

# The Clinical and Pathological Analysis of Ovarian Borderline Serous Papillary Epithelioma: A Report of Six Cases

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## Abstract

**Introduction:** Ovarian borderline serous papillary epithelioma is a rare epithelial ovarian tumor between adenoma and carcinoma. This study was carried out to compare six cases of ovarian borderline serous papillary epithelioma.

**Case Presentation:** This retrospective study was conducted on 6 patients with ovarian borderline serous papillary epithelioma regarding clinical symptoms, auxiliary examination, treatment process, and prognosis. These six patients were diagnosed with the disease from January 2010 to June 2013 in the People's hospital of three Gorges university, Yichang, Hubei, China. Two patients were diagnosed with ovarian surface serous papillary epithelioma. One patient was diagnosed with ovarian surface serous papillary epithelioma transferred to bilateral fallopian tubes. One patient was diagnosed with ovarian borderline serous papillary epithelioma while parts of tissues had become cancerous. One patient was diagnosed with ovarian borderline serous papillary epithelioma with pelvic lymph node metastasis, which had transferred to bilateral fallopian tubes, omentum majus, and epityphlon. One patient was diagnosed with ovarian surface serous papillary epithelioma with epithelial hyperplasia. All the six patients received surgical resection.

**Conclusions:** We recommend ovarian borderline serous papillary epithelioma evaluation for patients as preoperative observation, intraoperative careful exploration, and pathological diagnosis in order to find and timely treat ovarian borderline serous papillary epithelioma patients.

**Keywords:** Borderline Ovarian Tumor, Serous, Pathologic Processes, Surgery, Prognosis

## 1. Introduction

Ovarian serous borderline tumor is a kind of low-grade serous tumor that is very difficult to find (1). In terms of morphology, this tumor places between benign and malignant (2, 3). Early diagnosis can block its further development. It is asymptomatic in clinic and occasionally detected with abdominal enlargement, or with abdominal pain due to cystic tumor rupture or reversion (4). The young patients present infertility (5). The lack of destructive interstitial infiltrates is the major difference between ovarian serous borderline tumor and ovarian serous adenocarcinoma (6, 7). Ovarian serous borderline tumor is a rare tumor and hence, it is necessary to report cases of ovarian borderline serous papillary epithelioma to be able to evaluate better and treat patients well soon. Currently, ovarian serous borderline tumor is mainly a conservative surgery suitable for young patients with fertility requirements. The aim of this study is to discuss the clinical characterization of ovarian borderline serous papillary epithelioma and its treatment process.

## 2. Case Presentation

### 2.1. Patients Information

Six ovarian borderline serous tumor patients were diagnosed from January 2010 to June 2013 in the People's hospital of three Gorges university, Yichang, Hubei, China. The patients' age varied from 24 to 34 years, the mean age of the patients was 34 years. The patients were married and never gave birth to a child. The age of menarche varied from 12 to 16 years, with the average age of 14 years.

### 2.2. Preoperative Observations

Three patients (labeled with 2#, 3#, 5#) were hospitalized due to the non-specific gastrointestinal symptoms, three patients (labeled with 1#, 4#, 6#) were hospitalized due to an abnormal pelvic masses that were found during gynecologic examination. All the patients were identified with pelvic masses using B ultrasound and magnetic resonance (MR). The pelvic masses located around the uterine adnexa and uterus, and rich blood supply signals were detected inside the pelvic masses. A large amount of ascites

were found in 2 cases of patients (2# and 3#) with preoperative imaging. The preoperative CA125 level measured by ELISA increased in 4 cases of patients (3#, 4#, 5#, 6#), varied from 115.9 to 498.6 U/ml ( $> 35.0$  U/ml). Finally, none of patients were diagnosed with abnormal vaginal bleeding and lymph node metastasis.

### 2.3. Intraoperative Findings

The representative intraoperative findings are shown in Figure 1. During the operation, in patient #1, the abdominal cavity fully filled with massive ascites, uterus front wall adhered to the bladder, the end of the uterine adnexa formed a mass ( $5 \times 4 \times 3$  cm) by ultrasound diagnosis, and the dow cavity of uterus back wall had a  $4 \times 3 \times 3$  cm nodule.

In patient #2, a severe pelvic adhesion was seen by laparoscope. There was no normal morphology of fallopian tube and ovary in bilateral adnexa area, and  $5 \times 4 \times 5$  cm masses were presented in each adnexa. The rectum adhered to uterus in large areas, when separated the adhesion area, a lot of yellow sticky pus released from the left ovary, and two cauliflower-like masses 1 cm in diameter were emerged on the surface of the right ovary.

