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Squamous Cell Carcinoma Arising in a Mature Cystic Teratoma of the Ovary: Case Report

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Abstract **Case Report**

Introduction: The mature cystic teratoma of the ovary is the most common type of ovarian germ cell tumor. Despite the fact that they are typically benign, malignant transformation is a rare but well-documented phenomenon that occurs in roughly 1-2% of cases. The development of squamous cell carcinoma from an advanced cystic teratoma has been reported in the literature. ***Case presentation***: We present a case of a 68-year-old post-menopausal female who was incidentally discovered in an endocrin consultation with a right pelvic mass. According to histopathological diagnosis, squamous cell carcinoma arising in a mature cystic teratoma is diagnosed as a reason for the mass in the right adnexa of the patient. ***Conclusion***: Squamous-cell carcinoma that develops in an advanced cystic teratoma is a rare condition for which there is no research to guide medical care. Clinical trials might assist clarify the best treatment options for patients with secondary squamous-cell carcinoma of the ovaries with such a system and the improvement of therapeutic hypotheses.

Keywords: Mature Cystic Teratoma of the ovary, Squamous Cell Carcinoma.

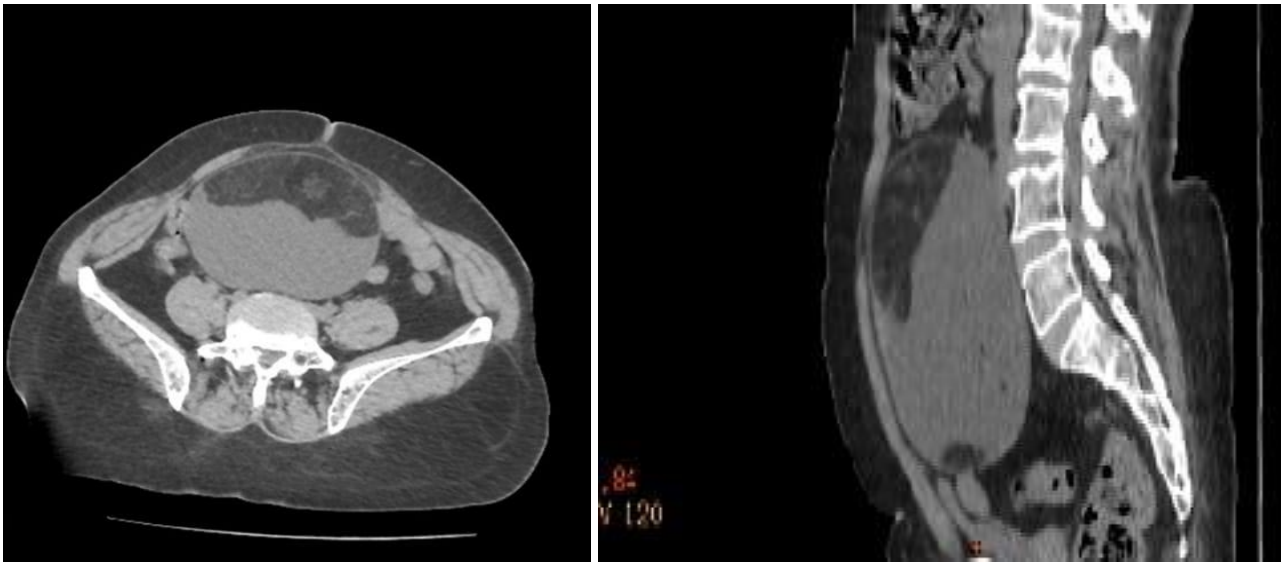
INTRODUCTION

The most prevalent variety of ovarian germ cell tumor is the mature cystic teratoma. Malignant transformation is a rare but well-documented phenomena that happens in about 1-2% of cases, despite the fact that they are normally benign. It has been documented in the literature that an advanced cystic teratoma can give rise to squamous cell cancer. Patient age, tumor size, ultrasound characteristics, sonar tumor vascular wave pattern, computed tomography, and levels of SCC and CA125 tumor markers are only a few of the clinical characteristics and risk factors that have been linked to the change of MCT into SCC. Adjuvant therapy is yet undefined due to the paucity of information on the subject.

