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## A Rare Case of Squamous Cell Carcinoma Arising in Mature Cystic Teratoma:

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### ABSTRACT

Squamous cell carcinoma (SCC) arising within a mature cystic teratoma (MCT) is a rare neoplasm. Though it is a malignant tumour, it can remain clinically silent. On radiologic examination we can detect the size, extent of the tumour and whether it is cystic or solid neoplasm. To diagnose malignancy histopathologic examination is needed in most of the cases. We report a case of a 65-year-old female presenting with a left pelvic mass. The mass was radiologically suggestive of mature cystic teratoma. However on histopathology it was diagnosed as squamous cell carcinoma arising in a mature cystic teratoma. This case underscores the importance of considering malignant transformation in seemingly benign ovarian masses and emphasises the challenges in diagnosis, treatment and prognosis associated with this rare occurrence.

### INTRODUCTION

Mature cystic teratomas, commonly referred to as dermoid cysts, constitute the most prevalent ovarian germ cell tumours.<sup>1</sup> Although malignant transformation (MT) is an infrequent occurrence, affecting only 1-2% of cases, it predominantly manifests during the postmenopausal phase.<sup>1</sup> Malignant transformation involves the conversion of a component within the dermoid cyst into cancerous tissue, which can constitute of squamous cell carcinoma, adenocarcinoma, or exceptionally, sarcoma or melanoma.<sup>2</sup> Squamous cell carcinoma constitutes nearly 80% of histological transformations, rest 20% can be adenocarcinoma, carcinoid tumour, melanoma, and sarcoma.<sup>3</sup> Multiple risk factors including patient's age and tumour size have been identified as predisposing factors for dermoid cyst malignant transformation.<sup>1</sup> Clinical presentation is nonspecific, varying with tumour stage, resembling symptoms of benign ovarian cysts. Diagnosis is most of the time confirmed through histological examination of the surgical specimen.<sup>2</sup>

The patient, a 65-year-old woman, presented in gynaecology in OPD with abdominal pain and a pelvic mass. Ultrasonography was done which revealed a left ovarian cystic mass. The tumour markers were studied and some were found to be raised. The markers studied were CA-19.9 : 1 (reference range 0-37 U/ml) CEA : 8.51 (less than 5.0 ng/ml), CA-125: 56.1 (up to 35 U/ml).

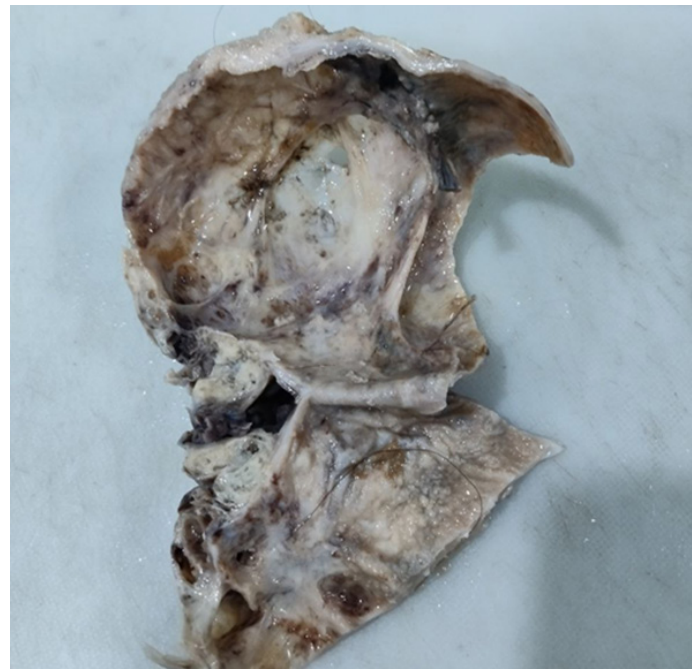
Total abdominal hysterectomy along with bilateral salpingo-oophorectomy was done. On gross and microscopic examination, the uterus with the cervix measured 6x4x2 cm. Left ovary measured 13.5x9x5cm and on the cut opening, the cut surface showed an unilocular cyst containing greasy content with numerous hairs. Adjacent solid area measured 4.5x4x1.5 cm. Cut surface of the solid area was grey white, homogeneous and firm in consistency. The cyst wall thickness ranged from 0.6 to 1.5 cm. Attached fallopian tube with fimbriae measured 7x1.2cm. Right ovary measured 3x2x1 cm and the right fallopian tube with fimbriae measured 7.2x2 cm. On cut sections cervix, endometrium, myometrium,

right ovary and tube and left fallopian tube were grossly unremarkable. On microscopic examination of the left ovary components of mature cystic teratoma were seen. Focal areas including the solid and cystic area showed atypical stratified squamous lining the epithelium with presence of tumour cells arranged in nests, sheets, island and many scattered singly. Individual cells revealed pleomorphism with high nucleus to cytoplasmic ratio, irregular nuclear membrane, dense chromatin, inconspicuous to prominent nucleoli and abundant amount of pale eosinophilic to vacuolated cytoplasm. Keratin pearls, few scattered bizarre cells and rare mitotic figures with lympho-vascular invasion were seen in the multiple sections examined.

