Peritoneal Tuberculosis as a Final Result of Diagnostic Conundrum: A Case Report

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Abstract

Peritoneal tuberculosis is a disease which can mimic malignancy especially in women present with ascites and elevated CA125 levels. It always should be considered in the differential diagnosis. Peritoneal tuberculosis with ambiguous patient symptoms and diagnostic difficulties still poses a great challenge in clinical practice. A 33 years old woman was admitted to hospital with complaints of abdominal pain and shortness of breath. Initially, elevated serum antigen CA-125, ascites, pleural effusion, and multiple suspicious nodules in the lungs and abdominal cavity on CT were found, thus, diagnosing advance stage ovarian cancer. Biopsy laparotomy was performed, and post-operative histological examination was peritoneal tuberculosis. The patient was treated with first-line antituberculosis agents and discharged home. Almost in all other cases, peritoneal tuberculosis is diagnosed only after surgical intervention.

Keywords: *ascites, pleural effusion, ovarian cancer, peritoneal tuberculosis, CA125*

Introduction

Diagnosis of extrapulmonary tuberculosis is difficult. Tuberculous peritonitis, accounting for 1 %-2 % of all tuberculosis cases, is caused by abdominal or pelvic tuberculosis that involves the peritoneum [(1)]. The postulated mechanism is tubercular bacilli reaching the peritoneal cavity via the bloodstream or by direct spread from the contiguous infected small intestine, lymph nodes, and fallopian tubes [(2)]. Patients usually have nonspecific symptoms and signs, such as abdominal pain, abdominal distension, and poor appetite. The serum cancer antigen (CA)-125 can be elevated in both ovarian cancer and peritoneal tuberculosis. Similar clinical and image findings lead to diagnostic difficulty and the challenge of distinguishing these two disease entities.

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Case Report

A 33-year-old nulliparous woman was admitted to hospital with a two-month history of tenderness in the abdomen who referred from another center to us with reported ascites in ultrasonography and elevated CA-125. She had fevers, chills, or night sweats and weight loss. The significant patients past medical history were only abortion five months ago. Her positive physical findings were limited to her abdomen, which was grossly distended, and although no masses were palpable, ascites was present. On pelvic examination, the cervix and vaginal walls were without gross lesions, and the adnexa and uterus were not palpable secondary to the ascites. Primary ovarian malignancy was suspected, and the patient was referred to the gyne-oncology clinic.

Laboratory showed a normal white cell count, a haemoglobin of 12.02 g/dL and elevated CA-125 to 460.78 U/mL (normal range, <35 U/mL), CEA level 0.39 (normal range: 0–3.0 ng/mL), B-HCG level < 2 (normal range 0-5). Abdominal sonography revealed ascites, and no mass were found. Abdominopelvic CT revealed ascites, subdiaphragmatic nodules, enlarged parailiaca lymph nodes, and adnexa mass (figure 1). The liver, spleen, and kidneys appeared within normal limits. A few days later she developed left pleural effusion, and a chest tube was inserted (figure 2). Pleural fluid was negative for AFB and malignancy. Chest CT showed multiple subcentimeter nodules as well as a 'tree in bud' appearance throughout the lung parenchyma. Sputum analysis did not reveal any mycobacteria. The ascitic volume decreased but became denser. The patient then agreed to diagnostic laparoscopy. At laparoscopy, the peritoneal cavity was difficult to enter with thick adhesions and miliary seedlings (figure 3).

No intraabdominal mass was seen. Frozen section facilities were not available; however, biopsies were taken for tissue diagnosis, leaving the uterus and ovaries intact. Histology revealed caseating granulomas with epithelioid and Langhan's type of giant cells (figure 4). The final diagnosis from the biopsy was peritoneal tuberculosis. Symptoms resolved, and the CA125 levels normalized after two months of antituberculosis therapy. She is to continue her treatment for a total of 6 months.

