Case Report

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Spurious Elevation of Ca-125 in Benign Ovarian Tumour

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Abstract

Background: High level of CA 125 with associated ovarian mass is highly suspicious of ovarian carcinoma but the possibility of other benign conditions with associated pelvic mass and elevated CA 125 also to be considered. *Case Report:* We present a case of 51 year old female, who presented with menorrhagia and a pelvic mass with a raised CA 125 of 983.1 U/ml. With a clinical diagnosis of ovarian carcinoma, she underwent staging laparotomy and post operative specimen was subjected for histopathological examination. The biopsy showed benign cystic teratoma with endometriosis in the opposite ovary. *Conclusion:* The present case emphasizes that not all pelvic masses with raised CA 125 should prompt the diagnosis of ovarian carcinoma, there are various other benign conditions which should be included in the differential diagnosis of a perimenopausal woman. Good clinical history and screening for other benign conditions should be given importance in such patients.

Keywords: Elevated CA 125; Benign Cystic Teratoma; Endometriosis.

Introduction

Tumor markers in general, are used for screening, early diagnosis, staging of malignancy, monitoring efficacy of treatment, recurrence and also for prediction of prognosis in carcinomas. CA 125 antigen, CA 19 - 9 antigen, CA 15–3 antigen and CEA are tumor markers widely used in ovarian epithelial cancers.

CA 125 is the most frequently used bio marker for ovarian epithelial carcinoma. In 1981, CA 125 antigen was identified by Bast et al. by the use of monoclonal antibodies raised against cells derived from the ovarian cancer cell line OVAL 433 (Shiau et al., 2003) [1]. Elevation of serum CA 125 levels can be seen in various benign conditions such as pregnancy, endometriosis, pelvic inflammatory disease, uterine fibroids etc. (Jacobs and Bast, 1989) [2].

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Case Report

In the present report, we describe a case of 51 years old female para 4 live 4 presented with menorrhagia for the past 6 months. Her menstrual cycles were regular. She had no history of dysmenorrhea, dyapareunia or leukorrhea. On examination, distension of abdomen was noted. Per vaginal examination revealed a mass corresponding to 16 weeks size. The computed tomography scan of the abdomen showed a complex ovarian mass containing fat, calcification, solid and cystic areas and a fibroid measuring 10x10cm in the posterior wall of the uterus. A few enlarged iliac and bilateral inguinal nodes were noted. There was moderate to large ascities, moderate left pleural effusion and right ovary was poorly made out. CA – 125 level was increased to 983.1 U/ml (normal < 35 u/ml). and other tumour markers like Alpha feto protein and Beta HCG were found to be normal. Ascitic fluid Adenosine deaminase was 3.1 U/L (normal range 0 to 30 U/L). With high suspicion of ovarian carcinoma, Staging lapratomy proceeded to total abdominal hysterectomy with bilateral

salphingo oopherectomy, pelvic nodal dissection and omentectomy was done.

Fig. 1a & 1b: Gross picture of the left ovarian Mass showing thick walled multilocular cyst Filled with gelatinous material

A large ovarian mass of 8x6 cm with irregular surface, variable consistency, adherent to omentum was noted. Right ovary and fallopian tubes and omentum appeared normal. About 50 ml ascitic fluid was aspirated. Extensive histolopathological sampling of the left ovarian mass surprisingly revealed benign cystic teratoma of left ovary composed of thyroid tissue with islands of bone, musscle tissue and fattic tissue. The other ovary showed endometriosis. Smears from the ascitic fluid was negative for malignant cells. After surgery CA 125 antigen levels significantly dropped to 81.1 U/ml and reached normal range within few days.

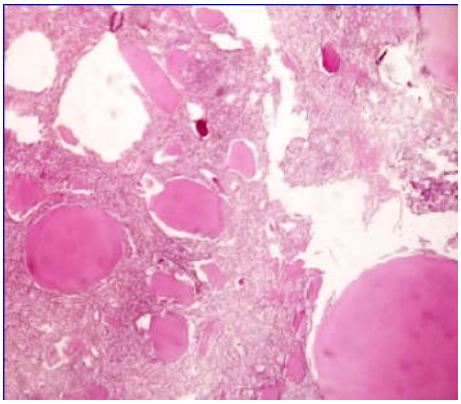

Fig. 2: Sections from left ovary showing areas of colloid filled thyroid follicles of various sizes; 100X H&E.

