Case Report

# Squamous cell carcinoma arising in an ovarian mature cystic teratoma

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## ABSTRACT

Malignant transformation in a mature cystic teratoma of the ovary is rare. We describe a case of advanced-stage squamous cell carcinoma arising from a mature cystic teratoma in a 63-year-old postmenopausal woman. The initial investigation by ultrasound showed a left adnexal mass with mixed echo pattern, which arose the suspension of malignancy. She underwent a hysterectomy with left salpingo-oophorectomy for the removal of ovarian cyst. Histopathology was compatible with well-differentiated squamous cell carcinoma arising in a mature cystic teratoma. The tumor was invading the fallopian tube as well as serosa and myometrium of the uterus. Subsequently, she underwent two courses of combination chemotherapy with cisplatin, leucovorin, and 5-fluorouracil with no response. She died from progression of the disease, within 1 year after the initial operation.

**Key words:** Dermoid cyst, malignant transformation, mature cystic teratoma, squamous cell carcinoma

## INTRODUCTION

Mature cystic teratoma (MCT) is the most common tumor of the ovary and accounts for 10-20% of all ovarian tumors in women of reproductive age. Malignant transformation in an MCT of the ovary is rare, with an incidence rate of less than 3%.[1-4] The most common malignancy is squamous cell carcinoma (SCC), which represents about 75% of malignant transformations, followed by adenocarcinoma and melanoma.[2] Preoperative diagnosis of malignant transformation of an ovarian mature cystic teratoma to squamous cell carcinoma is difficult due to nonspecific tumor markers and imaging findings. In the present report, we describe a case of SCC arising in an MCT in an advanced stage.

## CASE REPORT

A 68-year-old female presented with 6 months history of swelling of abdomen accompanied by pain of 3 months duration. On physical examination, a large abdominal mass arising from pelvis was palpated. The height of the mass was corresponding to 32 weeks of gestation. A clinical diagnosis of the left ovarian mass was made. Ultrasound examination showed a well-outlined encapsulated mass in the left adnexa with a mixed echo pattern consisting of cystic and solid components, which suspected the presence of a malignant ovarian tumor.

A hysterectomy with left salpingo-oophorectomy and partial omentectomy was performed for the ovarian tumor and sent for histopathological examination. Grossly, the tubo-ovarian mass measured 10 cm × 6 cm × 4 cm. The outer surface of the tubo-ovarian mass was smooth and gray-white. The cut-surface of the mass was partially solid and partially cystic. The solid area revealed gray-white irregular and exophytic growth measuring 6 cm × 4 cm. The cut-surface of the exophytic growth was gray-white with minute papillary excrescences. The cystic area was filled with pultaceous material as well as pearly white layers of laminated material. Posterior surface of the uterus showed an irregular gray-white growth diffusely involving the uterus and invading the myometrium. Cut-surface of the growth was uniformly gray-white solid. Endometrium and inner half of the myometrium was free from the growth grossly. Multiple sections from the solid area of the ovarian cyst showed variably sized nests, ribbons, and cystic spaces lined by squamous epithelium revealing mild to moderate pleomorphism, vesicular nuclei, extensive dyskeratosis, occasional atypical mitotic figures, and numerous keratin

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pearls [Figure 1]. Luminal surface of cyst as well as solid area were lined by malignant squamous epithelium with abundant laminated keratin material correlating with the pearly white layers of material filling the cyst. Focally cyst wall was lined by stratified squamous epithelium, also showing abundant surface keratinization. Cysts lined by tall columnar mucin secreting epithelium, adipose tissue, and smooth muscle bundles were also seen in the cyst wall. Fallopian tube showed tumor invasion. In addition, the tumor cells invaded the serosa and myometrium of the uterus from outside. Based on these histological features, a diagnosis of mature cystic teratoma-left ovary with malignant transformation into well-differentiated squamous cell carcinoma was given.

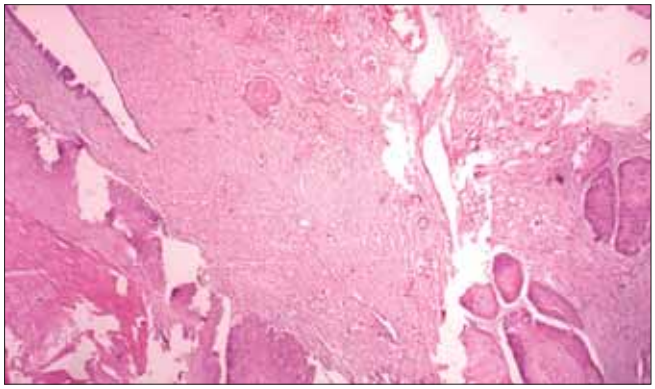

**Figure 1:** Photomicrograph showing squamous cell carcinoma as well as cystic spaces lined by tall columnar mucin secreting epithelium. (H and E, ×20)

## DISCUSSION

Mature cystic teratoma (MCT) is the most common ovarian germ cell tumor accounting for 10-20% of all ovarian tumors.[1] Malignant transformation of mature cystic teratomas is very rare (1-2%), with squamous cell carcinoma being the most common type,[1-4] followed by adenocarcinoma and melanoma. Two origins, epidermal and respiratory, have been suggested for squamous cell neoplasms arising in mature cystic teratomas. Some squamous cell carcinomas have originated from respiratory epithelia and, histologically, may resemble some types of bronchogenic carcinoma.[4] In our case, the carcinoma is arising from the squamous lining of the cyst wall.

In most of the series, the median age at diagnosis of malignant transformation of MCT was 54-61.5 years[5] and the most common symptoms were abdominal pain, palpable mass and abdominal distension. However, some patients may remain asymptomatic at diagnosis.[6] Squamous cell carcinomas arising in mature cystic teratomas often present as incidental pathologic findings.[5] MCT with diameter >10 cm is associated with increased risk of malignancy in some studies.[7] In our case, the tumor size was 10 cm. Early stage and optimal cytoreductive surgery are reported to be good prognostic factors.[8] Squamous cell carcinoma, if confined to the ovary, had better outcome than if the one with peritoneal extension.[9]

When malignant transformation has occurred within a teratoma, treatment is usually tailored toward the transformed histology.[3] Thus, pathologic factors, grade, and mode of infiltration can provide valuable information for predicting the survival of patients with squamous cell carcinoma arising from mature cystic teratoma. In addition, squamous cell carcinoma antigen may be a useful marker to detect this disease preoperatively.[9]

Irrespective of the tumor type, or the size of tumor, prognosis is better if tumor was limited to one ovary and with an intact capsule.[3] The optimal approach to the management of patients with advanced stage and recurrent disease is unclear. Postoperative treatments in the literature included single-agent or combination chemotherapy, radiotherapy, or a combination of these modalities. Results of these treatment regimens were variable and have not been systemically evaluated in an adequate number.[5] Therefore, the optimal adjuvant therapy for SCC arising from an MCT has not been yet established. Our patient was given two courses of combination chemotherapy with cisplatin, leucovorin, and 5-fluorouracil in a 4-week interval, with no response. She resisted subsequent courses of treatment because of very poor general status and died from progression of the disease within 1 year after the initial operation.

In conclusion, clinicians should keep this rare type of tumor in mind when faced with a dermoid cyst, especially, in older patients or in larger than usual cysts. Individual experiences with such tumors should be documented to optimize the diagnostic and prognostic criteria and to standardize therapy options for these patients.

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