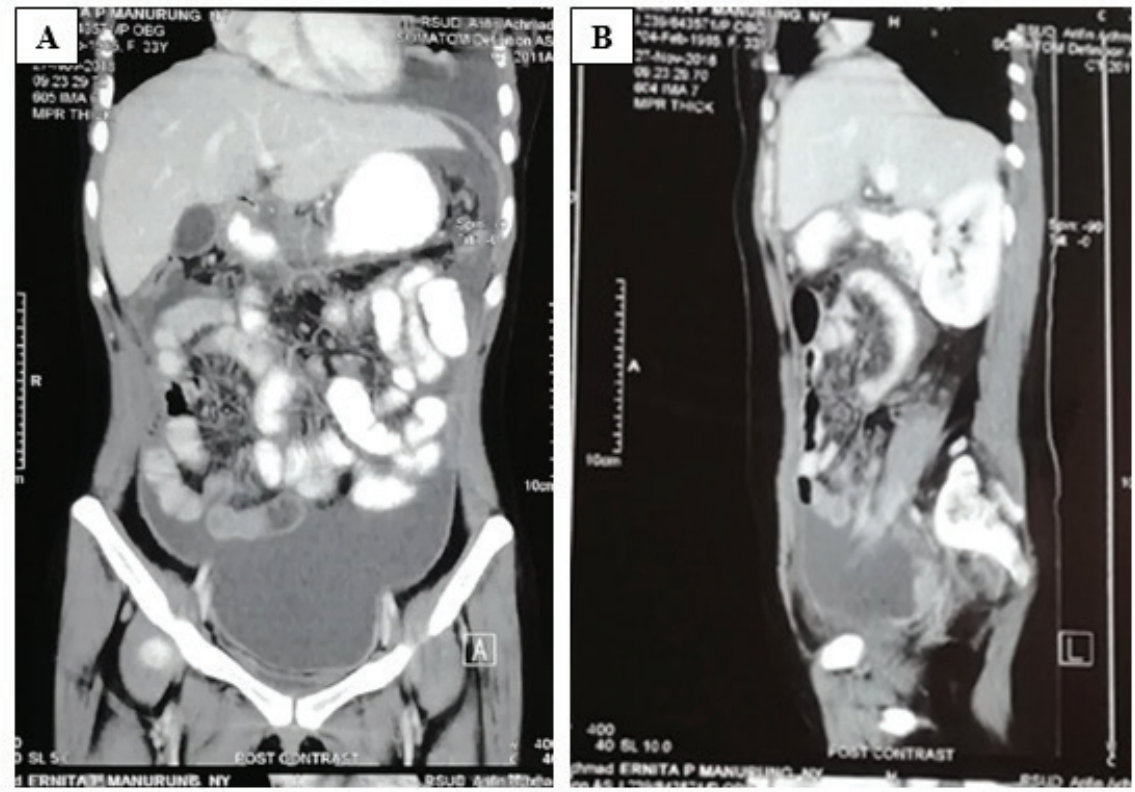

Figure 1. CT Abdominopelvic showed ascites, subdiaphragmatic nodules, enlarged parailiaca lymph nodes and adnexa mass at anterior posterior (A); lateral (B).

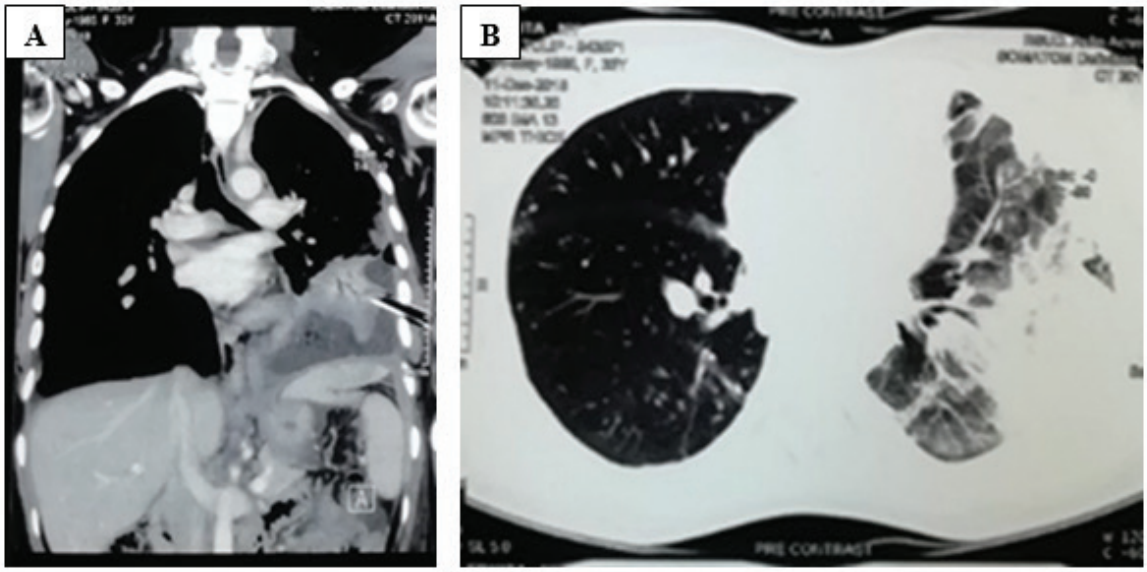

Figure 2. Chest CT showed pleural effusion and multiple subcentimeter nodules as well as a 'tree in bud' appearance throughout the lung parenchyma (A & B).

