

## Research Letter

## Laparoscopic diagnosis of tuberculous peritonitis mimicking ovarian malignancy

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Tuberculosis (TB) is a major public health concern worldwide. Roughly 8 million–10 million people contract TB annually, and at least 2 million die from this disease each year [1]. In Taiwan, TB kills over 700 people annually [2]. The disease affects people of all ages and may involve various body locations. Although the lungs remain the most common site of infection, extra-pulmonary infection via hematogenous spread is becoming increasingly prevalent. In developing countries, genital TB is seen mostly in young women aged 15–25 years [3]. In developed countries, most genital TB is seen in postmenopausal women [3]. Laparoscopy is an efficient and safe surgical approach to obtain tissue samples for histological diagnosis of peritoneal TB [4].

This report describes a rare case of peritoneal TB diagnosed by laparoscopy with ascites and elevated cancer antigen 125 (CA125) levels mimicking ovarian cancer in a 17-year-old girl.

A 17-year-old girl with abdominal distension came to a local medical clinic. Massive ascites was diagnosed by ultrasonography. She was then transferred to our hospital for further treatment. The patient reported fatigue, general malaise and a decreased appetite for 1 month. Her menstruation had been irregular for 3 months. Blood tests identified elevated levels of CA125 (824 IU/ml), but other tumor markers were within normal limits (alpha-fetoprotein <0.52 ng/ml; carcinoembryonic antigen <0.45 ng/ml; beta-human chorionic gonadotropin <2.39 mIU/ml; carbohydrate antigen 19-9: 4.9 IU/ml). Chest radiography and a subsequent computed tomography (CT) scan showed no signs of TB. An abdominal CT scan indicated that both ovaries had slightly increased

volumes. Diffused packing of the small bowel with abundant ascites and thickening and nodular omentum were highly suggestive of advanced ovarian cancer (Fig. 1). Paracentesis revealed a yellowish fluid with some lymphocytes but no cancer cells.

To reach a differential diagnosis, laparoscopy was performed. During laparoscopy, exudative, cloudy ascites with granulomatosis covering the uterus, filling the Douglas pouch and fallopian tubal surface were noted (Fig. 2). Intraoperative pathological examination of the omental lesions was positive for tubercular giant cell microgranulomas. Surgery was stopped without any definitive finding of malignancy. The patient is currently undergoing active treatment with ethambutol hydrochloride and rifampicin, with a good response and resolution of ascites.

Miliary dissemination of mycobacterium accounts for 2.6% of all TB cases [5]. Definitive diagnosis of genital TB is based on tissue positive for tubercular bacilli. Acid-fast bacilli have, however, only been demonstrated in 2% of TB cases [6]. Standard tissue biopsy is now accepted for histopathological diagnosis [7]. Pathological evidence of numerous multinucleated Langerhans-type giant cells and clinical improvement after anti-TB treatment indicate that chronic inflammation may result from TB.

Ascites, which is a pathological accumulation of fluid within the peritoneal cavity, is a common manifestation of some gynecological diseases. Various ovarian diseases, such as epithelial ovarian cancer, fibroma, ovarian hyperstimulation syndrome and peritoneal TB, should be considered when women have ascites [8]. The manifestations of TB can mimic other diseases, such as ovarian cancer, as in this patient. Tubercular peritonitis typically develops with nonspecific signs and symptoms, including abdominal pain and swelling, weight loss, fever and ascites. The findings of ultrasonography and a CT scan can be highly suggestive of peritoneal carcinomatosis. Additionally, chest radiographs are frequently

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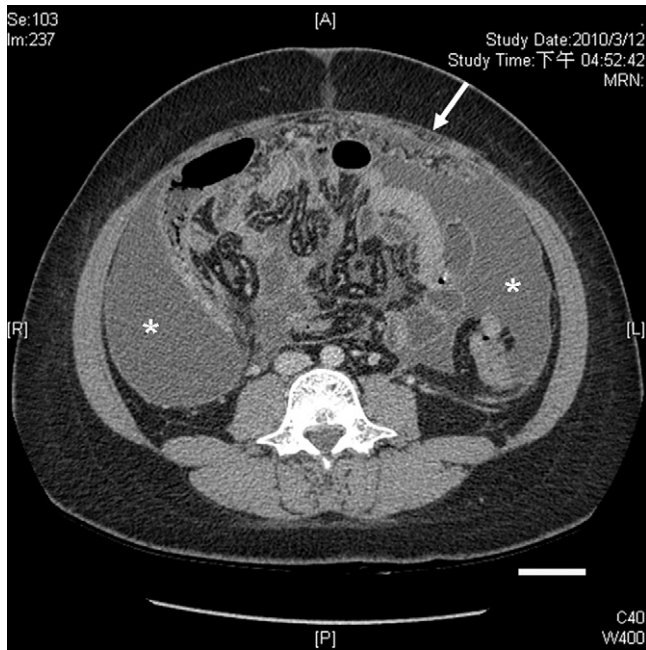


Fig. 1. Computed tomographic image of the patient before laparoscopy. The arrow identifies the thickening omentum cake. The star indicates massive ascites. Scale bar = 3.5 cm.

normal and TB diagnostic tests can yield negative or inconclusive findings [9].