In patient #3, a mass of yellow ascites was found in enterocelia, omentum majus adhered to the anterior abdominal wall and bladder, and adnexa adhered to uterus. We were unable to discern the shape of adnexa and uterus. After separating the adnexa and uterus, grape-like masses were seen in adnexa.

In patient #4, the whole pelvic cavity was enclosed, the pelvic wall strongly adhered to omentum majus and urinary bladder, and it was not possible to discern the uterine and bilateral adnexa. After separating pelvic from omentum majus, we found that the position of uterus moved forward, and bilateral adnexa severely adhered to pelvic wall, uterus back wall, and rectum. By further separation of adhesion, we found that the right ovary enlarged about  $6 \times 7$  cm, and papillary neoplasm was seen on the surface of right ovary.

In patient #5, a mass of yellow ascites was found in enterocelia. The left ovary enlarged about  $11 \times 8 \times 8$  cm. The size of right ovary was normal, but  $2 \times 2$  cm cauliflower-like mass was seen on the surface. The morphology of bilateral fallopian tube was normal; uterus adhered to a part of intestinal tube and the left side of the adnexa.

In patient #6, omentum majus seriously adhered to intestinal tube and uterus. The uterus enlarged just like a 50-day pregnancy.  $2 \times 2$  cm myoma was seen on anterior uterine wall. Bilateral adnexa severely adhered to intestinal tube and uterus. The size of the right ovary was normal, however, a  $6 \times 2$  cm cauliflower-like mass was seen on the

surface. Also, a fist-sized mass was found in the left fallopian.

### 2.4. Histopathological Analysis

As shown in Figure 2, patient #1 was identified as low-grade malignant ovarian serous adenocarcinoma (Right ovarian) and ovarian surface borderline serous papillary epithelioma (Left ovarian). Patient #2 was identified as right ovarian surface papillary epithelioma in combination with local borderline lesion, which had transferred to the bilateral fallopian tube size film. Patient #3 was identified as bilateral ovarian surface borderline serous papillary epithelioma. Patient #4 was identified as bilateral ovarian serous papillary epithelioma in combination with epithelial hyperplasia. Patient #5 was identified as bilateral ovarian surface borderline serous papillary epithelioma, which had transferred to bilateral fallopian tube, omentum majus, epityphlon, and pelvic lymph node. Patient #6 was identified as right ovarian surface borderline serous papillary epithelioma and leiomyoma of uterus.

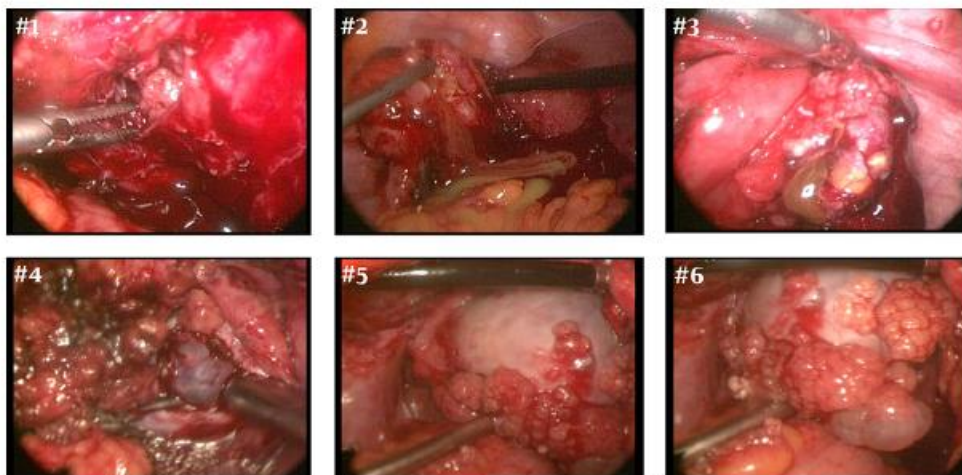
## 3. Discussion

Ovarian serous tumor is a common tumor in ovary. It can be divided into serous cystic tumors, surface serous papillary epithelioma, and serous cystic adenoma, which correspond to the cyst formation of epithelial tumor, epidermis hyperplasia, and interstitial hyperplasia, respectively (8, 9). The subtypes of ovarian borderline serous tumor include surface borderline serous tumor, borderline serous adenofibroma, and capsule gland fibroma (10).