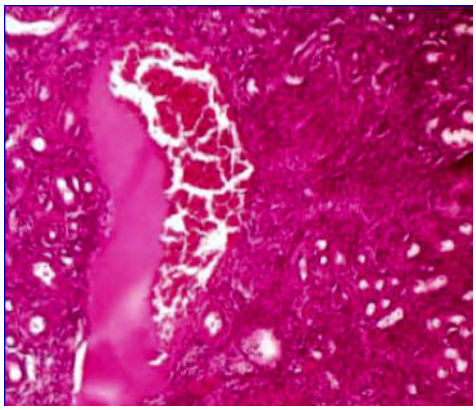

Fig. 3: Sections from the right ovary showing areas of hemorrhage with fibrosis suggestive of endometriosis; 400X H&E.

Discussion

The term "teratoma" is derived from the Greek word "teraton" which means monster. In 1831 Leblanc coined the term "dermoid cyst" [3]. Teratomas are tumours that contain tissues derived from one or more of the embryonic germ layer: ectoderm, mesoderm and endoderm and are classified into mature or immature types. Mature teratoma is benign, whereas the immature type is malignant and has a more aggressive course. Mature cystic teratomas are more common and accounts for 10-20% of all ovarian neoplasms. They can occur at any age but the peak incidence is between 20-40 years. They are slow-growing, with a growth rate of 1.8 mm/year [5]. Mature cystic teratomas are predominantly unilateral, about 8–15% being bilateral.

Radiological features and tumor markers, such as CA125, CA19-9, and alpha-fetoprotein help in early detection and differentiating mature and immature teratomas [6]. Serum CA19-9 is the most reliable tumour marker of mature cystic teratomas. But when used alone [7] its diagnostic value is low. Henceforth serum CA125 is widely used to differentiate benign from malignant ovarian epithelial tumours.

Bast et al proposed CA125 as a specific marker for epithelial ovarian cancer. The CA 125 molecule is a 200-kD glyco-protein and was detected on the surface of the ovarian carcinoma cell line OVCA433 [8] initially. CA 125 is expressed on the surface of both healthy and malignant cells of mesothelial origin, including pleural, pericardial, peritoneal and endometrial cells, as well as in normal genital tract and amniotic membrane. Conditions like pregnancy, menstruation, pelvic inflammatory disease, endometriosis, liver and pulmonary disease can also cause elevation of CA 125 levels [9].

In the present case, the combination of pelvic mass and raised CA 125 (983.1 U/mL) levels, raised the suspicion of a ovarian epithelial cancer. The histopathological findings confirmed the presence of mature cystic teratoma of left ovary and endometriosis of right ovary.

Surgical excision is curative and prevents complications in majority of patients. Struma ovarii is the expression of the dominant growth of thyroid tissue in a teratoma. Studies have shown that struma ovarii is also associated with raised CA 125 levels [13]. Endometriosis is the most common benign condition associated with raised levels of serum CA 125. Endometriosis can elevate CA 125 more than 100 IU/ml (Kauppila et al., 1988) [10] and the maximum value recorded is 9300 IU/ml (Johansson

et al., 1998) [11]. The half life of CA 125 is 4.5 days. Endometriosis raises serum CA 125 levels by various mechanisms.It is better explained by the fact that the enlarged surface area of the endometrial tissue secretes CA 125 [12].

In the present case, the reduction in CA 125 levels on serial measurements favour the benign origin of tumour.

Conclusion

Association of a pelvic mass with elevated CA 125 of 983.1 units/ml, lymphadenopathy and other associated features on CT scan mimicked an ovarian epithelial cancer. A rapid fall of CA 125 to 81.1 units/ml subsequently suggested a benign origin which was confirmed by histo pathological findings of benign cystic teratoma of left ovary and endometriosis of right ovary. This case highlights the fact that raised CA 125 levels are not always suggestive of malignancy. Therefore serial monitoring of CA 125 is mandatory as rapidly increasing levels points to malignant behaviour of the tumour than elevated levels which remains static. Thus to distinguish benign pelvic mass from early ovarian cancer and to arrive at a precise diagnosis, good clinical history and tumour marker levels should be interpreted carefully.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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