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The diagnosis and treatment of Brenner tumors of the ovary: a typical report of one case and literature review

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Summary

Objective: To explore the characteristics of diagnosis and treatment of Brenner tumors of the ovary. *Materials and Methods:* A retrospective analysis of one case of ovarian borderline Brenner tumor typical case in the present hospital, combined with the related literature review, and an investigation of its diagnosis and treatment. *Results:* There were no special complaints of the patients on admission; however physical examination detected an abdominal mass, of large volume, complicated with uterine fibroids. Considering the older patient, she underwent abdominal hysterectomy and bilateral salpingo-oophorectomy. Postoperative pathological examination showed left ovarian borderline Brenner tumor, with a good prognosis, notwithstanding malignancy and metastasis. *Conclusion:* Brenner tumor is a rare ovarian tumor, which is particularly borderline and malignant, however early diagnosis and treatment, and positive surgical resection with good prognosis, is beneficial to improve the survival rate while reducing the canceration rate.

Key words: Brenner tumor; Ovary; Borderline; Surgery; Total uterus; Double accessory.

Introduction

Brenner ovarian tumor is a rare epithelial tumor, which accounts for approximately 1.5% [1]. It belongs to the fibro-epithelioma benign, borderline, and malignant types, with the former accounting for about 96%, while malignant types are rare, mostly unilateral, but occasionally bilateral [2]. This article reports one cases of an ovarian tumor detected via Brona (Brenner) imaging, and also discusses its pathological diagnosis and treatment along with a review of the literature.

Materials and Methods

A 63-year-old female patient was found with abdominal mass of four months before admission, eight years after menopause, with previous menstrual cycles of five days per cycle of 30 days. There was neither vaginal bleeding, fluid loss, other symptoms, nor contact bleeding. Four months prior a physical examination detected a lower abdominal mass in the local hospital Gynecological ultrasound prompted admission in the hospital due to an increase in the mass. A more specialized examination revealed a uterine size of about 80×80 mm and a rear palpable cystic mass with tenderness (-). Laboratory examinations were normal. Another gynecological ultrasound taken later revealed a pelvic cystic mixed mass (89×81×65 mm) (Figure 1), with uterine fibroids. CA125 was measured at 11.13 U/ml.

There were no complaints, and considering 63 years of age with no fertility requirements, and pelvic cyst size, a hysteromyoma was performed. The patient then underwent abdominal hysterectomy and bilateral salpingo-oophorectomy. Postoperative infusion of an anti-inflammatory was then given and pathological results showed a left ovarian borderline Brenner tumor (Figure 2). No further follow-up was required and radiotherapy and chemotherapy were then administered. During outpatient follow-up, the patient recovered well from both malignancy and metastasis.

The size of uterus at day 50 and the right side of the attachment had no abnormal appearance, the left fallopian tube was normal, left ovarian cyst increased to about 100 mm, and the diameter had a smooth surface. After the specimens were cut off, there was a neoplasm of about 50×10 mm in length in the posterior wall of the uterus. There were several myomas between the muscles of the uterus with a diameter of 5-15 mm. There was a 15-mm diameter between the muscles of the posterior wall of the uterus. The uterine cervix was smooth. There was clear liquid in the left ovarian cyst. The liquid contained a 30-mm diameter nodule.

Pathological diagnosis at the Bengbu city center included uterine leiomyoma with adenomyoma formation, atrophic endometrium, chronic cervicitis, left ovarian borderline Brenner tumor with a simple cystic formation, the right ovary had an epidermoid cyst, but both fallopian tubes showed no abnormalities.

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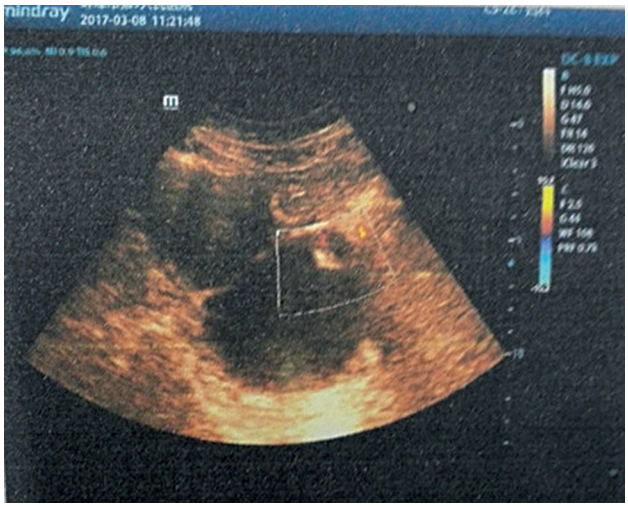

Figure 1. — Ultrasonic diagnostic image.

