



## Importance of laparoscopic intervention in the differential diagnosis of peritonitis carcinomatosa and tuberculous peritonitis

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Dear Editor,

The incidence of tuberculosis is increasing in some developing countries (1). The clinical features and laboratory findings of tuberculous peritonitis (TBP) are frequently similar to those of peritonitis carcinomatosa (PC) (2). Several laboratory test results such as elevated levels of LDH, total protein, adenosine deaminase, and lymphocyte count; low serum-ascites albumin gradient; cytological examination, and decreased glucose level of the ascitic fluid help in the distinction of these diseases. However, none of these tests definitely confirm the diagnosis of TBP and PC (3). Conventional mycobacterial culture takes up to 4-8 weeks to achieve results and has a low sensitivity (4).

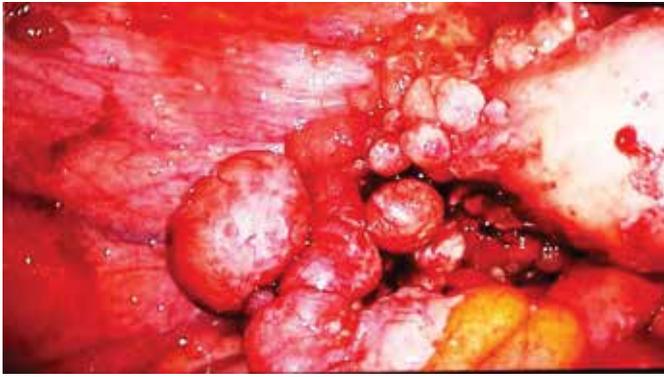
Imaging methods such as ultrasonography (USG), computed tomography (CT), and magnetic resonance imaging (MRI) may be useful for the differential diagnosis. However, all of their suggestive signs and appearances have limitations while differentiating between PC and TBP (5).

We presented two women with similar demographic features and laboratory and imaging findings. In these cases laparoscopic biopsies were useful for early and precise diagnosis. The patients and their relatives were informed in detail and their written consents were obtained.

A 69-year-old woman presented with a history of pelvic and abdominal pain, nausea, and reduced appetite for 2 months. There were no clinical manifestations such as fever, night sweats and cough, and contact history with individuals having tuberculosis. She was examined as gynecological and with transabdominal USG. Her gynecological examination was normal, but transabdominal USG showed that massive abdominal fluid and a complex pelvic mass. Laboratory data showed normal white blood cell counts, viral hepatitis marker levels, HIV antibody titers, thyroid function test results, coagu-

lation test results, and hemoglobin and platelet levels but increased C-reactive protein (4.4 mg/dL) and liver enzyme levels (AST, 132 U/L; ALT, 64 U/L; GGT, 179 U/L; LDH, 400 U/L). Some tumor marker levels were elevated (CA 125, >2200 U/mL; CA 15-3, >200 U/mL). Abdominal paracentesis had non-portal ascitic fluid without lymphocytes predominance. Adenosine deaminase (ADA) level was 16 U/L in the ascitic fluid, and the serum-ascites albumin gradient was 0.6 (<1.1). Suspicious malignant cells were detected in the cytological examination of ascitic fluid. Gastroscopic and colonoscopic examinations were normal. CT revealed massive fluid in all abdominal spaces, peritoneal thickening, presence of peritoneal tiny nodules, high density images in mesenterium, and increased involvement of contrast substance in bilateral ovaries and fallopian tubes. CT-guided biopsy of serosal nodules was considered to be extremely risky; thus, diagnostic laparoscopy was performed. We drained 3500 cc fluid in the first stage. Laparoscopy revealed multiple nodular lesions on the peritoneum and serosal surface of the bowel, uterus, and both ovaries and fallopian tubes, as well as a solid mass measuring 2 cm in size on the left fallopian tube (Figure 1,2). Biopsies from multiple areas were taken for tissue diagnosis. Pathological evaluation results showed high-grade carcinoma of an unknown origin. The patient was referred to the oncology department.

A 65-year-old woman presented with abdominal swelling, pelvic and abdominal pain, and weight loss. There were no clinical manifestations such as fever, night sweats and cough, and contact history with individuals having tuberculosis. Gynecological examination of the patient was normal, but transabdominal USG revealed moderate abdominal fluid. Laboratory data showed normal white blood cell counts, viral hepatitis marker levels, HIV antibody titers, thyroid function test results, coagulation test results, and hemoglobin and platelet levels but increased C-reactive protein (2.4 mg/dL) and liver enzyme levels (AST, 201 U/L; ALT, 150 U/L; GGT, 140 U/L; LDH, 200 U/L). CA 19-9 and CEA levels were nor-



**Figure 1.** A solid mass on the fallopian tube



**Figure 2.** Multiple nodular lesions in the abdomen



**Figure 3.** Generalised milier granulomas on the uterus and abdominal wall

mal, but CA 125 levels were elevated (>950 U/mL). Abdominal paracentesis had non-portal ascitic fluid with lymphocytes predominance. ADA level was 38 U/L in the ascitic fluid, and the serum-ascites albumin gradient was <1.1. Cytological examination results of the peritoneal fluid were unremarkable. Chest radiograph showed no evidence of parenchymal lesions and pleural effusion. CT revealed showed fluid in the abdomen, peritoneal thickening, high-density images in mesenterium, and a complex mass in the pelvic region. Upper and lower endoscopy results were performed by a gastroenterologist; and no abnormality was detected. Diagnostic laparoscopy was

performed. We drained 900 cc fluid from the abdomen. Laparoscopy revealed multiple lesions, such as disseminated milier granulomas and pseudomembrane, on the peritoneum and serosal surface of the bowel, all genital organs, and abdominal wall (Figure 3). Multiple biopsy specimens were taken for pathologic evaluation. Pathologic examination results revealed caseating granulomas compatible with tuberculosis. Combined therapy, including isoniazid, pyrazinamide, ethambutol, and rifampicin, was initiated.

Because the clinical manifestations of PC, owing to ovarian and gastrointestinal tract malignancies, are usually similar to TBP; female patients should first be examined by a gynecologist and gastroenterologist (6).

Delayed diagnosis of TBP or PC usually causes catastrophic results (4). Therefore, some studies recommended histological diagnostic procedures such as the examination of peritoneal biopsy by laparotomy and laparoscopy and percutaneous peritoneal biopsy to discriminate PC from TBP. They also suggested image-guided percutaneous peritoneal biopsy as the first-line approach in the differential diagnosis of TBP because it is safe and inexpensive (7). However, if an ovarian cancer is present, some gynecologists are reluctant to perform the biopsy due to preoperative tumor rupture and spillage which causes poor prognosis.

We performed laparoscopic interventions for early and quick diagnosis in both patients and suggest that patients with unexplained ascites should undergo laparoscopy without wasting time because the clinical managements of TBP and PC are very different.

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