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Squamous-Cell Carcinoma in Mature Cystic Teratoma of the Ovary - A Case Report

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Abstract **Case Report**

Mature cystic teratoma is the most common benign germ cell tumor of the ovary. More than 80% of MCTs develop during the reproductive year. About 1% of the dermoid cysts undergo malignant transformation, most commonly squamous cell carcinoma in post-menopausal age group. We report a rare case of Squamous cell carcinoma transformation in mature cystic teratoma which was diagnosed and confirmed by histopathology and immunohistochemistry.

Keywords: Mature cystic Teratoma, Squamous cell carcinoma.

INTRODUCTION

Mature cystic teratoma (MCT) or dermoid cyst is the most common benign germ cell tumor of the ovary. More than 80% of MCTs develop during the reproductive year [1]. However, malignant transformation of MCT (hereafter, MT- MCT) is one of the most serious complications of MCT. About 1% of the dermoid cysts undergo malignant transformation. Most common carcinoma is squamous cell carcinoma (90%) [2-4] but also two other cancers (e.g., thyroid carcinoma, melanoma).

CASE REPORT

A 56 year old female presented with complaint of mass per abdomen gradually increasing in size from 1 year duration associated with on and off dull aching pain .No significant menstural history or obstetric history noted. On examination a soft to firm mass noted corresponding to 36 weeks occupying all quadrants of the abdomen. Clinically a provisional diagnosis of ovarian tumor was made. On Ultrasonographic examination large hypoechoic mass lesion with thick wall and thick mobile internal echos was noted. A provisional diagnosis of Pelvic mass /complicated mesenteric cysts was given. CECT findings suggested a possible diagnosis of ovarian carcinoma. CA 125 levels were elevated. Patient was posted for staging laparotomy. Total abdominal hysterectomy with bilateral Salpingo-oophorectomy followed by pelvic lymph node dissection and infra colic omentectomy was done. Intra and post-operative period was uneventful. Specimen was sent for histopathological evaluation.

We received a hysterectomy specimen along with Bilateral Salpingo-oophorectomy. Uterus with cervix measuring 8x4x3 cm. On cut section cervix was hypertrophied and Nabothian cyst was seen. Endometrium is 0.8 cm thick. left side ovary is measuring 3x3x3 cm with cut section, cystic and unilocular filled with pultaceous material (fig 1). We received Right Side globular ovarian mass measuring 30x30x28 cm, weighing 10 kgs. External surface is smooth and congested. Cut section is cystic, unilocular filled with liquefied pultaceous material (fig 2). A Grey white Solid area is noted measuring 8x5x3 cm (Fig 3). Both side fallopian tubes measuring 6 cm cut section NAD. Also received omental tissue measuring 15x9cm. 1 lymph node identified. Paraaortic and obturator lymph nodes were sent, 5 lymph nodes identified largest measuring 1x1 cm, smallest measuring 0.5 x0.5 cm.

On Histopathological examination cervix and endometrium showed features of chronic papillary endocervicitis with Nabothian cysts and proliferative pattern respectively. Left side ovarian cyst shows cyst wall lined by stratified squamous epithelium with underlying stroma showing eccrine glands and immature hair follicles (ig 4,5). Diagnosis of Benign Mature cystic Teratoma was made. No immature elements identified. Right side ovarian cyst show keratinised stratified squamous epithelial lining with areas showing infiltrating sheets and nests of atypical squamous cells with plenty of keratin globules and keratin pearls, also seen foci of adipose tissue (Fig 6, 7).

Both tubes unremarkable. No evidence of secondary deposits in omentum and lymph nodes. Immunohistochemistry Ki67 was done which showed 15% nuclear positivity (Fig 8).

Final Diagnosis which was given Bilateral mature cystic teratoma with malignant transformation (squamous cell carcinoma) in right ovarian cyst with staging.