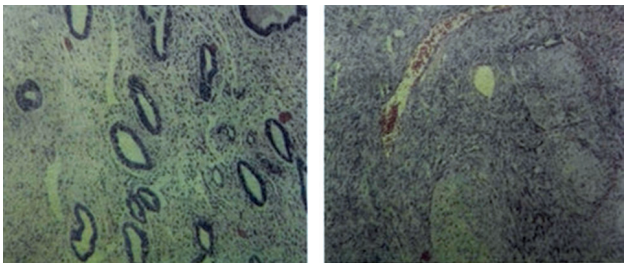

Figure 2. — Pathological diagnosis image.

Discussion

The age of onset of Brenner tumors varies from six to 81 years of age, with 57% of these occurring under the age of 50 years. There was no specific clinical manifestations, mainly related to tumor size, location, and benign type. Some medical examinations find that after resection confirmed by pathology, some patients can experience abdominal discomfort pain and a palpable mass, while other patients with uterine fibroids, uterine polyps, endometrial cancer, and others can cause irregular uterine bleeding.

The typical sonographic features of ovarian Brenner tumors is the so-called "eggshell" aspect [3]. The present case contained this feature in front of the tumor which showed a strong echo mass, rear attenuation included a black shadow, with no internal echo display. Brenner CT showed that the ovarian tumor was a solid or cystic mass, in the study of Wang *et al.* [4] that analyzed nine cases that included a single component, solid formation, with homogeneous or inhomogeneous density, and when combined with other tumor components, had a cystic aspect. In substantial cases amorphous calcification is widely seen. Brenner tumor is considered to be the hallmark of research that has not yet found specific tumor markers of the ovary [5], however one of 13 cases of ovarian malignant tumor Brenner tumors studied by Roth *et al.* [6] found that preoperatively, six cases (46.2%) had elevated serum CA125. Clinical diagnosis mainly depended on surgery and the pathology results after endoscopic Brenner tumor showed that it was composed of epithelial cell nests and fibrous connective tissue [7].

Brenner is a rare type of ovarian epithelial ovarian tumors and can be divided into benign, borderline, and malignant; the borderline and malignant tumors of the ovary account for only 3-5% of cases [8]. If the preoperative tumor markers ands imaging examination show no characteristic mass, and intraoperative exploration detects a suspicious lump, hemorrhage, necrosis and malignancy, intraoperative biopsy can be used as the preferred method to confirm diagnosis [9]

Because this disease is very rare, there is no specific clinical manifestations in borderline malignant cases, which are difficult to diagnose early. Treatment options are currently not yet defined and surgery is generally considered for Brenner tumors. Borderline Brenner ovarian tumors with a malignant tendency are usually treated with hysterectomy + bilateral adnexectomy which improve prognosis [10]. Instead the effectiveness of adjuvant with surgical treatment of malignant Brenners is not yet clear. Study suggests that malignant Brenner tumors belong to type I epithelial ovarian cancer and their occurrence, development, and characteristics with abnormal CT signals suggest that mutations in genes are related to the formation, but when confined to the ovary, the traditional chemotherapic response will be lower than in the more aggressive type II epithelial ovarian cancers [11].

Most Brenner tumors of the ovary are benign; however malignant ones compared with other malignant epithelial ovarian tumors have a better prognosis [12]. The present patient was an elderly woman and postoperative pathology and outpatient follow-up indicated no further radiotherapy or chemotherapy, and no recurrence or metastasis occurred. In conclusion, Brenner tumors have a good prognosis, regardless of their benign, borderline or malignant nature. Ovarian Brenner tumors generally include no specific clinical manifestations including tumor markers and auxiliary examination methods, and diagnosis depends on pathological examination. Regular gynecological examination and ultrasonography are helpful in the early diagnosis of lesions. Treatment mainly includes surgery and its extent is according to the patient's age, fertility requirements, and contralateral ovary, intraoperative frozen section specimens; if necessary certain tumors require hysterectomy and bilateral adnexectomy. Patients with malignant Brenner tumors should also undergo pelvic lymph node dissection including staging surgery, however an effective postoperative chemotherapy has not yet been decided 13].

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