

Squamous Cell Carcinoma Arising In Mature Cystic Teratoma - A Rare Case Report

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Abstract: **Introduction:** Germ cell tumors account for approximately 30% of all ovarian tumors. Ninety-five percent of germ cell tumors are dermoid cyst (mature cystic teratoma). It is composed of mature tissues derived from 3 germ cell layers (ectoderm, mesoderm, and endoderm). Malignant transformation in a mature cystic teratoma of the ovary is a rare event, developing in 1 to 2 % of cases and is associated with a poor prognosis. It occurs mostly in post menopausal females. The most common malignancy is squamous cell carcinoma (75%), followed by adenocarcinoma and melanoma. **Case Report:** In the present case, a patient presented with complaints of pain abdomen and abdominal distension since 2 months. USG and CT scan revealed large multinucleated solid cystic mass likely solid ovarian malignancy. CA 125 was within normal limits. On Laprotomy, there was big abdominal pelvic mass adherent to gut loops. Left ovary was replaced with this big cystic mass. On debulking of cystic growth, pus admixed with blood was present. On histopathological examination, keratinizing squamous cell carcinoma arising in mature cystic teratoma with invasion into myometrium was diagnosed. **Summary and Conclusion:** SCC arising from a mature cystic teratoma is a rare pathologic event and in most instances not diagnosed preoperatively. There are no particular signs or symptoms which are characteristic of malignancy arising in a dermoid cyst. The risk factors for malignancy in mature cystic teratoma include age and tumor size. The patients with metastasis have a very poor prognosis.

Keywords: mature cystic teratoma, squamous cell carcinoma

1. Introduction

Mature cystic teratomas (also called dermoid cysts) account for about 30–45 % of all ovarian neoplasms and around 60 % of all benign tumours arising in the ovary¹. Malignant transformation of the various mature tissue components of a dermoid cyst is rare and the reported incidence is 0.17–1.4 %^{2, 3}. Squamous cell carcinoma (SCC), arising from the ectodermal component, is the commonest form of malignant transformation accounting for >80 % of cases, followed by adenocarcinomas and carcinoid tumours⁴. SCC in mature cystic teratomas is most commonly seen in postmenopausal women⁴. There are no distinctive clinical features, tumour markers are often normal and pre-operative radiological diagnosis is difficult. Malignant transformation of an ovarian cyst is therefore difficult to predict, hence most cases are diagnosed postoperatively⁵. Tumours confined to the ovary usually have a better prognosis. At the time of presentation, the most frequent symptom associated with malignant transformation is lower abdominal or pelvic pain and increasing abdominal girth⁶. Old age, large tumor size, and solid portion in mature cystic teratoma seem to predict the malignant transformation^{7, 8}.

2. Case Report

A 55 year old female presented with pain in abdomen and abdominal distension since 2 months. Radiological investigation (USG and CT scan) revealed large multiloculated solid cystic mass in pelvis extending into whole abdomen, uterus and ovaries could not be separately seen from the mass. Impression- likely solid ovarian malignancy. CA-125 was within normal limits. On laprotomy, there was big abdominal pelvic mass measuring 20cmx15cm, gut loops were adherent on anterior, upper and lateral sides of mass. Left ovary was replaced with a big cystic mass, exact size of which could not be commented as it was extending into uterus and parametrium. Debulking of the cystic growth was done and whole of the growth along

with uterus and left adnexa was removed and was sent for histopathological examination.

Gross examination-Uterus with cervix measuring 11cmx7cmx6cm was received. It was attached on one side to cystic wall measuring 9cm in diameter (Fig 1). On giving cuts to uterus, endometrial cavity was identified. Also received in different container, cut open specimen of cyst along with ovary measuring 12cmx8cm. A tuft of hair along with pultaceous material is recovered inside the cyst (Fig 2). A firm area was also identified in cystic mass.



Figure 1: uterus attached to cyst wall



Figure 2: Ovarian cyst with tuft of hair

Microscopic examination- Pieces processed from different areas of cystic ovarian tissue show mature cystic teratoma and well differentiated squamous cell carcinoma. Invasion into myometrium by well differentiated carcinoma was noticed. Cervix was unremarkable (Fig 3 to Fig 7).

