

High Level of CA 125 Due to Large Endometrioma

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Background : CA 125 is a tumor-associated antigen. Its high levels are usually associated with ovarian malignancies, whereas smaller increases in the levels were associated with benign gynecologic conditions. The authors report a high level of CA 125 in a case of large ovarian endometrioma.

Case Report : A 45-year-old nulliparous Thai woman, presented with an increase of her abdominal girth for 7 months. Transabdominal ultrasonogram demonstrated a large ovarian cyst and multiple small leiomyoma uteri, and serum CA 125 level was 1,006 U/ml. The preoperative diagnosis was ovarian cancer with leiomyoma uteri. Exploratory laparotomy was performed. There were a large right ovarian endometrioma, small left ovarian endometrioma and multiple small leiomyoma. Total abdominal hysterectomy and bilateral salpingo-oophorectomy was performed and histopathology confirmed the diagnosis of endometrioma and leiomyoma. The serum CA 125 level declined to non-detectable at the 4th week. She was well at discharge and throughout her 4th week follow-up period.

Conclusion : Although a very high level of CA 125 is associated with a malignant process, it can also be found in benign conditions such as a large endometrioma. The case emphasizes the association of high levels of CA 125 with benign gynecologic conditions.

Keywords: CA 125, Benign, Ovary, Endometrioma

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CA 125 is a high molecular weight antigenic determinant, expressed on the surface of the coelomic epithelium, including the epithelium of the endocervix, endometrium, fallopian tube, pelvic peritoneum, and placental tissues⁽¹⁾. CA 125 is a tumor-associated antigen, which has a value in preoperative differentiation between benign and malignant ovarian masses. It is elevated in 80% of women with epithelial ovarian carcinomas, and slightly elevated in some women with benign gynecologic diseases including endometriosis⁽²⁾. The magnitude of the elevation is important and levels > 200 U/ml are potentially associated with ovarian malignancies, whereas slight increases in levels were associated with benign gynecologic conditions⁽³⁻⁵⁾. However, serum CA 125 levels > 1000 U/ml have also been reported in patients with endometriosis⁽⁶⁻¹¹⁾.

Herein, the authors report an additional case of high levels of CA 125 in large unruptured endometrioma.

Case Report

A 45-year-old nulliparous Thai woman, presented with increasing abdominal girth for 7 months. She neither had vaginal bleeding nor abdominal pain. She denied any history of weight loss, urinary and gastrointestinal symptoms. Her menstrual periods were regular with an interval of 30 days and duration of 5 days. She had no history of dysmenorrhea or hypermenorrhea. Her last menstrual period was June 23, 2003. She had a history of hyperthyroidism that was completely treated with propylthiouracil for 3 years. The rest of her past history and medical history was unremarkable.

Her physical examination revealed blood pressure of 140/90 mmHg, pulse rates of 120/min, respiratory rate of 20/min, and body temperature of 37.0 °C. She had pale conjunctiva. The abdomen was distended and revealed a palpable tense cystic pelvic

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mass about 30-cm in diameter. Pelvic examination revealed the same pelvic mass as the abdominal examination. The abdominal ultrasonogram demonstrated a normal size uterus with multiple myoma size 1-cm in diameter, a partly cystic and partly solid ovarian mass of 27.5 x 15.4 cm (Fig. 1), no free fluid in the cul-de-sac. Her laboratory investigations demonstrated Hct 26.4%, white blood cell count 7,260 cells/mm³ and platelets 378,000/mm³. Serum for thyroid function test was normal. Serum CA 125 level was 1,006 U/ml. Her chest roentgenogram and blood screen for biochemical parameters were normal. The electrocardiogram demonstrated Wolff Parkinson White with atrial tachycardia. The preoperative diagnosis was an ovarian malignancy with leiomyoma uteri.

At exploratory laparotomy, an unruptured right ovarian endometrioma 30-cm in diameter (Fig. 2) and a small left ovarian endometrioma of 3 cm in diameter were detected. There were adhesions between the right ovarian endometrioma and the omentum and the small bowel. Additionally, all intestinal and peritoneal surfaces as well as the omentum were covered

by diffuse endometriotic foci. The uterus had multiple intramural and subserous myoma of 1 cm in diameter. Total abdominal hysterectomy and bilateral salpingo-oophorectomy was performed and peritoneal washing was taken. Histopathology confirmed the diagnosis of leiomyoma and bilateral ovarian endometriomas (Fig. 3).

