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"SQUAMOUS CELL CARCINOMA ARISING FROM MATURE CYSTIC TERATOMA OF OVARY"—A RARE CASE REPORT

Pathology

Dr. Priyatharsini P Postgraduate Student, Department of Pathology Indira Gandhi Medical College & Research Institute (IGMC & RI), Puducherry-605 009

Dr. Sankappa. P. Sinhasan* Associate Professor, Department of Pathology IGMC & RI, Puducherry *Corresponding Author

Dr. Ramachandra. V. Bhat Professor and Head, Department of Pathology IGMC & RI, Puducherry

Dr. Sabita P Associate Professor, Department of Obstetrics & Gynecology IGMC & RI, Puducherry

ABSTRACT

Mature cystic teratoma (MCT) of ovary is most common germ cell tumor. The malignant transformation of the MCT is very rare and it occurs only in 1 to 2% of the cases. most common malignancy that can arise is Squamous Cell Carcinoma (SCC). Most of the time, the pre-operative diagnosis will be dermoid cyst of ovary; only histopathological examination of resected specimen and careful sampling of solid area, known as Rokitansky tubercle will reveal the hidden malignant transformations of MCT. We came across one such a rare malignant transformation of MCT in 45year old postmenopausal woman, who attended gynecology department for her chronic abdominal pain and abdominal distension.

KEYWORDS

Mature Cystic Teratoma, Squamous Cell Carcinoma, Ovary

INTRODUCTION:

Mature cystic teratoma (MCT) of ovary is most common germ cell tumor. The malignant transformation of the MCT is very rare and it occurs only in 1 to 2% of the cases.[1,2]. The most common malignancy that can arise is Squamous Cell Carcinoma (SCC). Histogenetically, SCC in MCT has been considered to arise more commonly from the epidermis and rarely from the dysplastic respiratory epithelium. This case report is written in view of rarity of the lesion and emphasis on careful sampling of solid areas in the cystic tumors of the ovary.

CASE REPORT:

A 45year old postmenopausal female attended gynecology outpatient department at a tertiary medical college in South India with chief complaints of abdominal pain for the past 3 months and abdominal distension for the past 1 week. Patient was apparently asymptomatic before 3 months and then she developed lower abdominal pain of insidious onset. The abdominal pain was gradual in progression, non-radiating, dull aching type, not associated with nausea, vomiting and any other constitutional symptoms. Then later, she observed lower abdominal fullness, with difficulty in micturition that aggravated for the past 1 week. There was also history of difficulty in defecation for the past 1 week. There was no history of postmenopausal bleeding or abnormal vaginal discharge. Her past medical and obstetric history was uneventful. She was Para2 Living 2. There was no history of malignancies in family members.

On examination of abdomen, a tender mass was noted arising in the right side of the pelvis. The mass was firm, mobile, and felt separately from the uterus. Per speculum examination of the cervix and vagina were normal. Per vaginal examination revealed tender mass felt filling the right fornices. Clinical diagnosis of adnexal mass probably undergone acute torsion was made and patient was admitted in the gynecology ward. On further investigation with abdominal ultrasonography, a large cystic ovarian mass measuring 11.6 cm x 11.4 cm with solid elements was noted. Serum sample revealed CA-125 – 15.83 U/mL (Normal range < 35.00). Rest of the lab investigations, including complete blood count, renal function tests, liver function tests, and Pap smears were within normal limits. With the pre-operative diagnosis of ovarian tumor, the case was posted for modified abdominal hysterectomy with removal of ovarian tumor.

Intraoperatively, a huge twisted ovarian cyst was noted with intact capsule, originating from the right ovary. The left side fallopian tube and ovary were apparently normal. Total abdominal hysterectomy with bilateral salphingo-oophorectomy was carried out. The omental sampling was also sent for histopathological examination.

On gross examination, ovarian cystic mass measured 11x10x7 cm. External surface was grey white with focal areas of congestion. Cut surface showed unilocular cyst filled with greyish yellow pultaceous material mixed with bolus of hair. The average cyst wall thickness was 0.8cm. However, one focal solid area (Rokitansky tubercle) was seen measuring 1x0.5cm, which was grey white, firm to hard in consistency (Fig no.1). Multiple sections were submitted from cystic as well as from solid areas.

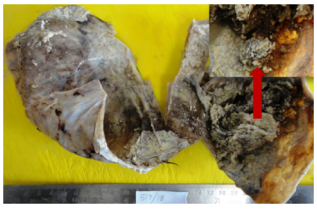

Fig No 1: Gross Specimen: Ovarian cystic tumor filled with pultaceous material mixed with bolus of hair. Inset showing solid area-Rokitansky tubercle- measuring 1x0.5cm, firm to hard in consistency.