This patient had a high CA 125 concentration. Serum CA125 is expressed by cells originating in the celomic epithelium and amnion, including the respiratory tract, mesenteric structures and epithelial linings of the female genital tract, and is frequently increased in TB peritonitis [10, 11]. An increased serum CA125 level is associated with suggestive signs and symptoms; thus, we must consider ovarian cancer during differential diagnosis. An increased serum CA125 concentration is also associated with tubercular peritonitis [12]. In most cases, all of the preoperative diagnostic tests for TB are negative; a diagnosis of TB was determined after surgery in this case.

Diagnostic laparoscopy has been accepted as the standard means for identifying the origin of a tumor, the extent of a disease, and its resectability [13]. This minimally invasive resection is an alternative route by which to access a tumor and does not compromise surgical safety [14]. Frozen sections can also assist in diagnosis during surgery. Thus, the surgical collection of biological fluids or tissue specimens is often the only conclusive diagnostic mode in TB peritonitis cases, and laparoscopy is the most appropriate technique in order to avoid unnecessary laparotomies [12].

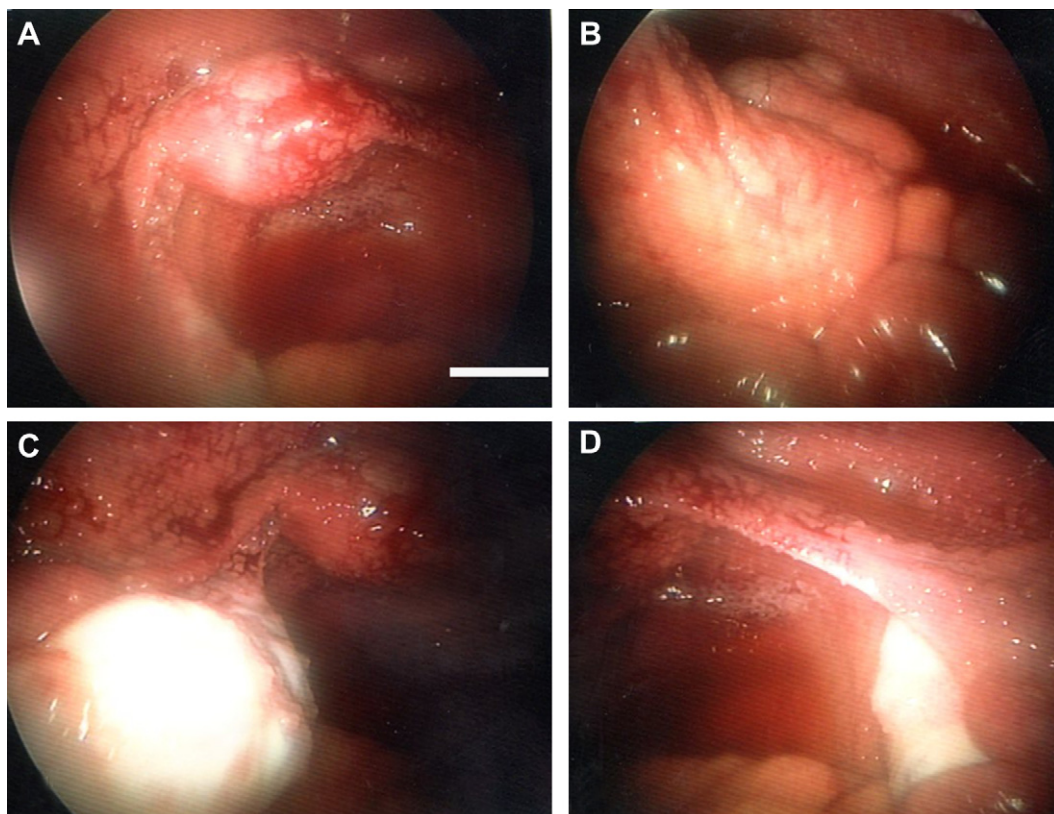


Fig. 2. Tubercular ascites and granulomatosis, and bilateral tubo-ovarian complexes. View of the pelvis during laparoscopy. (A) Uterine surface and Douglas pouch; (B) omentum cake; (C) left adnexal complex; and (D) right adnexal complex. Scale bar = 2.5 cm.

In conclusion, awareness of the increased incidence of TB infections is the key to raising diagnostic suspicion in difficult cases such as this, and ensures appropriate treatment.

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