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"Malignant transformation in an ovarian mature cystic teratoma: A Case Report"

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Abstract:

Germ cell tumors account for approximately 30% of all ovarian tumors. Ninety-five percent of germ cell tumors are dermoid cyst (mature cystic teratoma). 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. The most common malignancy is squamous cell carcinoma (75%). In the present report, we describe a case of squamous cell carcinoma arising in a mature cystic teratoma. A 40 year old female presented with a mass in abdomen since 3-4 months, pain in abdomen & recent haematuria. Clinical examination, Ultrasound & CT scan were suggestive of ovarian tumor- solid cystic ovarian teratoma. Exploratory laparotomy with debulking surgery was done as the mass was adherent to the adjacent structures like bladder & uterus. Final histopathological diagnosis offered was squamous cell carcinoma arising in a mature cystic teratoma.

Keywords: mature cystic teratoma, malignant transformation, squamous cell carcinoma.

Background:

Mature cystic teratomas (Dermoid Cysts) account for approximately 25% of all ovarian tumors.[1] Malignant transformation in a mature cystic teratoma of ovary is rare with an incidence rate of 1-2%.[1] The most common malignancy is squamous cell carcinoma (75%)[1] followed by adenocarcinoma & melanoma. [2,3] In the present report, we describe a case of squamous cell carcinoma arising in a mature cystic teratoma.

CASE REPORT:

A 40 year old , multiparous woman presented with a mass in abdomen since 3 to 4 months, lower abdominal pain since 15 days & recent onset of haematuria

P/A:- A Hard pelvic mass of 16-18 weeks gravid uterus size with no ascites.

P/V:- A Hard mass was felt in the right fornix & uterus could not be felt separately from the mass.

Clinical Diagnosis – Ovarian Tumor? Malignant

Radiological Investigation: A large, heterogenous mass, measuring 17 x 15 x 13 cm in the right adnexa.

Radiological diagnosis: Complex solid cystic ovarian teratoma.

Exploratory laparotomy with debulking surgery was performed as the mass was adherent to the adjacent structures like bladder & uterus. Resected specimen was received as 5 tissue masses in the Department of Pathology

Gross Examination: 5 tissue masses received -

1. A cystic mass measuring 10 x 7 x 4 cm with a smooth and intact external capsular surface On cut section, the mass contained a large bunch of hair with pultaceous material .The cyst wall thickness varied from 2 to 5 mm.
2. An irregular mesenteric mass measuring 15 x 8 x 4 cm. On cut section it showed a grayish white solid area measuring 5.5 cm in diameter. 3 mesenteric lymph nodes were dissected.
3. 2 mesenteric masses, 16 cm & 12 cm in length respectively.
4. A cystic ovary with fallopian tube Ovary measuring 5 x 4 x 4 cm. On cut section, it showed a

uniloculated cyst with serous fluid.

Microscopic Examination: Rightt ovary showed squamous cell carcinoma arising in a mature cystic teratoma. Lymph nodes did not reveal any involvement by tumor.

Final diagnosis: Right Ovary - Teratoma with malignant transformation – squamous cell carcinoma - Grade II without involvement of mesenteric lymph nodes.

Left ovary - Benign Serous Cystadenoma.

DISCUSSION:

Squamous cell carcinoma arising from a mature cystic teratoma is a rare (1-2%) pathologic event & in most instances not diagnosed preoperatively.[4] Squamous cell carcinoma in a mature cystic teratoma commonly occurs in women over the age of 40 years. The frequency of malignant change increases with increase in age, rising to 19% in woman after menopause. [5] However, it has been sometimes reported in young patients around 30 years of age. [6] The patient's age in our case was 40 years.