The postoperative period was uneventful. On the third postoperative day, serum CA 125 level was 311.4 U/ml and the patient was discharged on the fifth postoperative day. She was well at the 4-week follow-up and serum CA 125 level was 24 U/ml (normal < 35 U/ml).

Discussion

CA 125, a high molecular weight glycoprotein, was identified by Bast *et al* in 1981⁽¹²⁾. It is widely distributed on the surface of healthy and malignant cells of mesothelial origin, including pleural, pericardial, peritoneal and endometrial cells, as well as cells

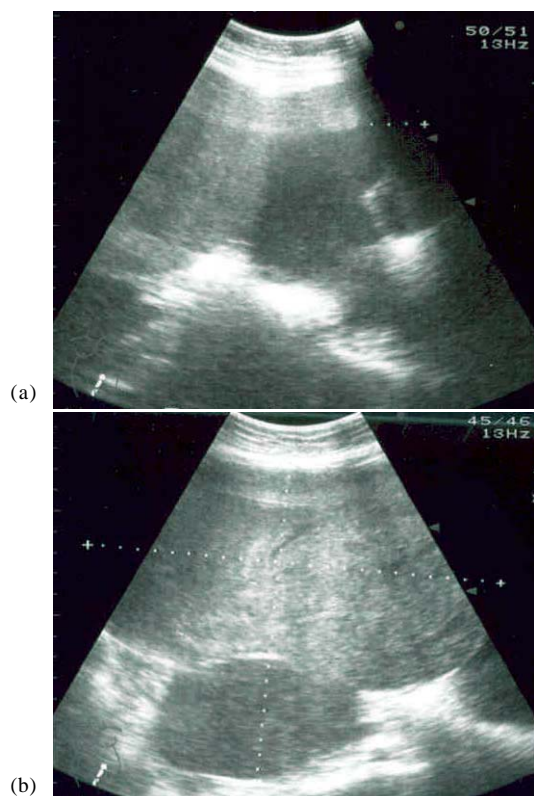


Fig. 1 Transabdominal ultrasound demonstrated a normal size uterus with multiple myoma, a partly cystic (a) and partly solid (b) ovarian mass of 27.5 x 15.4 cm

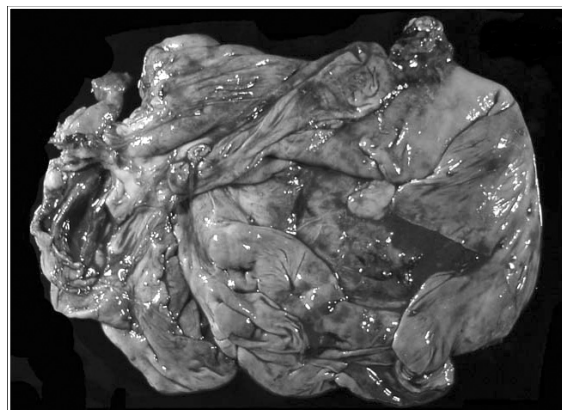


Fig. 2 Gross appearance of right ovarian endometrioma

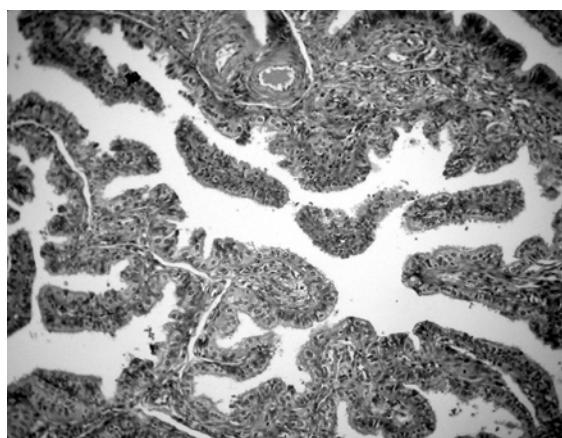


Fig. 3 Histopathology of right ovary demonstrated endometriosis (H&E, x 100)

in the normal genital tract and amniotic fluid⁽¹³⁾. CA 125 is not present on the surface of normal ovarian cells, but it is found in > 80% of ovarian malignancies of nonmucinous origin⁽¹⁴⁾. CA 125 occurs in the serum of normal males and females at low concentrations, < 35 U/ml^(3,15). Levels of CA 125 > 65 U/ml correlate highly with ovarian malignancy and distinguish malignant from benign diseases with a specificity of 88-92% and a sensitivity of 75-83%^(3,15). Concentrations of CA 125 > 65 U/ml were noted in 6-8% of benign pelvic masses^(3,4,15). Most of these increases were slight to moderate, usually < 200 U/ml. These findings led one author to state that CA 125 levels > 110 U/ml are always associated with malignancy and that levels > 200 U/ml are almost always indicative of ovarian cancer⁽⁵⁾.