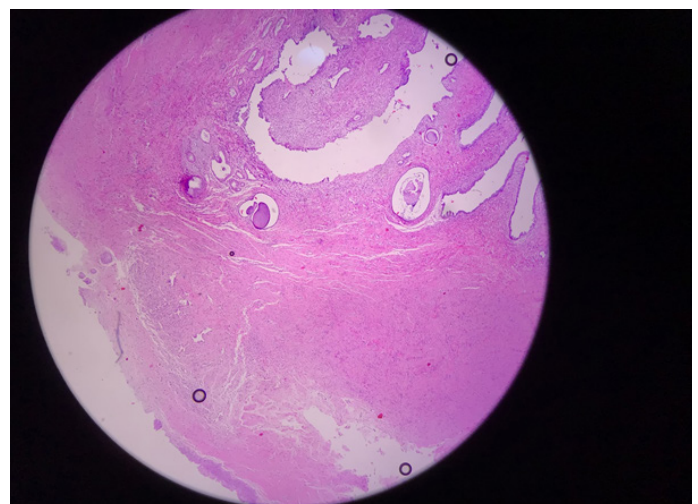
Omental tissue examination revealed no involvement by the tumour cells. On microscopic examination, features of chronic cervicitis were noted in the cervix, along with cystic atrophy of the endometrium. The bilateral fallopian tubes and right ovary were unremarkable. Staging indicated pT1a pNpM, FIGO Stage: 1. The patient underwent further treatment.

## DISCUSSION

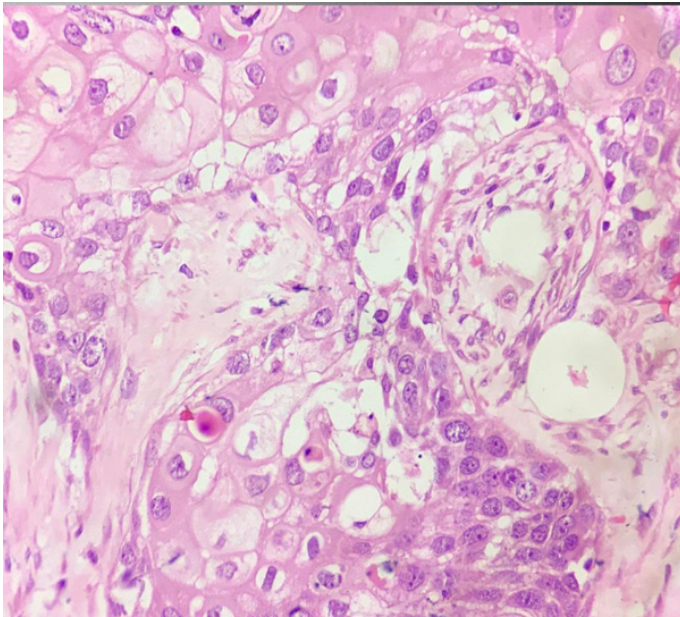
Squamous cell carcinoma arising in mature cystic teratoma is rare.<sup>4</sup> In this study we found a 65-year-old woman with a mature cystic teratoma harbouring squamous cell carcinoma the patient didn't reveal any specific clinical signs and symptoms of malignancy. Even radiologically there was no sufficient data to suggest malignant tumour. Searching the literature we found that few patients show clinical features like abdominal pain, distension and pelvic mass which is similar to our study.<sup>4</sup> Radiology can detect the tumour site, as well as size but malignant transformation is difficult to be detected, similar was seen in this patient. The patient presented with non-specific signs and symptoms. However, tumour markers CEA and CA-125 were raised in the patient. Studies have shown that serum levels of tumour markers CA19.9, CEA, CA125 are raised in patients of ovarian carcinoma. In this case, a similar observation was made.<sup>5</sup> Therefore we can add biochemical serum marker studies in our routine protocol for patients with adnexal cyst. Searching the literature we found that teratoma with large size greater than 9.9 cm are associated with an increased risk of Malignant transformation.<sup>6</sup> This was found in our case as the tumour size was 9x5x5 cm. The majority of studies indicate that patients experiencing malignancy transformation within mature cystic teratomas are typically in their fourth to fifth decades of life.<sup>6,7</sup> Similarly, in our case, we diagnosed malignancy in a 65-year-old female. Therefore, even when benign tumours are confirmed radiologically, advancing age necessitates histopathological examination. So, the decision for surgical exploration was pivotal. Total abdominal hysterectomy along with bilateral salpingo-oophorectomy was done as the patient had menopause and had completed her family. The identification of squamous cell carcinoma within the teratoma emphasises the importance of thorough examination in suspected cases, as appearances on imaging alone may not always reflect the full pathology.



**Fig 1:** Gross picture of Left ovarian cyst wall with attached hair and greasy substance.



**Fig 2:** H & E stained (4x) Squamous Cell Carcinoma arising from teratoma



**Fig 2:** H & E stained (40x) High power view of atypical squamous cells

## CONCLUSION

This case report sheds light on the intricate interplay between benign and malignant components within ovarian teratomas, emphasizing the challenges in diagnosis and the necessity for a comprehensive management strategy. The insights gained from this case contribute to the evolving understanding of rare presentations and guide future clinical considerations in similar scenarios. The diagnosis can be made from histopathological study.

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