CASE PRESENTATION

We present the case of a 68-year-old post menopausal female, gravida2, Para 2, with a medical history of type 2 diabetes, hypertension, and a history of renal lithiasis. During an endocrine consultation, a pelvic mass was incidentally discovered, leading to further diagnostic investigations.

A pelvic CT scan revealed a well-defined, oval-shaped, abdominal-pelvic mass on the right side measuring (10x11.8x14 cm) with a liquid and fatty component and thickened vegetation that was isodense and enhanced by contrast. The mass was in intimate contact with the right abdominal-pelvic wall and muscle, with a loss of the fat interface. There was also contact with the inferior vena cava, right external and primitive iliac vessels, without obstruction. The patient had infracentimetric bilateral pelvic lymph nodes, and the CA125 level was less than 4 UI per ml.



The patient underwent an annexectomy with omentum biopsy, which revealed a moderately differentiated invasive Malpighian carcinoma on a mature teratoma (degenerated teratoma), without capsular rupture, with normal fallopian tubes, and a healthy omentum. A subsequent hysterectomy was performed without ovarian conservation, along with an omentectomy. The final pathology report revealed intraparietal adenomyosis with reactive nonspecific adnitis and no tumor localization.

Postoperatively, a CT scan showed a hypodense, multilobed, and peripherally enhancing left abdominal-pelvic wall collection (42x72mm).

The patient underwent adjuvant chemotherapy with paclitaxel carboplatin, and she is currently under surveillance.

DISCUSSION

Although mature teratomas are usually benign, malignancy can occur and is more common in older, postmenopausal patients. The reported incidence of mature teratomas is 1.2-14.2 cases per 100,000 per year, and the proportion of cases in which malignancy occurs is 0.17-2%. Between 75-90% of the malignancies are squamous cell carcinomas (SCC). Adenocarcinomas, carcinoid tumors, melanomas, sarcomas, and neuroepithelial tumors have also been reported [1].

The tumor may arise from any of three germ cell layers present in the teratoma and has been observed adjacent to both normal and metaplastic cells [2, 3].

In order to detect the malignant transformation of MCTs, there are some risk factors that contribute to the transformation, such as the patient age, the size of tumor, the serum tumor markers and the imaging characteristics of the tumor [4].

Mature cystic teratomas bearing squamous-cell carcinomas are larger than benign tumours (mean size 148 mm) possibly because they commonly contain areas of additional haemorrhage and necrosis. Thus, tumour size too seems to be a predictor for secondary malignant transformation [5].

Squamous-cell-carcinoma antigen, CA125, CA19-9 and CEA are raised in many patients with malignant transformation of ovarian teratoma to squamous-cell carcinoma [6].

In some studies, CA19-9 and CA125 measurement did not allow distinction between malignant and non-malignant mature cystic teratomas, whereas patient's age, tumour size, and CEA concentration provided better predictive information [7, 8].

Certain imaging features of the tumor may contribute to the diagnosis of malignant transformation. The use of transvaginal -Doppler- Ul-trasound for the measurement of the blood flow resistance in the intratumoral vessel may be an accurate method to distinguish benign from malignant MCTs [9].

Concerning the clinical use of magnetic resonance imaging in SCC diagnosis, the presence of a solid component that extends transmurally and invades the adjacent structures is highly suggestive of malignancy [10]. Regarding the clinical use of CT in diagnosis of SCC, the formation of an obtuse angle between the border of the soft tissue component and the cyst wall is a sign of malignancy [11].

