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MALIGNANT MIXED GERM CELL TUMOR OF OVARY: A RARE COMBINATION OF CHORIOCARCINOMA AND EMBRYONAL CARCINOMA

Pathology

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ABSTRACT

Malignant germ cell tumors are relatively uncommon tumors comprising less than 5% of all ovarian neoplasm. 95% of the germ cell tumors are benign cystic teratoma. Most common mixed germ cell tumors are dysgerminoma with yolk sac tumor. Here we report cytology and histopathology of a rare case of malignant mixed germ cell tumor comprised of a large component of choriocarcinoma along with a small component of embryonal carcinoma in a 40 years old female. She presented with pain abdomen and increased serum levels of human chorionic gonadotropin and lactate dehydrogenase. Alpha feto protein and CA-125 levels were normal. Both these germ cell tumors are extremely rare entities individually as well as in combination. She was treated with surgical resection followed by chemotherapy.

KEYWORDS

choriocarcinoma, embryonal carcinoma, mixed germ cell tumors.

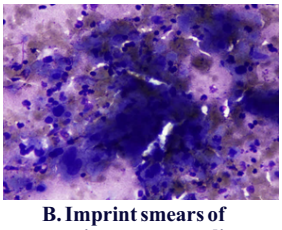
INTRODUCTION

Ovarian germ cell tumors arise from the primitive germ cells of the embryonic gonad and then they gradually differentiate to mimic the developmental tissues of embryonic and extraembryonic origin[1]. Malignant germ cell tumors are relatively uncommon comprising less than 5% of all ovarian neoplasm[2]. Mixed germ cell tumors are tumors composed of more than one neoplastic germ cell elements. Most common combination is dysgerminoma accompanied by yolk sac tumor, immature teratoma , choriocarcinoma and polyembryoma[3]. Non-gestational choriocarcinoma is rare neoplasm and even the presence of choriocarcinomatous elements admixed with other neoplastic germ cell element is uncommon[4]. Presence of other germ cell elements is generally diagnostic of non-gestational choriocarcinoma especially in postmenarchal women in whom exclusion of gestational origin of tumor may be difficult. Tumour markers such as AFP, hCG and LDH contribute to the diagnosis, prognosis and follow-up of the disease[5]. Here, we report a rare combination of malignant mixed germ cell tumor with a large component of choriocarcinoma admixed with embryonal carcinoma. Embryonal carcinoma is considered to be the least differentiated form of germ cell tumor.

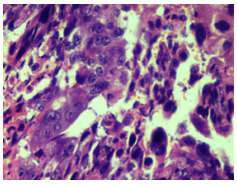
CASE REPORT

A 40 years old female patient presented to the gynaecology department with the chief complaints of pain abdomen from two months. She was married for 14 years and had two live births. She had menarche at 14 years and was having regular menstrual cycles. Her last menstrual period was 7 weeks prior to her presentation. General physical examination and abdominal examination was unremarkable. On routine blood and urine investigations, urinary pregnancy test came positive. On ultrasonography abdomen there was a left adnexal mass. Her serum human chorionic gonadotropin levels were markedly increased to the value of 61330.1 mIU/ml. Lactate dehydrogenase was also increased to 608 U/L. Serum alpha feto protein and CA- 125 levels were normal. Patient underwent total hysterectomy with salpingo-oophorectomy. We received imprint smears from the left ovarian mass for cytopathological evaluation, uterus with cervix with bilateral adnexa and omentum for histopathological examination in our pathology department. Microscopic examination of imprint smears revealed two cell populations of cytotrophoblasts and syncitiotrophoblasts in a necrotic background. So the diagnosis of ovarian choriocarcinoma was given on cytology. On gross examination of histopathology specimen, left ovary was converted into grey brown to tan brown mass of size 8 cm in diameter. Cut section was grey brown to tan brown friable, variegated with large areas of haemorrhage and necrosis. Tumor was invading the posterior surface of uterus. Right side ovary and other structures were grossly unremarkable. Microscopic examination from left ovarian mass revealed two cell populations, mononucleate and multinucleate trophoblasts. There was considerable variation in the pattern and ratio of two components in different parts of the same tumor. There were large areas of haemorrhage and necrosis. In addition there were some areas showing large to polygonal markedly pleomorphic nuclei with increased mitotic activity arranged around blood vessels and in papillae. Tumor giant cells were also present. Omentum also showed invasion by the tumor cells. So the final diagnosis of malignant mixed germ cell tumor of ovary cantaining large component of choriocarcinoma with few areas of embryonal carcinoma with invasion into the outer two third of myometrium and omentum was given. Patient was given three cycles of chemotherapy and her serum human chorionic gonadotropin levels returned to normal.

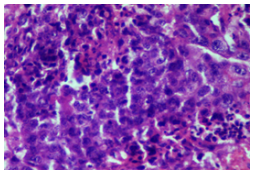
A. Gross microphotograph of ovarian mass with fallopian tube



B. Imprint smears of ovarian mass revealing choriocarcinoma (400X)



C. Microscopic picture showing choriocarcinoma component (400X)



D. Microscopic picture showing embryonal carcinoma component (400X)

DISCUSSION

Germ cell tumors constitute the second largest group of ovarian neoplasms and comprise approximately 20% of all ovarian neoplasms[6]. These tumors can occur in women at any age from infancy to old age, but seen most frequently from the first to the sixth decade. In children and adolescents, more than 60% of ovarian neoplasms are of germ cell origin, of which approximately 1/3rd are malignant. In adults, the vast majority of germ cell tumors are benign (nearly all mature cystic teratomas). In malignant germ cell tumors, dysgerminoma is the most common germ cell tumor, accounting for

50% of all cases. The yolk sac tumor is the second most common, accounting for 20% of all cases. Less common germ cell tumors are embryonal carcinoma, immature teratoma, choriocarcinoma, polyembryomas, and mixed germ cell tumors. Majority of ovarian germ cell tumors presents as unilateral enlarged ovary with the presenting complaints of abdominal pain, abdominal distension or a pelvic mass[7]. Increased levels of serum tumor markers helps in the diagnosis, prognosis and follow up of the disease. Definitive diagnosis is made only after the histopathological examination of the specimen. There are two forms of ovarian choriocarcinoma, gestational and non-gestational. The non-gestational type is a primary germ cell neoplasm differentiating along the extraembryonic chorionic tissue and is rare. Pure choriocarcinoma of the ovary has been defined as a tumor that occurs in the absence of all other germ cell tumors and their diagnosis as of non gestational type is very difficult in women of reproductive age group. However the presence of other neoplastic germ cell elements helps in confirming the non gestational origin of the tumor. It is necessary to diagnose the all elements of a mixed germ cell tumors as chemotherapy varies accordingly. The standard management of malignant ovarian germ cell tumors is complete surgical excision. As most are unilateral, fertility sparing surgery should be performed, if feasible especially in young and nulliparous women[8]. Even in patients with bulky metastatic disease, a normal appearing uterus and contralateral ovary may be preserved allowing for future fertility options if desired with the appropriate post operative chemotherapy. The evolution in the chemotherapeutic treatment of mixed ovarian germ cell tumors constitutes a major advance in clinical management[9]. Prior to the advent of combination chemotherapy, non-dysgerminomatous germ cell tumors carried a dismal prognosis.

CONCLUSION

Malignant mixed germ cell tumor (choriocarcinoma and embryonal carcinoma) is a rare tumor. Histopathological examination of surgical specimen should be carried out thoroughly for exact diagnosis of all the components of a mixed germ cell tumor.

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