Final impression - well differentiated squamous cell carcinoma arising in mature cystic teratoma with myometrial invasion.

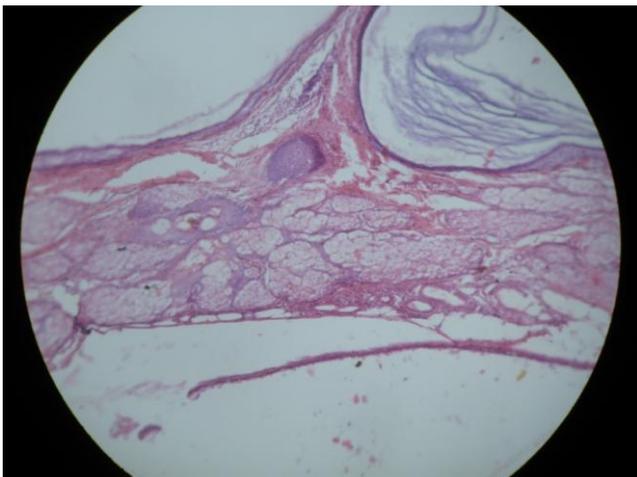


Figure 3: Normal sebaceous gland in ovary(dermoid cyst)

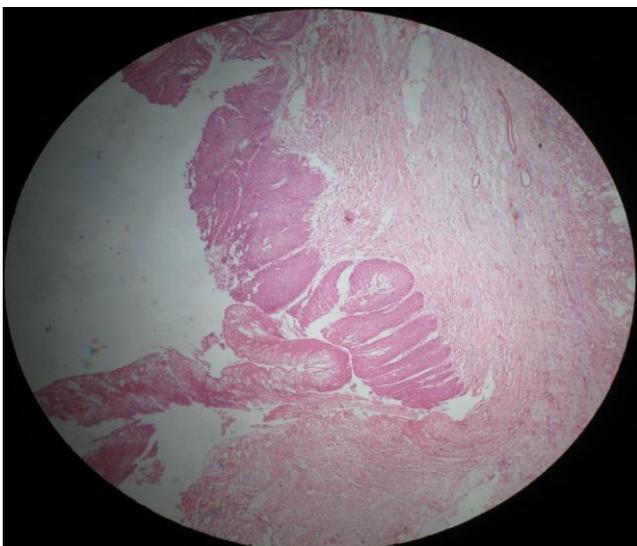


Figure 4: Squamous differentiation seen in the same ovary

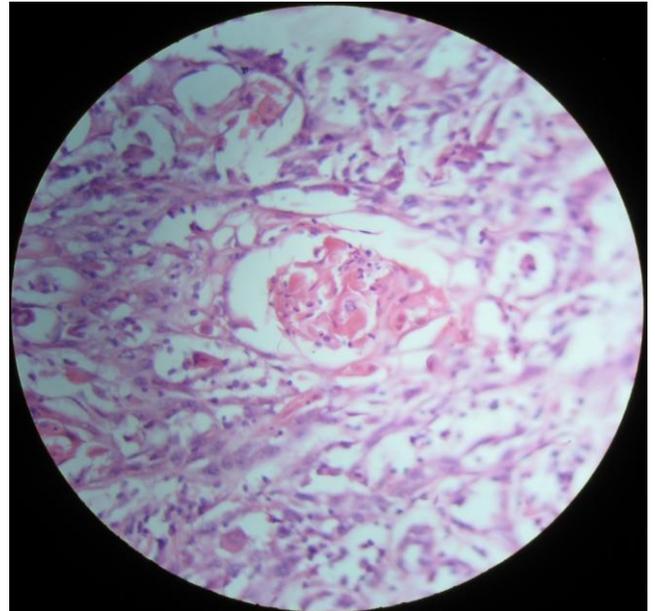


Figure 5: keratin pearl amidst tumour cells

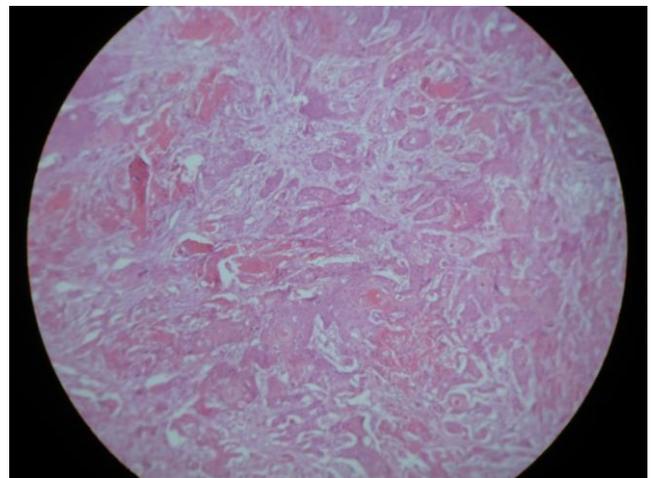


Figure 6: many keratin pearls and islands of squamous cells

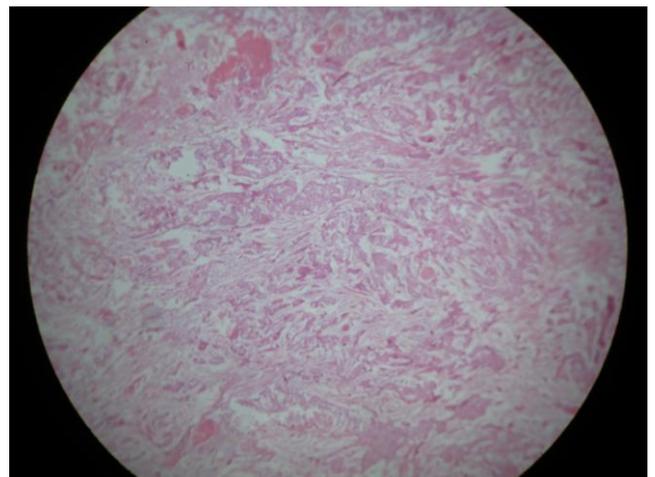


Figure 7: Myometrial invasion by the squamous cells

3. Discussion

SCC arising from an MCT is a rare pathologic event and in most instances not diagnosed preoperatively. There are no particular signs or symptoms which are characteristic of malignancy arising in a dermoid cyst. The patient in our case

had abdominal distension and pain abdomen which may be present in benign cystic lesions. Malignancies arising from mature cystic teratoma usually present at an older age. The age of the patient in our case is 55 years which is consistent with age range for malignant transformation. In a mature cystic teratoma, by definition all of the components should appear histologically mature. Squamous cell carcinoma arising in mature cystic teratoma can be seen microscopically as nests of squamous cells infiltrating the stroma as well as cyst lined by malignant squamous cells. In high-grade tumors, squamous differentiation is inconspicuous. Microscopically, our case showed nests of malignant squamous cells infiltrating the stroma with keratinisation, mitosis and