A ruptured ovarian endometrioma mimicking ovarian malignancy: case report

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Summary

A 24-year-old single woman was referred to our department due to intermittent abdominal pain. Because her serum CA 125 concentration was extremely elevated an ovarian malignancy was suspected. At the laparoscopic examination, it was determined to be a ruptured endometrioma and serum CA 125 concentrations rapidly decreased after surgery.

Key words: Endometrioma; CA 125; Laparoscopy.

Introduction

Cancer antigen-125 (CA 125), a high-molecular-weight glycoprotein expressed on the cell surface of some derivatives of embrionic coelomic epithelium, is often elevated toward the end of the luteal phase and during menstruation in patients with AFS Stage II to IV endometriosis. CA 125 is elevated in the serum of over 80% of women with epithelial ovarian carcinomas, in particular serous cystadenocarcinoma. Many other conditions have been associated with an elevated CA-125 concentration, including acute pelvic inflammatory disease, benign ovarian cysts, torsion of ovarian tumor, abscess, hyperstimulation syndrome, adenomyosis, uterine leiomyoma, menstruation, pregnancy, pancreatitis, and chronic liver disease [1].

Patients with endometriosis rarely have a CA125 concentration > 100 IU/ml and the highest value so far reported with histologically confirmed endometriosis is 9537 IU/ml [2]. Another tumor marker CA 19-9 rarely increases above 1000 IU/ml in endometriosis [3].

The present case demonstrates that rupture of ovarian endometrioma may lead to an exceptionally high serum CA125 and slightly high CA 19-9.

Case Report

A 24-year-old unmarried woman was referred to our department due to intermittent abdominal pain. Her menstrual cycle was regular and she was on day 2 of her 28-day cycle. Pelvic examination revealed a cystic mass which appeared to be large (7 cm x 8 cm in diameter) by abdominal ultrasonography. The echo-texture was homogeneous and suspicious of endometrioma. CA 125 and CA 19-9 concentrations were 5674 U/ml and 56 U/ml (Enzyme immuno assay, normal below 35 U/ml and 23 U/ml), respectively. A pelvic magnetic resonance image (MRI) revealed an ovarian mass including bloody liquid with high signals. The white blood cell count was 12.3 x 10^9/l.

It was thought to be an ovarian malignancy because of extremely elevated CA 125 levels. A laparoscopy was planned because the patient was young. Laparoscopic surgery was performed on day 3 after admission. A right ruptured ovarian cyst and approximately 8 cm left ovarian cyst were observed. Thick brown fluid from the right ruptured cyst entirely covered the peritoneum. The uterus was normal. Bilateral peri-tubo-ovarian adhesions were observed. The adhesions were lysed and the left ovarian cyst was perforated and aspirated. Then, the capsule of cyst was peeled on the right and left side. A frozen section was reported to be benign. The pelvic cavity was irrigated thoroughly with isotonic saline solution. Histologic examination confirmed the diagnosis of endometriosis. The patient was given a gonodotropin-releasing hormone (GnRH) analog (Goserelin; Zoladex Depot 3.6 mg, subcutaneously, AstraZeneca) and an aromatase inhibitor (Anastrazol; Arimidex 1 mg/day per oral AstraZeneca) for a 3-month period after surgery. The serum CA 125 and CA 19-9 levels were periodically controlled. The serum levels of CA 125 and CA 19-9 are summarised in Figure 1. Serum CA 125 and CA 19-9 levels were 3894 and 45 U/ml on the operation day, respectively. The serum CA 125 and CA 19-9 were 2558 and 31 U/ml on the second postoperative day, respectively. Ca 125 and CA 19-9 levels came back to normal range on postoperative day 6 and the first weeks, respectively.

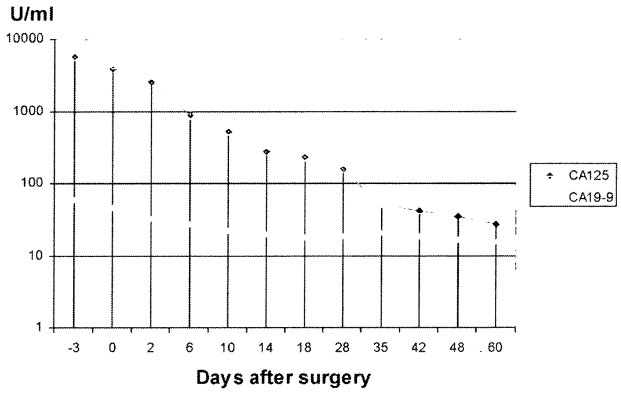

Figure 1. — Changes in serum CA 125 and CA 19-9 levels.

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Discussion

The tumor marker CA 125 was initially thought to be specific for ovarian malignancies. With respect to gynecological tumors, CA 125 may be elevated in endometriosis, benign ovarian cysts, torsion of ovarian tumor, tubo-ovarian abscess, hyperstimulation syndrome, ectopic pregnancy and fibroids [1, 4, 5]. It has been reported that serum Ca 125 levels are elevated in patients with endometriosis and that degree of elevation is related to the severity of endometriosis [6]. Serum CA 125 levels at the time of menstruation are about three times higher than those before menstruation in women with endometriosis [7]. Patients with endometriosis rarely have a CA 125 concentration > 100 IU/ml and the highest value thus far reported with histologically confirmed endometriosis is 9537 IU/ml [2]. Serum CA 19-9 levels are elevated in patients with a certain type of malignant tumor, such as gastrointestinal adenocarcinoma, pancreatic carcinoma, or lung carcinoma [8]. In gynecology, the serum CA 19-9 levels are elevated in patients with malignant and benign ovarian tumors [9].

Takemori et al reported a case of an ovarian chocolate cyst with a markedly elevated serum CA 19-9 level in 1991 [3].

Kurata *et al.* have reported the first case of elevated serum CA 125 and CA 19-9 due to the spontaneous rupture of an ovarian endometrioma [2]. In addition, it has been reported that serum CA 19-9 levels in women with endometriosis are significantly reduced during therapy compared with basal levels before treatment [10].

There are, however, a few reports that serum CA 19-9 levels are elevated in patients with endometriosis; thus, it is necessary to evaluate the clinical value of serum CA 19-9 levels in the diagnosis of endometriosis.

In our case, the serum CA 125 level was 5674 U/ml and CA 19-9 level was 56 U/ml, thus, we thought it could be an ovarian malignancy. We performed laparoscopy and saw that the ruptured cyst contents entirely covered the peritoneum.

In the present case, the diffusion of cyst fluid CA 125 molecules after the rupture of endometrioma through the peritoneum surface into the circulation probably contributed to the rapid increase in the serum CA 125 concentration, but not to its persistent elevation. Kurata *et al.* have reported that CA 125 and CA 19-9 levels are higher in ascitic fluid than in serum. They reported that the serum CA 125 and CA 19-9 concentrations rapidly declined [2]. We did not assay the peritoneal fluid concentration of CA 125 and CA 19-9, and observed a rapid decline of serum levels of CA 125 after the surgical procedure.

In conclusion, the present case demonstrated that serum CA 125 levels in patients with ruptured endometrioma were significantly increased. Extremely elevated CA 125 levels might be due to a benign condition and its concentrations can be rapidly decreased after surgery.

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