

Collision tumor of ovary: A rare entity



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Submitted: 29-05-2018

Revised: 17-06-2018

Published: 01-07-2018

ABSTRACT

Collision tumors are composed of two histologically distinct neoplasms in the same organ without intermixture of cell types. The co-occurrence of a serous adenocarcinoma with a mature cystic teratoma is very rare. We present here the case of a 48 years married female with bilateral high grade serous carcinoma of the ovary with left sided mature cystic teratoma.

Key words: Collision tumor; Mature cystic teratoma; Serous carcinoma

Access this article online

Website:

<http://nepjol.info/index.php/AJMS>

DOI: 10.3126/ajms.v9i4.20054

E-ISSN: 2091-0576

P-ISSN: 2467-9100

INTRODUCTION

Collision tumors represent a coexistence of two histological distinct tumors without admixture in the same tissue or organ.¹ These tumors have been described in other organs such as liver, kidney, brain, lung, stomach, esophagus and bone but their occurrence in ovary is rare.² Coexistence of tumors has been reported in the ovary, such as serous cystadenoma and teratoma^{1,3} serous papillary cystadenocarcinoma and granulosa cell tumor, serous adenocarcinoma and steroid cell tumor, teratoma with granulosa cell tumor⁴ and mucinous cystadenoma and teratoma.⁵ However, ovarian collision tumors are most commonly composed of teratoma and cystadenoma or cystadenocarcinoma.⁴ Here in, we describe a case of bilateral high grade serous carcinoma of the ovary with left sided mature cystic teratoma.

CASE HISTORY

A 48 years old married female (parity 5, live 5) presented in gynaecological outpatient clinic with complain of abdominal distension and mild abdominal pain. Her menstrual history was normal and obstetric history was uneventful. She denied weight loss, fever, vomiting, vaginal discharge. The past medical history was unremarkable. Routine hematological parameters were within normal

limit. Abdominal sonography revealed solid cystic bilateral adnexal masses with moderate ascites. 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 ovarian carcinoma with metastasis was made and bilateral salpingoophorectomy, with omentectomy and peritoneal wall biopsy was performed.

Grossly, both ovaries were grossly replaced by tumor with multiple areas of capsular breach and surface nodular deposits on right ovary whereas outer surface of left ovary is smooth. Right ovary was 2.5x2x1.2 cm, cut surface showed solid soft to firm areas with cystic areas of size 2x1.4 cm (Figure 1). Left ovary was enlarged and measured 4.5x4x2cm. Outer surface is smooth. Cut surface showed solid cystic areas (Figure 2). Solid area was grey white in colour, firm in consistency with papillary excrescences and areas of hemorrhages. Cystic area of size 2cm was identified which was filled with cheesy material. Bilateral fallopian tubes showed surface nodules. Omentum showed multiple tumor deposits ranging in size from 0.5 to 1 cm.

Microscopic examination of the right ovary showed high grade serous carcinoma in the form of papillae (Figure 3); glands and solid sheets of tumor cells with moderately pleomorphic hyperchromatic to vesicular

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nuclei, conspicuous nucleoli and moderate cytoplasm. Large bizarre cells along with multinucleated forms and numerous mitotic figures including atypical ones are also seen. Large areas of psammoma bodies are also present (Figure 4). Capsular breach of right ovary was noted. The left ovary showed high grade serous carcinoma with adjacent area revealing a cyst lined by keratinized stratified squamous epithelium with keratin flakes and underlying adipose tissue, cartilage (Figure 5) and thyroid parenchyma (Figure 6). Bilateral fallopian tubes also showed high grade serous carcinoma. Omental biopsy and peritoneal biopsy showed presence of metastatic tumor deposits.

