Primary peritoneal serous borderline tumors (PPSBTs) are relatively rare tumors with low malignant potential. They have histopathologic features identical to those of ovarian serous borderline tumors [1]. Preexisting endosalpingiosis presents concurrently in 70–80% of PPSBTs and is considered to be the origin of this type of tumor [2]. We report a young woman who had a PPSBT that presented as an “adnexal torsion” gynecologic emergency and discuss the most feasible management in such emergency situations.

The patient was a 26-year-old Chinese woman, gravida 1, para 0, with no existing gynecologic diseases and an unremarkable medical history. She menstruated regularly every 28–30 days. She was admitted to the emergency room of the Chang Gung Memorial Hospital in February 2006 because of sudden onset of right lower quadrant pain. She was nauseous and had vomited but had no fever or chills. There were no urinary or gastrointestinal tract symptoms. Physical examination revealed local tenderness in the right lower quadrant without obvious signs of peritoneal irritation. Pelvic examination revealed a right adnexal mass with a smooth surface, which was 8 cm in diameter. The urine pregnancy test was negative. Ultrasound showed a well-defined, hypoechoic cystic tumor 8 × 8 cm in size, with papillary projection into the right adnexal area (Figures 1A and 1B). White blood cell count was 8,900/µL and hemoglobin was 13.9 g/dL. An injection of non-narcotic analgesia did not relieve the persistent pain. Ovarian tumor with torsion was suspected, and so, an emergent surgical intervention was indicated to save the patient’s ovary. On laparoscopy, we found a large cystic tumor 10 × 10 × 10 cm in size, with a smooth surface, twisting with the right infundibulopelvic ligament and right fallopian tube (Figure 1C). The right ovary and fallopian tube were grossly normal. After releasing the torsion, we found that the cystic tumor originated from the mesosalpinx. Complete excision of the tumor without rupture was performed, and the tumor was removed via an endo-bag. The tumor contained clear fluid and had multiple fragile papillary projections that were 1 mm in diameter (Figure 1D). Further frozen study showed serous borderline carcinoma. Since the pathologist could not identify the real origin and the malignant potential of the tumor by frozen study, we decided to manage the tumor as a primary borderline tumor or carcinoma of the ovary or the peritoneum. We changed from using laparoscopy to exploratory laparotomy. After detailed inspection, there was no suspicious intra-abdominal implantation. Surgical staging by exploratory laparotomy, including right salpingo-oophorectomy, right pelvic lymph node dissection, omental biopsy and washing cytology, was performed for the patient. The final pathologic study showed extraovarian borderline tumor (Figure 2). The right ovary, salpinx, lymph nodes, omentum, and washing cytology were all negative for malignancy. Post-operative computed tomography showed no obvious visceral metastasis or intra-abdominal residual tumor. The results were compatible with PPSBT FIGO IA. Regular follow-up with pelvic examination, transvaginal ultrasound, and CA-125 showed no evidence of disease recurrence up to July 2006 at our hospital.

PPSBTs have excellent prognosis and usually occur in women who are less than 40 years of age [1,2]. Clinical
PPBTs Presenting as Adnexal Torsion

presentations can be asymptomatic, include infertility, abdominal pain, chronic pelvic inflammatory disease, amenorrhea or pelvic mass, or be incidental findings during surgical intervention [3]. A PPSBT may present as a symptomatic pelvic mass with elevated serum CA-125, mimicking ovarian malignancy [4]. Total hysterectomy with bilateral salpingo-oophorectomy and omentectomy have been suggested as surgical intervention for PPSBTs in the past. At present, we know that PPSBTs have histopathologic features and clinical behaviors identical to those of ovarian serous borderline tumors, and that they can be treated in the same way as these.

Figure 1. Ultrasound shows: (A, B) right adnexal cystic tumor with papillary projections (arrow); (C) adnexal cystic tumor with torsion; and (D) multiple papillary projections on the inner surface of the tumor (12 × 10 cm).

Figure 2. (A) The ovary has a hemorrhagic corpus luteum and a follicular cyst. No tumor is seen (original magnification ×20). (B) The fallopian tube is unremarkable (original magnification ×20). (C) The peritoneal cystic tumor has many broad papillary projections lined by serous cells (original magnification ×20). (D) Higher magnification shows tumor papillae lined by small tufts of serous cells with mild stratification and minimal atypia (12 × 10 cm) (original magnification ×100).
tumors. Trimble et al pooled the data from eight series and showed that the recurrence rate was 6.8% in early-stage ovarian borderline tumors treated by conservative surgery (preservation of the uterus and contralateral ovary) [5]. It is possible to treat early-stage PPSBTs with conservative surgery without hysterectomy and salpingo-oophorectomy. Sometimes, it is difficult to decide whether the ovary or uterus should be removed, especially when the tumor is very close to these structures. Stewart et al. reported that the overall accuracy of ovarian frozen section diagnosis was very high (95.3%) but that there were problematic areas, particularly involving the assessment of borderline tumors [6]. In our case, the tumor originated from the right mesosalpinx and was close to the right salpinx and ovary. It was impossible to identify whether the right salpinx and ovary were normal or involved by the gross appearance. As this was an incidental finding during an emergent surgery, we decided to perform a complete surgical intervention.

Several retrospective series have reported that there were no significant benefits from postoperative adjuvant treatments, such as chemotherapy or radiation therapy, for ovarian borderline tumors [7–10]. With identical histopathologic presentations and clinical behaviors, early-stage PPSBTs can be treated by complete surgical staging without postoperative adjuvant treatment. If the tumor is well-capsulated and localized, we believe that complete excision of the tumor, without residual tumor, and with preservation of the ovaries and the uterus, is feasible. As for the approach used, because of limited reported cases, the feasibility of a laparoscopic method is not well established.

Our case was rare and was presented as a gynecologic emergency. We do not know whether a one-step complete surgical intervention or a conservative surgical intervention initially with subsequent re-surgical intervention according to the final pathology report benefits the patient.

References