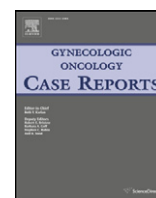


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Case Report

Ruptured ovarian endometrioma with an extreme rise in serum CA 125 level – A case report

Ovarian endometrioma with very high CA-125 level

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Introduction

CA 125 is a high molecular weight glycoprotein and is the most useful tumor marker for epithelial ovarian carcinoma. In 1981, the antigen CA-125 was identified by Bast et al. through the use of monoclonal antibodies raised against cells derived from the ovarian cancer cell line OVAL 433 (Shiau et al., 2003). Many benign conditions like the pelvic inflammatory disease, endometriosis, uterine fibroids etc. may also give rise to moderate elevation of serum CA 125 (Jacobs and Bast, 1989). The most common benign gynecological conditions associated with high serum CA 125 are ovarian endometrioma and deeply infiltrating endometriosis (Shiau et al., 2003).

We describe here a case with a very high and persistent level of serum CA 125 following rupture of the right ovarian endometrioma which responded to right salpingo-oophorectomy and Danazol.

Case report

A 40 year old (gravid 0, para 3) woman presented to our gynecological outpatient department with moderate to severe pain of the abdomen for the last 24 h without any associated symptoms. Her menstrual

cycle was regular with mild dysmenorrhea for the last 5 months and was on D7 of her menstrual cycle. Her past obstetrical history which includes a three lower segment cesarean section revealed no gynecological disorders. Her past medical history was unremarkable.

On examination, the patient was in minimal distress with stable vital signs. Her lower abdomen was tender and bimanual pelvic examination revealed a normal sized uterus with a smooth and soft right adnexal mass. Transvaginal ultrasonography showed a bulky uterus with normal left adnexa. The right adnexal area had a mass of 10.5 × 7 cm with homogenous hypoechoic tissue of low level echoes within the ovary with moderate ascites. Computed tomography (CT) scan of the abdomen and pelvis revealed a bilateral adnexal mass with minimal ascites and without any lymphadenopathy. Her routine investigations were normal except for mild anemia (Hb 8.6 g/dl). The relevant tumor markers for adnexal tumor were normal except for CA 125, which was markedly elevated (9391 IU/ml).

High serum CA 125 level and the abdominal scan reports raised the suspicion of ovarian malignancy and the patient was scheduled for exploratory laparotomy. On laparotomy, omentum and bowel loops were stained with chocolate colored fluid with two right ovarian cysts – one ruptured and another unruptured. The uterus was bulky with endometriotic implants on its posterior surface, and on the left ovary. Adhesions were present in the pouch of Douglas and on the left ovary. The right unruptured ovarian cyst ruptured during adhesiolysis and approximately 200 ml of thick 'chocolate' colored fluid drained out. A frozen section of the ovarian cyst tissue showed no evidence of malignancy. Conservative surgery (right salpingo-oophorectomy) with peritoneal lavage was done keeping her age in view. Her postoperative period was uneventful and the histopathology confirmed the diagnosis of endometriosis.

There was a sharp decline in serum CA 125 level following surgery. Danazol was given to the patient for 6 months. The serum CA 125 level came to normal after 4 months (Fig. 1).

Discussion

In 1981, CA-125 was identified as an ovarian cancer antigen and was investigated as a specific marker of ovarian malignancy. The reference value of 35 IU/ml was based on the pioneering work by Bast et al. A serum CA 125 level of more than 200 U/ml is considered a positive criterion for differentiating malignant from benign pelvic masses in premenopausal women younger than 50 years (Graham, 2008). It

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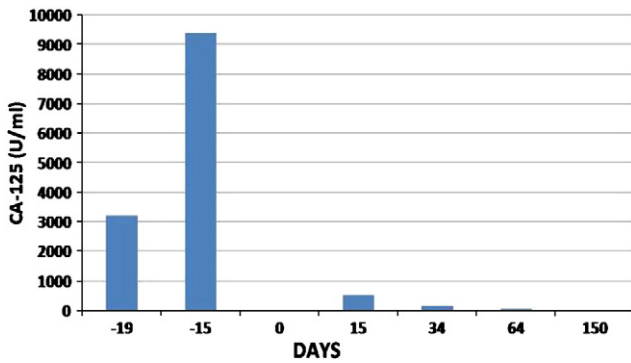


Fig. 1. CA 125 concentration in serum following ruptured ovarian endometrioma. Day '0' refers to the date of operation.

is generally believed that the higher the serum CA 125 value, the greater is the probability that the abdomino-perineal mass is malignant.

Many benign conditions may cause a raised serum CA 125. Endometriosis is the most common benign lesion which gives rise to an elevated level of serum CA 125. Endometriosis rarely gives rise to serum CA 125 of more than 100 IU/ml (Kauppila et al., 1988) and the highest value so far reported with histologically confirmed endometriosis is 9300 IU/ml (Johansson et al., 1998). It is also worth noting that the elimination half-life of CA 125 is 4.5 days. The mechanism by which endometriosis may elevate the serum CA 125 level is partly understood. It may be due to many reasons and one could be the enlarged surface area of the endometrial tissue which secretes CA 125. The CA 125 concentration in cyst fluid of an ovarian endometrioma is very high, but the thick walls of the endometrioma prevents the large CA 125 glycoprotein molecules from reaching the peripheral circulation, although the block is not total (Koninckx et al., 1992). In the present case, the spill of endometrioma fluid into the peritoneal cavity due to rupture of endometrioma leads to a rapid increase in the serum CA 125 level.

There is evidence that peritoneal mesothelial cells are even more potent than ovarian cancer cells in producing CA 125 (Zeimet et al., 1996). The overflow of thick, 'chocolate' cyst fluid in the peritoneal cavity causes endometriosis-induced peritoneal inflammation (Bouquet de Joliniere et al., 1997) which leads to excess CA 125 in the circulation. In addition, superficial endometrial implants over the ovary may secrete CA 125 into the peritoneal cavity which further gets reabsorbed slowly into the circulation. The persistently high serum CA 125 level for more than 2 months supports the concept that mesothelial cells of the peritoneum were the most important source of CA 125 in the present case.

To conclude, very high serum CA 125 level does not necessarily indicate ovarian malignancy. Rapidly rising and persistent levels may be consistent with benign diseases like endometriosis.

Conflict of interest

The authors declare that there are no conflicts of interest.

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