Conclusion

We thus conclude that ovarian collision tumor is often a rare and challenging entity. Diagnosis of such tumors can be made only postoperatively which can be picked up by meticulous grossing of the specimen and confirmed by microscopic examination. Gynecologist and histopathologist should be aware of such tumor which needs to be extensively examined, so as not to miss any aggressive component interfering with the prognosis and treatment strategies of the patient. Elevated serum CA 125 levels alone cannot differentiate between benign and malignant ovarian masses.

Bibliography

1. Bige O., *et al.* "Collision tumor: serous cystadenocarcinoma and dermoid cyst in the same ovary". *Archives of Gynecology and Obstetrics* 279 (2009): 767-770.

2. Murthaiah P., *et al.* "Collision tu¬mor versus multiphenotypic differentiation: a case of carcinoma with features of colonic and lung primary tumors". *Anticancer Research* 29 (2009): 1495-1497.

3. Joshi CV and Enver T. "Plasticity revisited". *Current Opinion in Cell Biology* 14 (2002): 749-755.

4. Nirenberg A., *et al.* "Collision tumor: serous adenocarcinoma and steroid cell tumor of the ovary". *Pathology* 24 (1992): 60-62.

5. Cohen A., *et al.* "Experimental models for gastric leiomyosarcoma: the effects of N-methyl-N'-nitro-N-nitrosoguanidine in combination with stress, aspirin, or sodium taurocholate". *Cancer* 53 (1984): 1088-1092.

6. Mayur B., *et al.* "Collision tumour of the colonic adenocarcinoma and ovarian granulosa cell tumor-Case report". *World Journal of Surgical Oncology* 5 (2007): 118.

7. Abs R., *et al.* "The association of meningioma and pituitary adenoma: report of seven cases and review of the literature". *European Neurology* 33 (1993): 416-422.

8. Caroli E., *et al.* "Post-traumatic intracranial meningiomas". *Tumouri* 89 (2003): 6-8.

9. Louis DN and Ramesh V. "Neuropathology and molecular genetic of neurofibromatosis 2 and related tumours". *Brain Pathology* 15 (1995): 163-172.

10. McKenney JK., *et al.* "Ovarian mature teratomas with mucinous epithelial neoplasms: morphologic heterogeneity and association with pseudomyxoma peritonei". *The American Journal of Surgical Pathology* 32 (2008): 645-655.

11. Tang P., *et al.* "Mature cystic teratoma of the ovary associated with complete colonic wall and mucinous cystadenoma". *Annals of Clinical and Laboratory Science* 33 (2003): 465-470.

12. Nomura K. "Mucin histochemistry of ovarian mucinous cystadenomas expressing gastrointestinal characteristics". *Pathology International* 45 (1995): 430-435.

13. Naim M. "Immature embryoid teratoma of the gallbladder. Case of a primary primitive neoplasm". *BMJ Case Reports* (2009).

14. McKenney JK., *et al.* "Ovarian mature teratomas with mucinous epithelial neoplasms: morphologic heterogeneity and association with pseudomyxoma peritonei". *The American Journal of Surgical Pathology* 32 (2008): 645-655.

Volume 9 Issue 7 July 2020