

Case Report

Two rare cases of squamous cell carcinoma in a mature cystic teratoma of the ovary

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Introduction

Mature cystic teratoma (dermoid cyst) is the commonest ovarian neoplasm in the reproductive age group, comprising 15% to 20% of all ovarian neoplasms [1]. Since they are usually benign in nature, such patients are managed at general gynaecological units and operated as outpatient laparoscopic cystectomies [2].

Although mostly benign, about 1-2% of mature cystic teratomas have malignant transformation [3]. These are commonly seen in post-menopausal women [4]. All three germ cell lines (endoderm, ectoderm and mesoderm) can give rise to mature cystic teratomas, and squamous cell carcinoma of the ovary (80%) is the commonest malignant transformation [5].

We report 2 cases of malignant transformation of dermoid cysts to squamous cell carcinoma of the ovary.

Case histories

The first patient was a 35-year-old, previously healthy mother of 2 children who presented with left-sided lower abdominal pain for 2 days with back pain. She had no fever or vomiting. She had infrequent menstrual cycles after the insertion of a levonorgestrel releasing implant for contraception.

There was a tender palpable mass on her left lower abdomen. There was no cervical excitation but left adnexal fullness was seen on vaginal examination. The pregnancy test was negative. An ultrasound scan revealed a thick-walled, cystic lesion of 8.5 cm x 7.2 cm and echogenic contents within the lesion with fat-fluid levels (Figure 1).



Figure 1: ultrasound image showed mixed echogenic content

Ovarian torsion was suspected, and she underwent laparotomy and left ovarian cystectomy. Tumor markers and cross-sectional imaging were not available due to the acute presentation and low resource availability. Histology revealed a mature cystic teratoma with malignant transformation to a squamous cell carcinoma, confined to the left ovary. Since proper surgical staging was not done during the initial surgery, she had to undergo a complete staging laparotomy at a specialized cancer center for ovarian malignancy where histology did not show any residual tumor.

The second patient was a 64-year-old mother of 4 children who complained of a 3 months history of dyspeptic symptoms and abdominal distension. She had reached menopause at 50 years of age and was otherwise healthy. There were no significant pressure symptoms but she had loss of appetite and loss of weight. There was no family history of gynaecological malignancies.

A well-defined cystic mass up to the umbilicus, originating from the pelvis, was detected on abdominal examination. An ultrasound scan revealed a left ovarian mature cystic teratoma of 14x14x9 cm³. Her CA-125 was normal. Additional imaging by CECT abdomen & pelvis showed enlarged para-aortic lymph nodes raising the suspicion of malignant transformation.

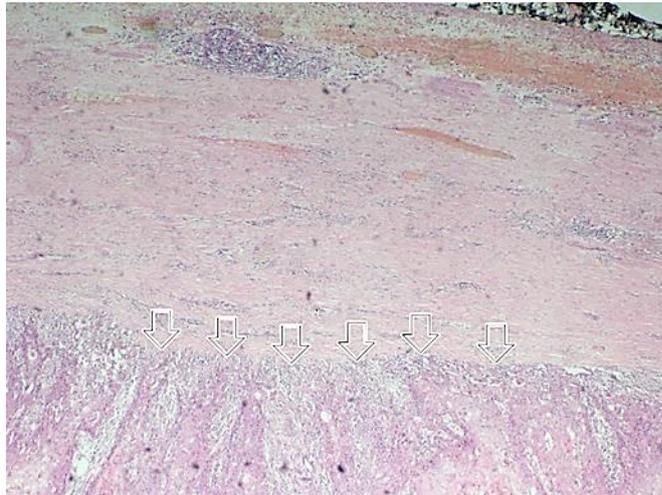


Figure 2A: Sections from the ovarian cyst show a squamous cell carcinoma with the lumen. The constituent cells are arranged in cords and sheets (in arrows) composed of angular cells with pleomorphic vesicular nuclei.

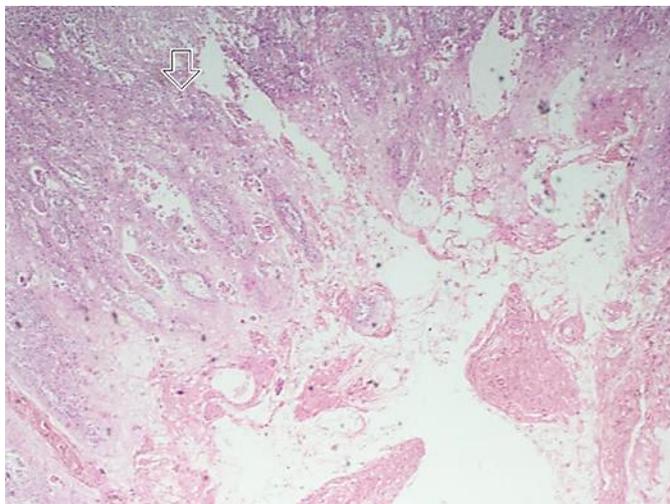


Figure 2B. The cytoplasm is dense and abundant (arrow). Keratin pearl formation is abundant. Strands of laminated keratin are seen within the lumen.

She underwent a total abdominal hysterectomy, bilateral salpingo-oophorectomy and infra-colic omentectomy and the histology confirmed a squamous cell carcinoma of the left ovary in a mature cystic teratoma with intact capsule (Stage IA) (Figure 2). The remaining tissues showed no malignancy. At the cancer institute, she underwent her second surgery to complete the surgical staging, where the para-aortic lymphadenectomy confirmed no tumor deposits.

The postoperative period and the follow-up of both patients are uneventful up to now.

Discussion

Both malignant transformation of mature cystic teratoma as well as squamous cell carcinoma of the ovary are rare entities. FIGO stage IA, where the malignancy is confined to one ovary has the best outcome (5-year overall survival of 85%) while beyond stage I, the prognosis is poor dropping to a 5-year overall survival of less than 50% [6].

Pre-operative diagnosis and planning of the management could be challenging since there are no definite features to confirm malignant transformation. However, the presence of lymphadenopathy, invasion of adjacent structures, capsular penetration and abundant solid components in the MRI may suggest malignant transformation [7]. As for the serum tumor markers, an elevated carcinoembryonic antigen (CEA) could be more useful than CA-125 and CA-19-9 [8].

Per-operative frozen section analysis can be done where facilities are available to rule out malignancy [9]. However, in our setting frozen section analysis is not widely available and practical difficulties arise when managing emergency cases like ovarian torsion in a low-resource setting.

Overall survival is significantly better in patients who undergo hysterectomy [6]. The place of adjuvant treatment in early-stage disease has limited data. However, platinum-based chemotherapy and pelvic radiation have been suggested in a case series [9].

In the absence of a pre-operative diagnosis of malignancy, with no proper surgical staging, the patient will have to undergo a second surgery by a specialized gynaecological oncologist which decides the need for adjuvant treatment. In addition, since dermoid cysts are usually benign, they are widely operated laparoscopically. Laparoscopic cystectomy carries a risk of tumor spillage [10] and could iatrogenically upstage cancer to stage I-C or more, requiring adjuvant chemotherapy.

Although it is challenging to diagnose, it is important to consider the possibility of malignant transformation in dermoid cysts at the initial clinical encounter to minimize the need for repeat surgical intervention or further oncological management.

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