On microscopic examination, the cyst wall was lined by stratified squamous epithelium with subepithelium showing normal adnexal structures. Focal areas showed respiratory epithelial lining as well as mature hyaline cartilage. These features were consistent with Mature Cystic Teratoma of ovary.

Smultiple sections studied from solid area revealed epithelial tumor with cells arranged in sheets, clusters and papillary configuration (Fig no. 2). The tumor cells were round to polygonal, with vesicular nuclei and prominent nucleoli (Fig 2 lower right panel). They also showed squamous cell differentiation with individual cell keratinization (Fig 2 upper right panel) and focal areas of cytoplasmic clearing with sebaceous differentiation. Abnormal mitotic figures and multinucleated tumor giant cell were also seen along with extensive areas of tumor necrosis. The final diagnosis of Squamous Cell Carcinoma arising from Mature Cystic Teratoma was offered.

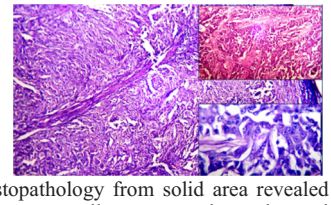

Fig No 2: Histopathology from solid area revealed squamous cell carcinoma. The tumor cells were round to polygonal, with vesicular

nuclei and prominent nucleoli (Fig 2 lower right panel). They also showed squamous cell differentiation with individual cell keratinization (Fig 2 upper right panel) and focal areas of cytoplasmic clearing. (H and E, 10x and 40 x magnifications)

Patient recovered well in the post-operative period and she was referred to higher centres for further course of management. She received chemo-radiation therapy and 6 months post-operative follow up is uneventful. However, she has been advised for long term follow up.

DISCUSSION:

Mature cystic teratoma also referred as dermoid cysts of ovary, are benign and are one of the commonest ovarian tumors. They usually occurs in postmenopausal women with mean age of 55 years.[3,4] The malignant transformation of the MCT is very rare and it occurs only in 1 to 2% of the cases.[1,2]. The most common malignancy that can arise is squamous cell carcinoma (SCC), followed by carcinoids, primary invasive mucinous adenocarcinoma, metastatic adenocarcinoma , yolk sac tumor, thyroid carcinoma , adenosquamous carcinoma, and metastatic lymphoma[5]. Two hypotheses have been formulated for the histogenesis of SCC in MCT, which has been considered to arise either from the epidermis or from the respiratory epithelium. The former hypothesis has been supported by the presence of findings such as Bowen's disease-like patterns of the skin. The latter has been suggested by findings indicating that SCC arises from the respiratory epithelium concomitant with squamous metaplasia and dysplasia.[1] One should always suspect malignant transformation if finds solid area, known as Rokitansky tubercle, in the cystic ovarian tumor component. [6,7] Extensive sampling of Rokitansky tubercle should be done to confirm or to role-out malignancies arising from these cystic tumors, as we did in our case.

Among the tumor markers, CEA found to be more useful than CA 125 and CA 19.9 in identifying malignant transformation of MCT. In our case, only CA-125 was carried out which was 15.83 U/mL and was within normal limit. Tumor markers might be normal or only marginally elevated even in the presence of advanced cancer.

Pre-operatively, mature cystic teratomas are relatively easily diagnosed using imaging modalities such as USG, CT and MRI. Fewer reports exist however regarding the radiological diagnosis of malignant transformation within a mature cystic teratoma. A recent case report has also demonstrated the value of MRI with fat suppression techniques to detect malignant transformation developing within a mature cystic teratoma.[8,9]

Certainly the possibility of malignant transformation should be considered in postmenopausal women with large tumors with solid components on radiological imaging. In our case CT and MRI were not carried out and abdominal USG didn't reveal any suspicion of malignancy for the gynecologist. This might be due to very small solid area (<1x0.5 cm size) in a large cystic tumor.

To conclude, MCT is very common germ cell tumor, but its malignant transformation is very rare event. Malignant transformation in mature cystic teratoma carries a very poor prognosis especially when diagnosed in advanced stage. Effective treatment and durable responses are, unfortunately, difficult to achieve in this condition but chemo-radiation may be of benefit in patients with localized pelvic disease. Optimal cytoreduction is difficult to achieve in advanced stage disease. Fortunately, in our case, the tumor of very small size was identified due to extensive sampling and patient responded well for the chemotherapy she received.

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