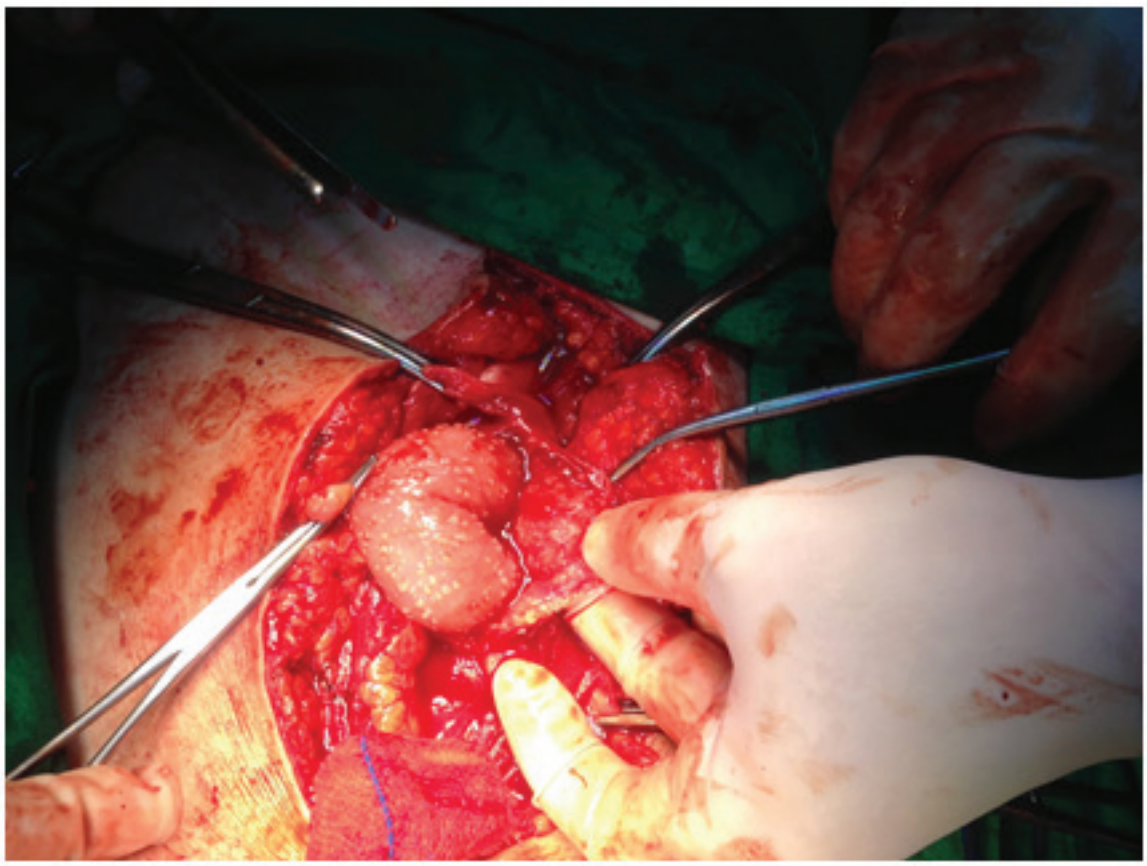

Figure 3. Intraoperative findings Miliary seedlings on peritoneum and serosal surface of bowel with dense adhesions.