DISCUSSION

High grade serous carcinoma is the most common type of ovarian cancer accounting for approximately 50% of ovarian carcinomas. Nearly all patients present in advanced stage with tumor disseminated throughout the abdominal

and pelvic cavities.⁶ Mature cystic teratoma (MCT) is the most common type of ovarian germ cell neoplasm and constitute 20% of all ovarian neoplasms. The tumor is composed of well-differentiated derivatives of the three germ layers- ectoderm, mesoderm and endoderm.⁶ MCT are usually uniloculated with average size of 7-8cms and can undergo malignant transformation in 1% of cases.⁷ Collision tumors represent a coexistence of two adjacent but histologically distinct tumors, without histologic admixture in an organ. We present this case because collision tumors in ovary are a rare entity and rarer is the combination of high grade serous carcinoma with teratoma, as in our case.

In 2015, Bhagat and Dey reported a collision tumor comprising of bilateral high grade serous carcinoma of ovary and a mature cystic teratoma with multiple tumor deposits in omentum.² Similar finding was noted in our case. Kocak and Nalbant in 2015 also presented a case



Figure 1: Gross photograph of ovary and fallopian tube. Both the ovary and fallopian tube are replaced by a tumor



Figure 2: Cut section of the ovary showing solid cystic areas

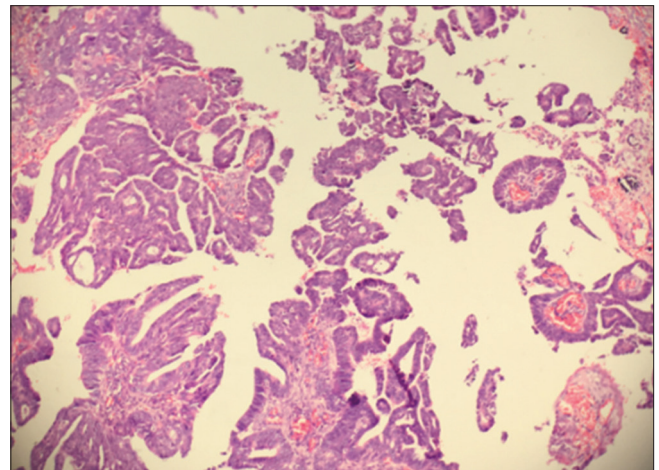


Figure 3: Photomicrograph showing tumor cells arranged in papillae (Hematoxylin and Eosin stain, 40x)

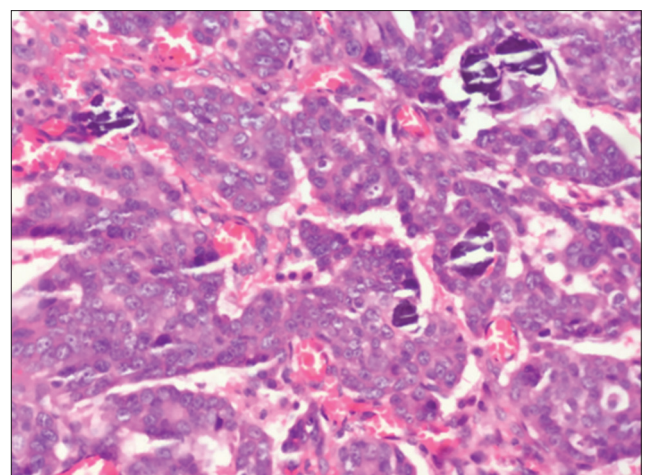


Figure 4: Photomicrograph showing moderately pleomorphic tumor cells with numerous psammoma bodies (Hematoxylin and Eosin stain, 400x)