Although CA 125 was proposed as a specific marker for ovarian malignancy, numerous studies have demonstrated its presence in many other benign and malignant conditions of both gynecologic and non-gynecologic origins^(13,15,16). As in previous reports, large increases in levels of CA 125 in the present case were associated with benign conditions such as endometriosis^(3,6-11,17).

A high level of serum CA 125 (6,144 and 9,300 U/ml) was reported in patients with endometriosis, which was associated with peritoneal irritation due to acute rupture of the endometriotic cyst, in addition to the existence of endometriosis itself^(8,11). Rupture of endometrioma was reported to be associated with elevated serum CA 125, whereas the size was not⁽¹⁸⁾. However, the CA 125 in the present case was high despite it being an unruptured endometrioma like in previous reports^(6,10). This returned to normal after surgical treatment^(6,7,10,11,17). An enlarged surface area of endometrial tissue and peritoneal endometriotic foci, as in this present case, may thus contribute to the elevated level of CA 125⁽¹⁹⁾.

As in the present case, endometrioma in association with high level of serum CA 125 can mimic ovarian malignancy. Thus, an intraoperative frozen section should be performed in cases of indefinite diagnosis to differentiate between benign and malignant condition when available⁽²⁰⁾. However, it was not performed in this case because the operative findings confirmed ovarian endometriomas.

In conclusion, although a very high level of CA 125 is associated with a malignant process, it can also be found in benign conditions such as large endometrioma like the presented patient. The case emphasizes the association of high levels of CA 125 with benign gynecologic conditions.

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ระดับ CA 125 ในเลือดที่สูงจากถุงเลือด Endometriosis ขนาดใหญ่

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CA 125 เป็นสารทางชีวเคมีที่บ่งชี้ถึงเนื้องอก ระดับที่สูงมากมักจะสัมพันธ์กับการเป็นมะเร็งของรังไข่ ในขณะที่ระดับที่สูงไม่มากจะสัมพันธ์กับโรคทางนรีเวชที่ไม่ร้ายแรง คณะผู้รายงานได้รายงานระดับ CA 125 ที่สูงในผู้ป่วยที่มีถุงเลือด Endometriosis ขนาดใหญ่ที่รังไข่ โดยผู้ป่วยหญิงไทยโสดมาด้วยอาการท้องโตขึ้นมา 7 เดือน การตรวจคลื่นเสียงความถี่สูงทางหน้าท้องพบถุงน้ำของรังไข่ขนาดใหญ่และเนื้องอกมดลูกขนาดเล็ก และระดับ CA 125 ในเลือดสูงเท่ากับ 1,006 ยูนิต์ต่อมิลลิลิตร ให้การวินิจฉัยก่อนผ่าตัดว่าเป็นมะเร็งรังไข่ร่วมกับเนื้องอกมดลูก ได้ทำการผ่าตัดเปิดหน้าท้องพบว่าเป็นถุงเลือด Endometriosis ขนาดใหญ่ที่รังไข่ข้างขวา ถุงเลือด Endometriosis ขนาดเล็กที่รังไข่ข้างซ้ายและเนื้องอกมดลูกขนาดเล็ก ได้ทำการตัดมดลูกและรังไข่ทั้งสองข้าง ผลการตรวจทางพยาธิวิทยายืนยันว่าเป็นถุงเลือด Endometriosis ที่รังไข่ทั้งสองข้างและเนื้องอกมดลูก หลังผ่าตัดผู้ป่วยปกติดีและระดับ CA 125 ในเลือดลดลงจนตรวจไม่พบภายหลังผ่าตัด 4 สัปดาห์ แม้ว่าระดับ CA 125 ในเลือดที่สูงจะสัมพันธ์กับการเป็นมะเร็งของรังไข่ แต่สามารถพบได้ในเนื้องอกธรรมดาเช่น ถุงเลือด Endometriosis ขนาดใหญ่ รายงานผู้ป่วยรายนี้ช่วยยืนยันถึงว่าระดับ CA 125 ในเลือดที่สูงนั้นสามารถพบได้ในภาวะเนื้องอกของรังไข่ชนิดธรรมดา