The common symptom is abdominal pain followed by a mass. Some of the patients may be asymptomatic or have symptoms of abdominal distension. Various symptoms due to invasion of nearby organs are the presenting complaints, in some patients, such as gastrointestinal symptoms of diarrhea or constipation, rectal bleeding, or urinary frequency. [7] In our case, the patient presented with an abdominal mass since 3-4 months, pain in lower abdomen since 15 days & recent onset of haematuria which can be explained by infiltration of posterior wall of the urinary bladder by the tumor mass intra-operatively. Tumor size has also been noted to predict malignancy. Kikkawa et al. reported that a tumor diameter of larger than 9.9 cm was 86% sensitive for malignancy in their series.[8] In our case tumor diameter was more than 10 cm, which is larger than a typical benign cyst.

On gross examination, cauliflower exophytic growth, infiltrative gray-white plaques or thickening of the cyst wall with necrosis & haemorrhage may be seen.[2] In our case, on gross examination, there was cystic mass with thickened wall at places and another mass which was solid & gray-white on cut surface.At times, malignancy may be detectable only after histological examination, thus dermoid cysts in postmenopausal women must be adequately sampled.[2] Carcinomas are the most common malignancy, with squamous cell carcinoma accounting for 75% of cases.[1] On histological examination, our case showed squamous cell carcinoma – grade II without vascular involvement. Other tumors that can arise from dermoid cyst are adenocarcinoma, Paget disease, transitional cell carcinoma, basal cell carcinoma, small cell carcinoma & carcinosarcoma.[2]

Pre-operative diagnosis of malignant transformation in a mature cystic is very difficult clinically, because this tumor cannot be readily differentiated from an uncomplicated mature cystic teratoma or other ovarian tumors.[7] However, there are certain risk factors for malignancy in a mature cystic teratoma like old age, tumor size (> 9.9 cm) & serum tumor markers (SCC Ag& CEA).[8] Malignant tumors arising in a mature cystic teratoma spread by direct & local invasion rather than by lymphatic & hematogenous dissemination.[9] The patients with metastasis have a very poor prognosis.[9] In our case, the tumour had invaded the urinary bladder & uterus.

The prognosis for these tumors has often been reported to be poor with a five year survival rate of only 15-30%.[9] Prognostic indicators of survival have been attempted to be identified in various studies. The potential predictors reported include FIGO stage, residual tumor, rupture or spillage, tumor grade, vascular involvement & the mode of tumor infiltration.[6]

Our patient had stage IIIc disease, according to FIGO stagings. The main therapeutic approach to an ovarian mature cystic teratoma with malignant transformation is optimal tumor debulking followed by single agent or combination chemotherapy, radiation therapy or a combination of these modalities. Due to rarity, a definite or palliative therapy for squamous cell carcinoma arising from a mature cystic teratoma has not yet been established.[7]

In our case, the patient was referred for chemotherapy, but she resisted treatment &died from progression of disease, 4 months after the initial operation. In conclusion, clinician should consider this rare type of tumor when faced with a dermoid cyst, especially in older patients, & in larger than usual cysts.

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LEGENDS:

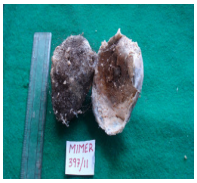

Fig. no. 1: Cut surface of the ovarian cystic mass showing hair ball and pultaceous material.

Fig. no. 2: Cut surface of mesenteric mass showing solid, grey-white appearance.

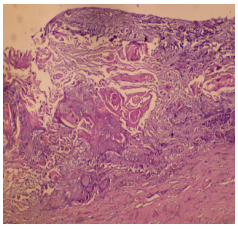

Fig. no. 3: Photomicrograph showing squamous cell carcinoma arising from the epithelial lining of cyst wall (H&E X10).

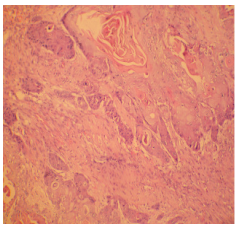

Fig. no. 4: Photomicrograph showing squamous cell carcinoma in mesenteric mass. (H&E X10).

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