Stage I A -- T1a N0 Mx

Fig 1: Left side ovary cut section shows pultaceous material

Fig 2: Right cystic ovary with solid areas

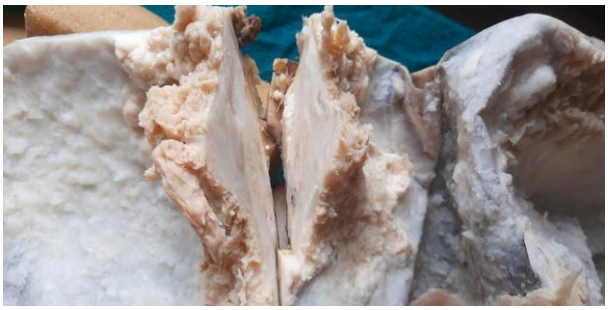

Fig 3: Solid areas in Right ovary

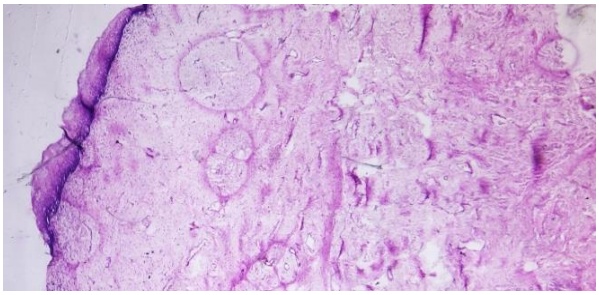

Fig 4: Left Ovarian cyst lined by Stratified squamous epithelium. High power

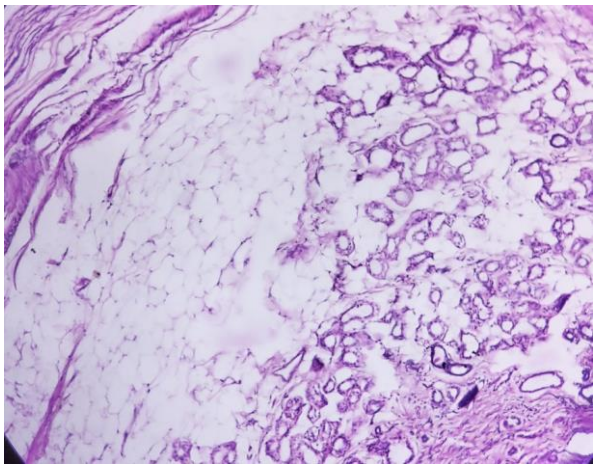

Fig 5: Eccrine glands and Adipocytes – Left side ovary

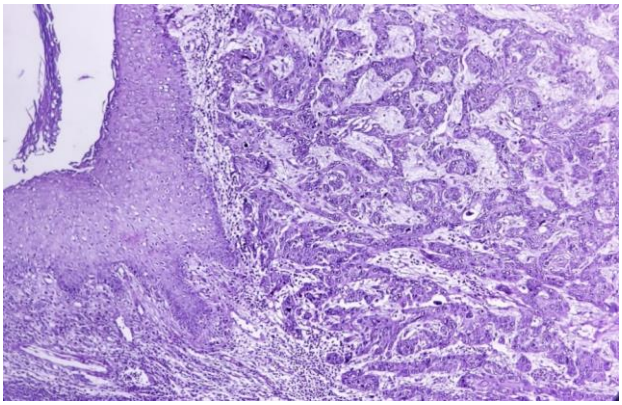

Fig 6: Right ovary showing invasion of squamous cell carcinoma

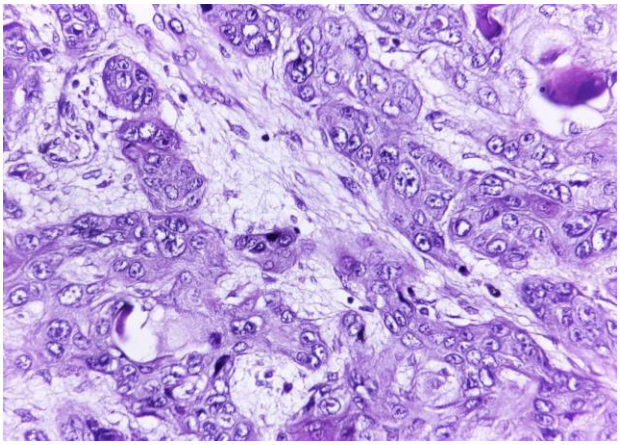

Fig 7: Histopathological pictures showing tumor cells infiltrates in to stroma in the form of nests with increased mitotic activity, pleomorphism

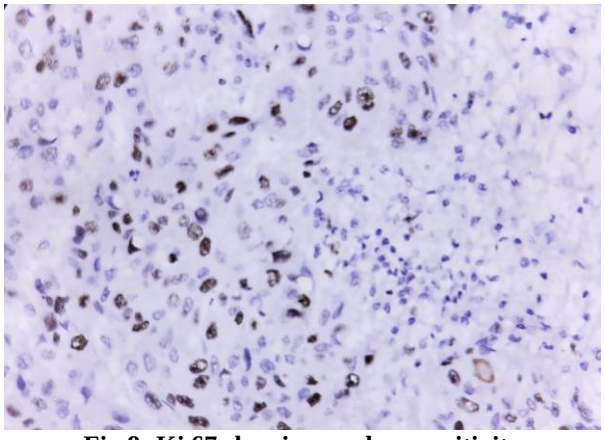

Fig 8: Ki 67 showing nuclear positivity

DISCUSSION

Dermoid cyst or (MCT) Mature cystic teratoma is the most common benign germ cell tumor of the ovary [1, 2]. They occur at any age, but most commonly in women of childbearing age. 10–17% is Bilateral. The complications associated with cystic teratoma are Torsion (16% of cases), malignant transformation (2% of cases), rupture into adjacent organs (1-2% of cases) & infection (1% of cases). Usually in post-menopausal women these MCT turns into malignancy and mostly Squamous cell carcinoma. Other rare tumors Adenocarcinoma, Basal cell carcinoma, Adenosquamous carcinoma, thyroid carcinoma, sebaceous carcinoma, malignant melanoma, sarcoma, carcinoid tumor, and neuroectodermal tumour.

