

Mucinous Borderline Ovarian Tumor in Very Old Aged Postmenopausal Woman

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Mucinous borderline ovarian tumors (BOTs) occur most often in women between the ages of 20 and 30. Early-stage detection of the condition has a more favorable prognosis. In this case report, the authors present an elderly 93-year old woman who visited our hospital due to severe abdominal pain after being diagnosed with a pelvic mass 2 years ago and not undergoing any treatment since the diagnosis was made. She underwent emergency left salpingo-oophorectomy and was diagnosed with mucinous BOT according to biopsy results. (**J Menopausal Med 2015;21:160-164**)

Key Words: Aged, Cystadenoma mucinous, Female, Ovarian neoplasms

Introduction

In recent years, the world has rapidly entered into an aging society. Neglected diseases and illnesses have been continuously detected as our society is aging. Like the condition that progresses very slowly in an elderly woman at an old age of over 90, a number of problems may arise in treatment and decision-making. Since the progression speed of borderline ovarian tumor (BOT) is very slow and its prognosis and management are distinctively different from those of invasive ovarian cancer, this condition has to be accurately diagnosed.¹ BOTs most commonly occur in young adults in 20s and 30s, and are also known to be common in nulliparous women. The authors experienced an elderly 93-year old woman with mucinous BOT associated with severe abdominal pain. We report the case with a brief review of literature.

Case Report

A 93-year old woman was suspected of ovarian mass 2 years ago under a diagnosis of huge ovarian mass at the age of 91 and was recommended for inpatient care and surgical treatment. However, the patient was discharged at the time of the first visit, since her family resisted getting any treatment due to old age. She did not undergo any treatment for 2 years, and she re-visited our emergency unit due to severe abdominal pain and vaginal bleeding and admitted to our hospital for surgical treatment after taking computed tomography (CT) and magnetic resonance imaging (MRI) scans at a primary care center nearby.

Her obstetrical history was gravida 6. The menarche age was 16 and the menopause age was 41. She had no specific family history, but had a history of hypertension. On admission, she had a blood pressure of 140/90 mmHg.

Received: May 30, 2015 Revised: September 25, 2015 Accepted: October 8, 2015

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a heart rate of 70 beats/min and a body temperature of 36.3°C. Her height was 150 cm and weight was 40 kg. She was associated with distended abdomen and pain to touch. Her pelvic exam revealed that bilateral adnexae and uterus were indistinguishable. A 15-cm firm and mobile mass was palpated above the symphysis pubis. Her laboratory findings revealed a low hemoglobin level of 8.3 g/dL, a hematocrit of 25.3%, and a slightly elevated white blood cell count of 15,320/mm³. The results of routine chemical test, blood coagulation test and liver function evaluation were normal. Compared to test results from 2 years ago, the test for serum tumor markers revealed an elevated level of cancer antigen (CA)-125 from 27.3 U/mL to 111.6 U/mL (normal range 0–35), and an elevated level of CA 19-9 from 146.3 U/mL to 831.3 U/mL (normal range 0–27). The levels of alpha-fetoprotein and beta-human chorionic gonadotropin were normal. The level of carcinoembryonic antigen (CEA), a tumor marker was slightly elevated at 5.24 ng/mL (normal range 0–4.7). The results of chest X-rays were normal, and the size of pelvic mass enlarged from 8 cm on the first visit 2 years ago to 15 cm on pelvic ultrasonography. Ultrasound demonstrated an inhomogeneous, hypoechoic, water-filled mucinous mass. Abdominal and pelvic CT revealed a large volume of ascites in the abdomen, and a 15-cm firm and mobile mass was palpated above the symphysis pubis. A 15-cm irregular multiloculated mass was