Ovarian borderline serous papillary epithelioma is rare in clinic, it is hard to find because there is no clinical symptoms in the early stage (11). It is discovered by chance in gynecological examination or pathologic examination (12, 13). The nipples in middle or advanced-stage ovarian patients are without a tumor capsule, so it is easy to drop into pelvic and abdominal cavity, and transfer to peritoneum, omentum or organs of abdominopelvic cavity, resulting in pelvic and abdominal conglutination and massive ascites (14). Patients with abdominal distension, abdominal pain, abdominal mass, or other nonspecific gastrointestinal symptoms as starting symptoms visit a physician, even though these symptoms exist with intra-abdominal metastases or lymph node metastases, the prognosis of ovarian serous papillary adenoma is excellent, and this is one of the most important clinical characteristics (15-17).

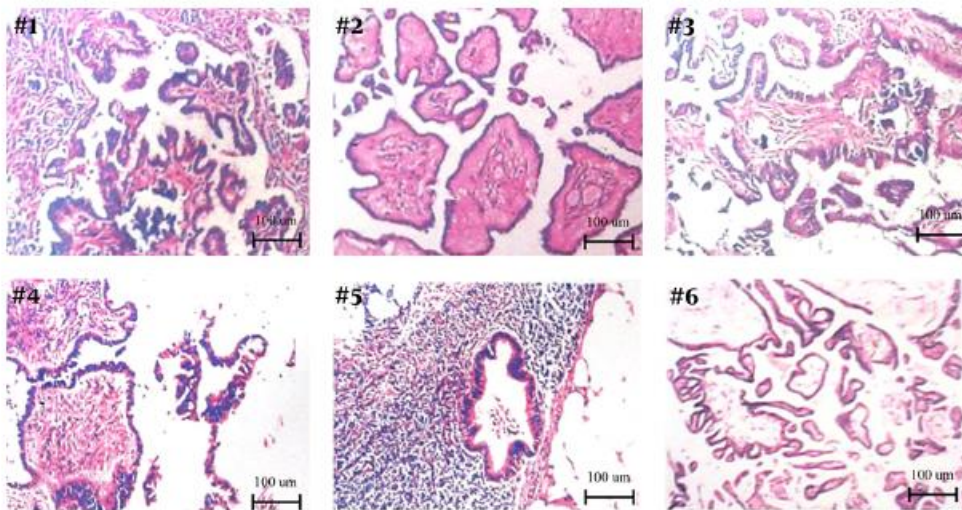
The six cases studied in this report were of particular importance since there are a few reported cases of ovarian borderline serous papillary epithelioma with patients detailed information, preoperative observations, intraoperative findings, and histopathological analysis of tissues.

**Figure 1.** The Representative Intraoperative Pictures of Six Patients



During the operation, we could see the particular information in enterocoliclia by laparoscope

**Figure 2.** The Representative Histopathological Analysis Results of Six Patients Respectively



From the results of each patient, we could identify the type of ovarian cancer in each patient.

There were no cysts and nipples formation inside of the ovary of patients with ovarian borderline serous papillary epithelioma, while lots of nipples covered the surface of ovarian (16, 18). Some studies reported that this kind of tumor always develops in postmenopausal women's bilateral ovaries (17, 19). However in our study, we found that ovarian borderline serous papillary epithelioma was found in young women.

Limitations of our study are as follows: since recurrence of disease is possible after many years, the patient's long-term follow-up is necessary that was ignored in this

study (20). Because of the risk of treatment, we did not use another treatment method for patients. The clinical and pathological analysis of ovarian borderline serous papillary epithelioma may help identify disease, and thus improve the determination of treatment.

In conclusion, the diagnosis of ovarian borderline serous papillary epithelioma is very difficult, and it mainly depends on the intraoperative careful exploration and pathological diagnosis. The results of this study will provide visual evidence for the disease diagnosis. It will be convenient for doctors to find and diagnose the disease in the

**Table 1.** Some Characteristics and Symptoms of the Patients; Such as Age, CA125, Ascites, and Pathology

Variable	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age, y	24	34	33	38	34	31
CA125	< 35	< 35	≥ 35	≥ 35	≥ 35	≥ 35
Ascites	None	Yes	Yes	None	None	None
Pathology	Malignant	Borderline	Borderlin	Benign	Borderlin	Borderlin

early stage to prevent further deterioration of the ovarian borderline serous papillary epithelioma. Surgical removal is the main treatment, and has a good prognosis.

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**Footnotes**

**Authors' Contribution:** Manzhen Zuo and Hongying Du are Co-first authors; Manzhen Zuo, Aihua Chen and Yan Wang collected samples from the patients; Dandan Quan and Yaling Tao assisted Manzhen Zuo during surgery; Hongying Du wrote and revised the manuscript; Huamei Song organized the figures and tables.

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