Complete tumor excision and proper staging are integral to prognosis and treatment planning and should be performed at the initial surgery or as soon as possible after pathologic diagnosis [12] Optimal cytoreduction has been associated with a statistically significant improvement in survival [13].

The utility of node dissection is controversial since the mode of spread is generally by direct extension or peritoneal seeding, but it may influence treatment planning, especially in early-stage disease [14, 15].

Tumour stage is an important prognostic factor in terms of early or advanced tumour stages but has little prognostic association with FIGO stages II, III, and IV.

Prognostic factors for ovarian carcinoma include capsular invasion, rupture, tumour dissemination, ascites, adhesions, and additional invasive tumour types [16]. The presence of nodular, papillary or cauliflower-like growths protruding into the cyst cavities or nodules or plaques within the cyst walls, particularly with areas of capsule penetration are also macroscopic indicators of malignancy [17].

The optimal treatment strategy for squamous cell carcinoma within mature cystic teratoma remains controversial due to its rarity and limited evidence base. However, a multidisciplinary approach involving gynecologic oncologists, pathologists, and radiologists is essential for individualized management.

Surgical Resection: Surgical resection is the primary treatment modality for squamous cell carcinoma within mature cystic teratoma. The goal of surgery is to achieve complete tumor removal while ensuring adequate staging and evaluation of lymph node involvement. The extent of surgery depends on factors such as the stage of the disease, patient age, and desire for fertility preservation.

Unilateral Salpingo-oophorectomy: In early-stage disease limited to one ovary, a unilateral salpingo-oophorectomy may be performed, with preservation of the contralateral ovary and uterus in patients desiring fertility preservation.

Total Hysterectomy with Bilateral Salpingo-oophorectomy: In advanced cases or for patients who have completed childbearing, a total hysterectomy with bilateral salpingo-oophorectomy may be recommended to remove the affected ovary, uterus, and both fallopian tubes.

Lymphadenectomy: Lymphadenectomy, which involves the removal of pelvic and/or para-aortic lymph nodes, is performed to assess the spread of cancer and determine the need for adjuvant therapy [18-26].

Adjuvant Therapy: The role of adjuvant therapy in squamous cell carcinoma within mature cystic teratoma is not well defined due to the rarity of the condition and limited evidence. However, adjuvant therapy may be considered in certain cases:

a) Chemotherapy: Platinum-based chemotherapy regimens, such as cisplatin or carboplatin in combination with paclitaxel, are commonly used in the adjuvant setting for ovarian cancer. They may be considered for patients with advanced disease, positive lymph nodes, or positive surgical margins. The specific chemotherapy regimen and duration of treatment depend on individual patient factors and the recommendation of the treating oncologist.
b) Radiotherapy: Radiation therapy may be utilized in select cases, particularly if there is residual disease or positive surgical margins after surgery. External beam radiation therapy or brachytherapy may be considered, and the decision is typically made in consultation with radiation oncologists [27-33].

Follow-up and Surveillance: Close follow-up and surveillance are essential in managing squamous cell carcinoma within mature cystic teratoma. Regular pelvic examinations, imaging studies (such as CT scans or ultrasounds), and tumor marker assessments (CA-125) may be performed to monitor for disease recurrence or progression. The frequency of follow-up visits and the duration of surveillance depend on the individual patient's risk profile and the treating physician's recommendation.

It is important to note that treatment strategies should be tailored to each patient's specific clinical scenario and should be discussed with a multidisciplinary team of gynecologic oncologists, pathologists, and radiologists to ensure personalized and optimal management [34-39].

CONCLUSION

This case report describes a rare presentation of an ovarian teratoma with Malpighian carcinoma. The incidentally discovered pelvic mass emphasizes the importance of timely diagnostic investigations and appropriate management to prevent potential complications. The treatment of choice for this type of cancer is surgical resection followed by adjuvant chemotherapy. Close monitoring and follow-up are essential to detect and manage any possible recurrence or metastasis.

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