Case report

Unusual rise in Cancer Antigen 125 (CA-125) levels in Endometriosis

Abstract: CA-125 is expressed in the surface of coelomic epithelium and help to distinguish benign from malignant ovarian lesion as higher levels have association with malignant ovarian masses. In this case report, we see rise in CA-125 levels in benign condition that is endometriosis.

Key words- CA-125, endometriosis, malignancy

Introduction:

Endometriosis is defined as the presence of endometrial glands and stroma located outside the uterus and is characterized by pain and sub fertility. It affects up to 75% of symptomatic women yet it is commonly under-diagnosed. The gold standard diagnostic test is histological diagnosis.[1] CA-125 was first identified by Bast et al in 1981.[2] CA-125 is a high molecular weight glycoprotein expressed on the surface of the coelomic epithelium of the endocervix, endometrium, fallopian tube, pelvic peritoneum, placental tissues, pericardium and epithelial ovarian carcinomas.[3] CA-125 plays an important role in differentiating benign and malignant abdominopelvic masses as higher CA-125 levels are associated with a higher probability of malignancy [4]. However, serum CA-125 levels can be elevated in other malignancies as well as various physiological and benign conditions such as endometriosis, uterine fibroids, pelvic inflammatory disease, ovarian abscess, early pregnancy, and normal menstruation.[5]

Case presentation:

A 27 years old nulligravida presented to us in gynaecological outpatient department with complaints of acute pain in abdomen for a day associated with nausea and vomiting. Pain was found to be relieved on consuming analgesics. Menstrual cycles were regular but were associated

with dysmenorrhea from the last 6 months. Her past history was unremarkable. On examination, vitals were found to be stable with slightly tender lower abdomen. On per vaginal examination, uterus was normal size mobile retroverted with firm to cystic tender mass of 4x4cm on the right fornix. No nodularity was felt in the pouch of Douglas.

Transvaginal sonography revealed normal looking uterus with right sided cystic homogenous mass of 4x4cm with low level of echo and left adnexa appeared normal. Her computed tomography displayed a right sided adnexal mass with no solid areas, with no ascites and lymphadenopathy.

Tumour marker CA-125 and CA19.9 were significantly raised with the level of 5109U/ml and 479 ng/ml. All the other tumour markers like alfa fetoprotein (AFP) -3.16 ng/ml, beta Hcg- 0.69, inhibin B- 44.3, CEA 0.79 and LDH- 101, all were within normal limit. Upper gastrointestinal (GI) and lower GI endoscopy and routine investigations were normal.

In the view of raised CA-125 level with adnexal mass, patient was planned for staging laparotomy. On laparotomy uterus was normal. There was dense adhesion between right side adenexal mass of 5x4cm with uterus. Pouch of Douglas was obliterated. On adhesiolysis cyst got ruptured and thick chocolate coloured fluid aspirated. In left ovary 1-2 small endometriotic spots were present. Small endometriotic spots were also present over peritoneum. Right ovarian cyst was enucleated and remaining normal appearing ovarian tissue reconstructed. Bilateral fallopian tube and fimbria were normal looking. Patient got discharged on third post operative day. Final histopathology report confirmed the diagnosis of endometriosis. Subject was provided oral contraceptive pills after the confirmation of diagnosis.CA-125 level returned to 32 U/ml after 3 weeks and 2 years post-surgery she is fine with normal CA-125.

Discussion:

Young women with raised CA-125 levels and ovarian masses always pose diagnostic dilemma between benign and malignant masses. Women presenting with pelvic pain, Infertility can have raised CA-125 level due to underlying endometriosis. Education of the patient for the significance of raised tumor marker and further affecting the management is important. The relationship between elevated CA-125 levels and endometriosis has been well established in the literature, with levels reflecting both the severity and the progression of the disease[6]. Multiple theories have been put forward to explain high serum CA-125 levels in endometriosis such as

enlarged surface area of endometriotic tissue [7], inflammatory reaction to the endometriotic foci, blood and endometrial shedding to peritoneal cavity[8]. CA-125 concentration in the cyst fluid of endometrioma is very high but thick walls of cyst prevent large glycoprotein molecule to reach into the peripheral circulation.[9] Leakage of endometriotic fluid into the peritoneal cavity leads to peritoneal irritation and absorption into peripheral circulation leading to raised CA-125 levels. [10]
Gold standard for diagnosis of endometriosis is histopathology and visual inspection of abdominal cavity by laparotomy or laparoscopy. However invasive testing for large scale population is not possible. Thus, non-invasive test such as pelvic examination, transvaginal ultrasonongraphy[11], MRI pelvis and CA-125 level are used for diagnosis. Severe endometriosis can be diagnosed by simple pelvic examination by presence of fixed retroverted uterus with nodularity in the utreosacral ligament. Endometriosis is the most common benign condition associated with raised CA-125[12].Raised CA-125 >35 U/ml were found in 80% of women with epithelial ovarian cancer and only 1% healthy women. The positive predictive value of CA-125 (> 95 IU/ml) for ovarian cancer is high among postmenopausal women (96%)[12]. In endometriosis CA-125 levels are > 35 U/ml [13] but does not exceeds >100U/ml[12]. Extremely elevated CA-125 levels have been reported in the presence of both ruptured [13] and unruptured endometriomas [14] and the highest reported was 9537 U/ml following acute rupture of an endometrioma [15]. In the present case report CA-125 was 5109 U/ml with unilateral endometrioma with widespread peritoneal deposits although there was no rupture or leakage of endometriotic fluid. CA-125 levels were in reducing trends post surgery.

Conclusion:

CA-125 is the non invasive and most frequently used marker to diagnose ovarian masses. High CA-125 levels do not necessarily indicate ovarian malignancy. Reproductive age women presenting with adenxal mass with raised CA-125 levels can be considered endometriosis if finding suggestive of malignancy has been ruled out.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

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