

High CA – 125 in Patients with Endometrioma

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Abstract

Background: Increased CA-125 concentrations are seen during ovulation and menstruation. It is produced from endometrium and irritation of peritoneum (by infection/surgery/endometriosis). High plasma levels of more than 200 U/mL are usually suggestive of malignancy but rarely found in benign conditions of female genital tract, like endometriosis. **Case Report:** Two patients with abdominal mass and suspected diagnosis of ovarian malignancy presented with high levels of CA-125. In the first case, endometrioma excision was done with unilateral salpingoophorectomy. The second case was treated by hysterectomy with bilateral salpingoophorectomy. A fall in CA-125 levels was observed in both cases, and no recurrence was reported on follow up. **Conclusion:** Endometrioma should be suspected in adnexal mass with high CA-125, even in the absence of widespread endometriosis.

Keywords: Biopsy, Endometriosis, Laparotomy, Neoplasm Recurrence, Omentum.

Introduction

CA-125 (cancer antigen 125 or carbohydrate antigen 125) is a protein secreted normally by human body in small quantities [1]. It is usually associated with benign conditions if mildly raised, and very high levels indicate malignancy (normal value <35 U/mL) [2]. Most frequently it is used as a biomarker for epithelial ovarian cancer. However, it has limited specificity, i.e. it can be raised in other conditions also, like, diverticulitis, liver cirrhosis, normal menstruation, pelvic inflammatory disease, pregnancy or uterine fibroids [3,4]. CA-125 levels more than 65 U/mL in a postmenopausal female with a palpable adnexal mass are predictive of ovarian malignancy in >95% cases [5]. There is a need for careful clinical evaluation in cases which present with high levels of CA-125 as some cases have been reported in literature, which, on histopathological examination, were found to be endometriomas [6-10].

Case Report

Two ladies presented with pain abdomen in gynaecology outpatient department. On careful evaluation, adnexal masses were discovered associated with very high CA-125 levels. Our first case was a 40 year old unmarried female (nulliparous) who presented with pain in lower abdomen. On per abdomen examination abdomen was soft, no mass was felt. On per rectal examination, a left adnexal mass of approximately 6 x 5 cm was found, which on ultrasonography, showed a cystic structure originating from left ovary of size 6.5 x 4.7 cm with mild ascites. CECT confirmed the findings. CA-125 levels were 908 U/mL. Exploratory laparotomy was planned for the patient and a large left ovarian cyst was removed (left salpingoophorectomy was done) [Fig.1]. The histopathological examination confirmed endometrioma. CA-125 levels reduced to 21.40 U/mL within 3 weeks after the surgery. No recurrence was reported on follow up of the patient.

In the second case, a 43 year old P2L2 lady presented with chief complaints of pain lower abdomen. Her per vaginal examination was suggestive of bilateral adnexal masses and ultrasound showed bilateral large ovarian cysts of approximately 6 x 7 cm. A metastatic work-up revealed CA-125 levels of 4420.90 U/mL (high), CA-19.9 levels of 3224.84 U/mL (high), CEA levels of 1.72 ng/mL (normal). A laparotomy was planned in which total abdominal hysterectomy with bilateral salpingoophorectomy with omental biopsy was done. Peroperatively, both ovaries were enlarged. On the right side, cyst was ruptured with contents spilled onto the peritoneum. Left cyst was intact. Gut was adhered to bilateral ovarian masses. CA-125 levels dropped to 1450 U/mL within one week after surgery, reaching 37 U/mL after 6 weeks on follow up. Histopathology revealed endometriotic cysts with no neoplastic changes. Omental biopsy was within normal limits.

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.* [11]. 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 [12]. It is generally believed that the higher the serum CA 125 value, the greater is the probability that the abdomino-perineal mass is malignant. In normal women, plasma concentrations of CA125 are increased slightly at ovulation and significantly during menstruation. Marked increases are observed during pregnancy and following peritoneal irritation by infection or surgery [13]. High levels of CA-125 usually lead to a presumptive diagnosis of ovarian cancer.

Plasma concentrations of CA-125 are markedly elevated in women with cystic



Fig.1: Excision of endometrioma.

ovarian endometriosis and/or deeply infiltrating endometriosis, but not, or only slightly, in the luteal phase of women with minimal or mild endometriosis. This is consistent with the recent concept which considers minimal endometriosis as a normal condition occurring intermittently in many women, in contrast with deep endometriosis and cystic ovarian endometriosis which are called ‘endometriotic disease’. Serum CA125 is not a good marker for endometriosis but it is a helpful additional parameter to diagnose endometriotic disease in patients with chronic pelvic pain [13]. Following treatment of endometriosis, elevated plasma concentrations of CA125 could be used as an argument that treatment has been incomplete, or that the condition has recurred. There is evidence that peritoneal mesothelial cells are even more potent than ovarian cancer cells in producing CA-125 [14]. The overflow of thick, ‘chocolate’ cyst fluid in the peritoneal cavity causes endometriosis-induced peritoneal inflammation [15] 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. However, a benign pathology like endometrioma should also be considered. In the literature review, very few cases are reported wherein high levels of CA-125 are found in endometriotic cysts. Accurate diagnosis, high clinical suspicion and histopathologic report are essential to prevent unnecessary surgical exploration and correct diagnosis.

Conclusion

The possibility of endometrioma should definitely be considered as a clinical diagnosis in cases of adnexal mass with high levels of CA-125, even in the absence of widespread endometriosis.

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