Squamous Cell Carcinoma transformation in Mature Cystic Teratoma may be a sequential process of squamous metaplasia, atypical hyperplasia, carcinoma in situ, interstitial infiltration and invasive carcinoma [3]. According to the studies the mean age of malignant transformation in mature cystic teratoma was 53.5 years [3]. High-risk human papillomavirus infection has also been thought to be associated with ovarian squamous-cell carcinoma [6]. Mature cystic teratomas can occur at age. Most common in women of childbearing age. Bilaterally seen in 10–17% of patients. Radiological findings such as presence of a solid component, known as the Rokitansky bulge, transmural extension or invasion of adjacent tissues and Serum tumour markers like Squamous cell carcinoma antigen, CA125, CA19-9, and CEA are useful in distinguishing mature cystic teratoma from malignant transformation. Tissue polypeptide antigen and macrophage colony stimulating factor may also help to predict malignant transformation in this tumour.

Regarding treatment, comprehensive staging surgery is the standard for ovarian cancer. It was found that in SCC on MCT, hysterectomy can reduce the risk of death in a statistically significant way, whereas lymphadenectomy does not improve survival. Omentectomy showed an increase in survival when a FIGO stage adjusted analysis was performed. There were no differences in mortality in patients in whom fertility-sparing surgery was performed versus radical surgery in stages IA-IC [4].

CONCLUSION

Old age, large tumor size (≥15.0 cm), and solid components in MCTs are suitable indicators in post-menopausal women (50 – 60 years) predicting the risk of MCT to SCC.

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