observed in the abdominal cavity (Fig. 1). Like CT scans, MRI scans presented a 15-cm inhomogeneous mass with a large volume of ascites, and many septa and nodules were detected within the tumor (Fig. 2). Considering patient's old age, collaborative practice was carried out between cardiology and pulmonology departments before surgery. Anesthesia and operation were performed carefully to avoid extended operation time and volume overload. For open abdominal surgery, an incision was made at the center on the lower abdomen under general anesthesia. The mass originated from left ovary and its size was 16.5 × 12.0 × 9.5 cm. The mass had traces of rupture, the volume of ascites was about 2,500 cc, and hemoperitoneum was seen in the cecum. The patient had atrophic uterus and right ovary, but no specific finding of abdominal adhesion was found. There were no specific findings suspected of tumor metastasis in the peritoneum, greater omentum, intestines, mesentery and others. To minimize anesthesia and operation time considering patient's old age, frozen section biopsy was not performed with the consent of patients' family. To remove ovarian mass, only left salpingo-oophorectomy was done. After the surgery, the patient was treated in intensive care unit for 3 days (Fig. 3). The left ovarian mass was sized 16.5 × 12.0 × 9.5 cm and weighed 980 g. The fallopian tube was attached and the mass had the finding of rupture.



Fig. 1. About 15 cm sized huge cystic mass in lower abdomen with ascites (computed tomography).

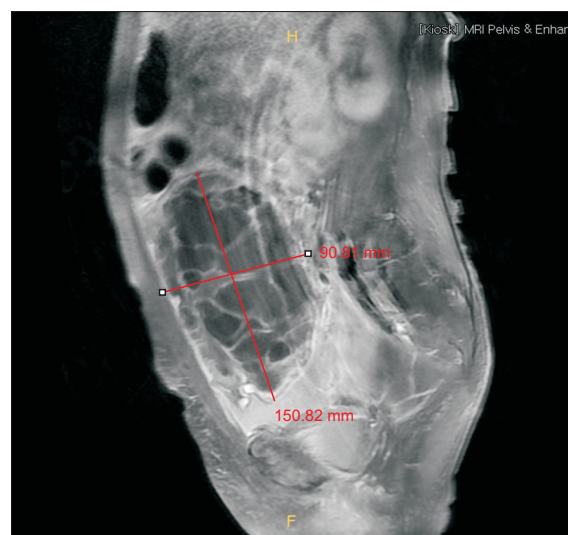


Fig. 2. About 15 x 9 cm sized large multiloculated cystic mass with ascites, probable left ovary origin epithelial tumor (magnetic resonance image).



Fig. 3. Photography of left ovarian mass, sized 16.5 x 12.0 x 9.5 cm and weighed 980 g.

The outer surface of multilocular mass was whitish gray and smooth, and the inner surface was smooth and filled with gelatinous contents. Firm portion or nodules were not identified. The wall thickness of septum was relatively thin, less than 0.1 cm, and the fallopian tube was 15.5 cm in length and 0.3 cm in diameter (Fig. 4). The final diagnosis was confirmed as mucinous BOT in the left ovary. For her age, there was no specific postoperative complication. She was treated with anemia because of a decreased hemoglobin level of 8.6 g/dL and a hematocrit of 25.8%. She was discharged on the 18th postoperative day. She is relatively healthy with no specific symptom and currently under outpatient follow-up.

Discussion

BOTs were first described by Taylor in 1929 and have been termed as proliferative lesions, intermediate tumors and others. BOTs were defined as ovarian tumors of low malignant potential by the World Health Organization (WHO)



Fig. 4. On cut section The lesion is multilocular cystic mass (16.5 x 12.0 x 9.5 cm) in ovary. The outer surface is whitish gray, smooth and intact. The inner surface is smooth and filled with gelatinous contents.

in their 1973 classification of ovarian tumors, and since then, the WHO has called them BOTs.² Although BOT of the ovary is characterized by the cytologic features of malignancy, they have no infiltration to surrounding tissues, very slow clinical progression and relatively favorable prognosis. Even though BOT may progress to carcinomatosis in the abdominal cavity, metastasized tumor nodules are mostly tissue flaps without infiltration to surrounding tissues, and invasive lesions are rarely detected. Since invasive lesions generally have a poor prognosis, additional chemotherapy may be warranted.³ BOTs are histologically divided into serous, representing 65% of all the BOTs, and mucinous type, comprising 32% of all the BOTs, according to the clinical features of the epithelia. Mucinous BOTs are subdivided into intestinal type (90%) and Müllerian (endocervical-like) type. Unlike benign tumors, proliferative papillary projections within the cyst are present, but fewer than in malignant tumors. Firm part appears in about half of the tumors, but bleeding, necrosis and other common symptoms of malignant tumors are rarely seen. Mucinous epithelium proliferates into 2 and 3 layers, there is less mucus than in malignant tumor, cells appear irregular, and cell division is observed. However, there is no stroma infiltration. When diagnosing mucinous BOTs, poor-differentiated cells are often present around well-differentiated mucinous epithelial cells. Thus, for accurate diagnosis of BOTs by excluding