areas of necrosis and invasion into myometrial tissue. As squamous cell carcinoma arising in mature cystic teratoma is quite rare one, must exclude metastasis particularly from cervix. Stromal invasion by malignant appearing epithelium should be used as definite criteria for categorizing squamous cell carcinoma arising in mature cystic teratoma with malignant transformation. In most instances it is not diagnosed preoperatively. Pre-operative imaging can detect a mature cystic teratoma due to radiologic detection of tissues including teeth, bone & cartilage. However malignant transformation is very difficult to detect clinically. Malignancy may be detectable only after histological examination, thus dermoid cysts in postmenopausal women must be adequately sampled. The risk factors for malignancy in mature cystic teratoma include age and tumor size. Squamous cell carcinoma arises in relatively older patients, particularly after menopause. It is helpful to have regular ovary examination through pelvic USG in middle age for early detection of ovarian lesion. Larger size (>9.9cm) correlates with increased risk of malignant transformation. Prognostic indicators include FIGO staging, tumor rupture, vascular invasion and histological type of tumor⁹. Serum tumor markers (SCC-Ag & CEA) are mandatory for all such lesions.. Malignant tumors arising in a mature cystic teratoma spread by direct & local invasion rather than by lymphatic & hematogenous dissemination. The patients with metastasis have a very poor prognosis¹⁰. In our case, the tumour had invaded uterus.

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