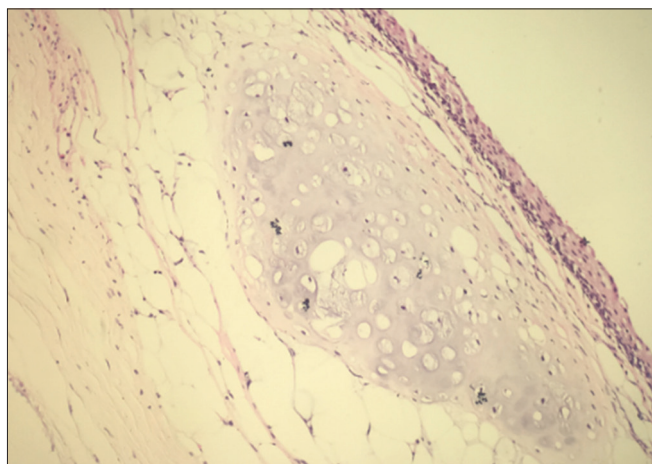


Figure 5: Photomicrograph showing stratified squamous epithelium with mature cartilage and adipose tissue (Hematoxylin and Eosin stain, 400x)

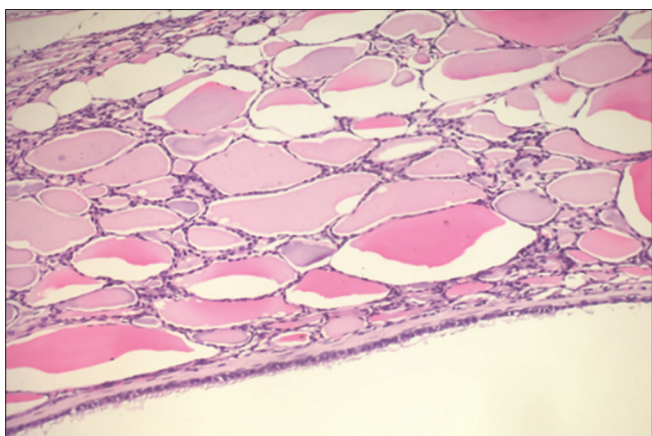


Figure 6: Photomicrograph showing ciliated columnar epithelium with thyroid follicle (Hematoxylin and Eosin stain, 400x)

of 83 years old female with collision tumor composed of invasive Serous Papillary cystadenocarcinoma and mature cystic teratoma.⁸

The common collision tumors of the ovary comprise of mature teratoma with mucinous cystadenoma. 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.⁹ Shetty et al reported a case of uterine papillary serous carcinoma with mature cystic teratoma of left ovary in a post menopausal woman.⁷ A triple coexistence of collision tumor comprising of serous cystadenoma, mature cystic teratoma and hemorrhagic follicular cyst has also been reported by Papaziogas et al in 2007.¹⁰ Malignant transformation of mature cystic teratoma has been described in various literature^{11,12} however no such findings has been detected in our case.

Pelvic examination, CA 125, and transvaginal ultrasound are currently used screening tests, however ultrasound examination is the most useful noninvasive diagnostic

test.¹³ The level of CA 125 is raised in 80% of patients with ovarian carcinomas. In our case, the levels CA 125 was above normal ranges.

Mature cystic teratoma forms a common component of ovarian collision tumors and identifying the other component is important because the treatment and prognosis vary. Thorough sampling of the specimen is required so that one does not miss a tumor occurring in collision with a mature cystic teratoma.

CONCLUSION

Ovarian collision tumors are rare, but even rarer are the coexistence with malignant ovarian tumors, as in our case. The preoperative suspicion of the existence of such tumors would help the pathologist to perform a thorough examination of the excised specimen, so as to avoid misdiagnosis of a second type of tumor. Pathologist and surgeons need to be aware of existence of collision tumors, as it is important to correctly diagnose the various component of tumor for treatment and better outcome of the patient.

ACKNOWLEDGEMENT

I am grateful to Dr Purbesh Adhikari, Assistant Professor, Department of Pathology, BPKIHS, for providing an insight about the case.

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Author's Contribution:

DK- Design of the case report, review of the literature, literature search, preparation of the case report and critical revision of the case report; **SK-** Expert opinion about the case; **PA-** Concept, review of the case report and review of literature; **MD-** Concept, review of the case report and review of literature; **MA-** Helped in history taking, literature search and photography; **BA-** Helped in history taking, literature search and photography

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Source of Support: Nil, **Conflict of Interest:** None declared.