malignant tumors, it is important to perform biopsy using a large number of cross-sectional images in order to exclude malignant tumor parts.⁴ Even though BOTs generally affect nulliparous young women in 20s and 30s, this case reports a rare occurrence of the tumor detected in an elderly 93-year old woman. Clinical symptoms are abdominal distension and pain, palpation of mass, vaginal bleeding and others, but on occasion, this tumor could be accidentally detected asymptotically.⁵ In this case report, the patient was admitted through the emergency room due to recently developed abdominal distension, severe abdominal pain and vaginal bleeding on the day of admission.

BOTs are usually diagnosed based on the outcomes of laparotomy and histopathological examination. In case of preoperative detection of masses, ultrasound is an easy procedure for visualization. Many papillary projections or septa were formed in BOTs. When diagnosis of BOTs is difficult based on the results of sonography, MRI is useful aid for differential diagnosis. CT is a useful imaging tool in detecting the presence of lesions in the abdomen and positron emission tomography (PET) imaging can be also performed. Massive ascites, clear borderline, multiseptated mass, and high-contrast solid components are observed in CT scans, and the clinical findings of depression may be associated in the intestines, liver, pancreas and other organs in the abdominal cavity.⁶ PET imaging has limitations in diagnosing low-grade mucinous lesions, but is useful in determining the presence of metastasis and recurrence.⁷ The levels of CA-125, a tumor marker, may increase in more than 50% of patients with ovarian tumors and have mainly elevated in patients with serous ovarian tumors. In case of mucinous type, elevated CA 19-9 have been reported in about 50% of patients and CEA levels may also increase, and these findings are helpful in predicting postoperative mortality rate.^{8,9} In this case report, CA 19-9 level was elevated to 146.3 and CEA level was also raised to 5.24.^{10,11}

After surgical removal of tumors, frozen section biopsy is performed in the operating room to determine benignity or malignancy. However, frozen section has limitations in diagnostic accuracy, and frozen section findings of large masses, in particular, may not align with the final results of biopsy.¹² For the patient in this case report, frozen section biopsy was not performed to minimize anesthesia and

operation time considering patient's old age. Clinical stages of BOTs are important in predicting their prognosis. BOTs are staged in the same way as different stages of ovarian cancer. When fertility preservation is not a consideration, cytoreductive surgery and staging surgery or follow-up are carried out like ovarian cancers. Standard treatment of BOT is surgical removal, and histopathological characteristics, fertility preservation (age), stage, prognosis factors and others need to be considered in choosing a surgical procedure. The adequate staging of BOTs is performing omentectomy, complete resection of suspected lesions and peritoneal biopsy after a thorough examination and irrigation of the abdominal cavity.¹³ BOTs generally occur at a younger age, progress slowly, and have relatively favorable prognosis. Since BOTs usually affect women of reproductive age at young ages and are recurrent tumors, and patients may die due to the progression of the disease in later stages, surgical methods such as staging and postoperative management remain highly controversial. In recent years, studies on the risk of hereditary ovarian tumors have been presented based on the clinical and immunohistochemical correlates of BRCA1 and BRCA2 genes.¹⁴

The authors experienced an elderly woman with mucinous borderline tumor of the ovary, and we report the case with a brief review of literature. As our country has entered into the aging society, the occurrence of ovarian tumors has been frequently reported in older women, and as a result, surgery is anticipated to increase.^{15,16} Therefore, obstetric and gynecologic diseases that could develop at an older age should be taken into consideration and appropriate treatments are warranted to prepare for an aging population.

Acknowledgement

This work was supported by the Soonchunhyang University Research Fund and the Soonchunhyang University Nichebuster in Iatrosience, Creativity Education (NICE) Center.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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