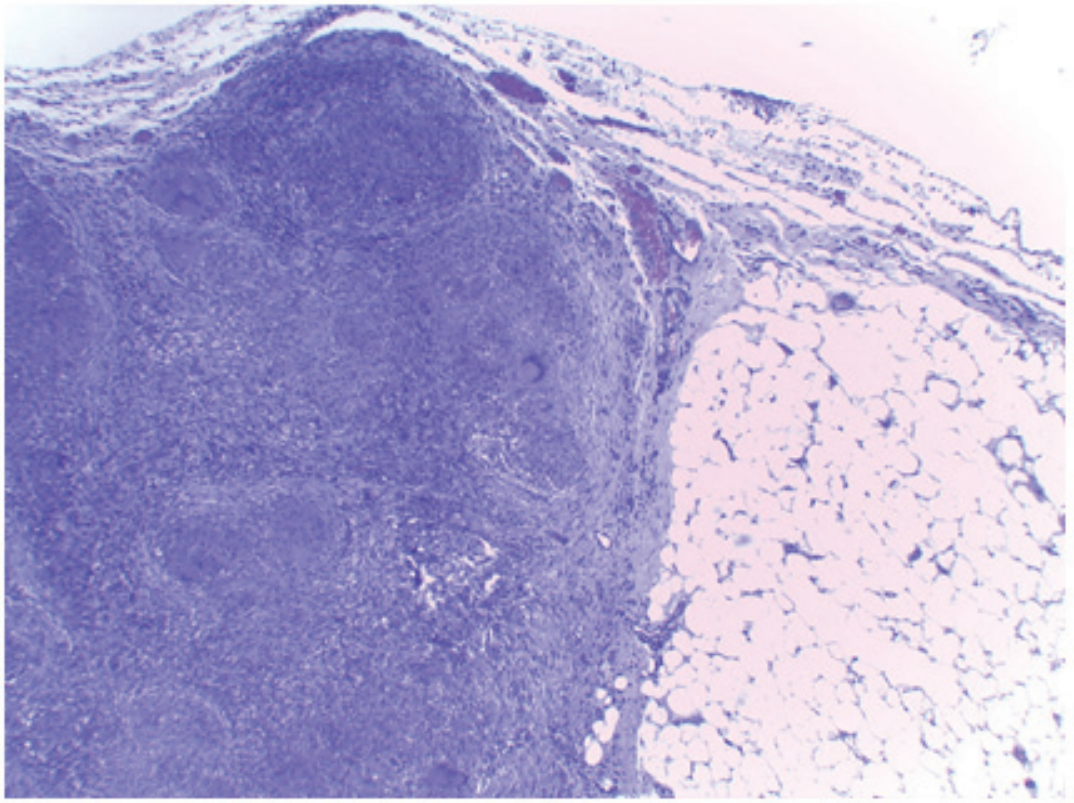

Figure 4. Histopathology showed granulomatous inflammation - caseating granulomas with epithelioid and Langhan's type giant cells.

Discussion

The diagnosis of any extrapulmonary forms of TB is especially difficult, particularly for the peritoneal type as the symptoms and physical findings of the disease do not substantiate the diagnosis. Diagnostic delays and delayed initiation of treatment can lead to high morbidity and mortality rates [3]. The signs and symptoms typically associated with advanced ovarian carcinoma include abdominal distension, ascites, and pelvic or adnexal masses [4]. Many of these women go on to have radical surgery due to the difficulty of definitive preoperative diagnosis of ovarian cancer and the low negative predictive value of ascitic fluid cytology [5].

Abdominal tuberculosis can present with a similar clinical scenario, with most cases diagnosed incidentally at laparotomy. This has often led to unnecessary extensive surgery, frequently in women of reproductive age [5, 6]. CA125 lacks specificity, elevated in many conditions, including tuberculosis [7]. One study showed that CA125 titers higher than 1,000 U/ml correlated with malignancy [8]. However there was a reported case of peritoneal tuberculosis with a CA125 level of 1,081 U/ml [9]. This means that absolute CA125 levels are not definitive in determining malignant versus nonmalignant causes. Although CA125 levels are useful in monitoring response to therapy in ovarian carcinoma, there has been no report of CA125 levels declining without treatment in malignant conditions [10]. Chest radiographs can be normal in patients with peritoneal tuberculosis, approximately 40% of the time [11].

Abdominal CT in tuberculous peritonitis typically shows smooth, strongly enhancing peritoneal thickening and a dirty omentum. Peritoneal carcinomatosis, however, commonly shows nodular peritoneal thickening and a nodular or caked omentum. Other findings that suggest a diagnosis of tuberculosis include dense ascites, caseous nodes and soft-tissue mesenteric and omental infiltration [12]. There are high false negative rates for tuberculosis skin tests and AFB detection in pleural and peritoneal fluid [13]. For preoperative detection of tuberculosis, ascetic fluid adenosine deaminase (ADA) and PCR

analyses have proven to be useful. However, these tests may not be available in all settings [14].

The determination of ADA in peritoneal fluid is also helpful for TB diagnosis. This enzyme involves the conversion of adenosine to inosine in the catabolism of purines, and its levels are elevated in peritoneal TB due to stimulation of T-lymphocytes by the immune response to antigens of mycobacterial cells The estimation of ADA levels in ascitic fluid have 98% specificity, 96% sensitivity, 88% negative predictive value, and a high positive predictive value of 95% [15]. Levels more than 40 units per liter are indicative of tuberculosis [16]. Ultrasound-guided trucut biopsy has also been shown to be a valuable first-line approach. All investigations for diagnosing peritoneal tuberculosis have proven to be inconclusive only histopathologic investigation is confirmatory. Diagnostic laparoscopy or laparotomy is usually necessary however, for definitive diagnosis, where intraoperative frozen sections can aid in avoiding unnecessary extensive surgery.

Conclusion

By the information given in this case report, one can understand that peritoneal tuberculosis can often mimick advanced ovarian cancer and peritoneal carcinomatosis. It should always be considered in the differential diagnosis, but the diagnosis is rarely easy for clinicians. True diagnosis and then correct and careful follow-up can save the patient's life, and doctors should start the treatment as soon as possible.

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Ethics Statement

All procedures performed in studies / case report were in accordance with the ethical standards of the Ethics approval in Faculty of Medicine, University of Riau, Pekanbaru, Indonesia. The authors explains the aimed, benefits, and rights of the participant during the process of collecting data to the patient's guardian, if the participant agrees we ask the participant to fill out an informed consent sheet.

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