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Case Report Article

Peritoneal Tuberculosis in Young Libyan Female: A Clinical Case

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ABSTRACT

Tuberculous peritonitis is a rare extrapulmonary manifestation of Mycobacterium TB infection, typically characterized by modest, nonspecific symptoms. As a result, diagnosis is complex, arduous, and sometimes delayed, especially in pediatric patients lacking a definitive history of pathogen exposure. This report details a 14-year-old Libyan girl with recurrent widespread stomach discomfort, fatigue, and irregular menstruation. Magnetic resonance imaging revealed diffuse nodules and thickening in the visceral and parietal peritoneum. Numerous white miliary nodules were visible in the parietal peritoneum after laparoscopic inspection. Following a peritoneal biopsy, large, poorly formed granulomas were seen, along with clusters of lymphocytes, epithelioid histiocytes, and giant cells.

Keywords: Tuberculosis, Peritoneal tuberculosis, Tuberculous peritonitis, Imaging, Diagnosis, Magnetic resonance imaging.

INTRODUCTION

Tuberculosis (TB) is an airborne disease caused by Mycobacterium tuberculosis pathogen.[1] Abdominal tuberculosis is an uncommon extrapulmonary manifestation of tuberculosis, accounting for around 5% of all extrapulmonary tuberculosis cases.[2,3] Despite peritoneal TB is a recognized site of extrapulmonary infection, peritoneal tuberculosis is frequently misdiagnosed as intra-abdominal cancers. Diagnosing tuberculosis in the peritoneum can be challenging. Patients often present with nonspecific symptoms and may not have clear epidemiological risk factors for Mycobacterium tuberculosis. Here, we describe a difficult case of peritoneal TB that sheds light on how to diagnose this illness in patients who have several concomitant diagnostic possibilities and in whom direct microbiological testing remains negative.

CASE REPORT

Fourteen years old Libyan girl present with chronic generalized abdominal pain and irregular cycle since 3 months, this was third attendance having previously been received analgesics and intravenous fluid twice on separated occasions because of generalized fatigability. She denied any history of fever or night sweats. However, reported family history of pulmonary TB, her uncle has previously received treatment for pulmonary TB, he is an officer in the illegal immigration department. She had no past medical history and had no drug allergies.

On assessment, she was underweight, had a 92 beats per minute pulse and was afebrile at the time of examination. Her blood pressure was 110/70 mmHg, her respiratory rate was 34 breaths per minute, and her oxygen saturation in room air was 95%. There was no palpable cervical, axillary, or inguinal lymphadenopathy, the cardiac and respiratory exams were unremarkable, and the physical examination revealed a positive result for ascite.

Chest radiograph was also obtained as part of work up and demonstrated clear lungs and pleural space with normal cardiopulmonary contour. The results of the laboratory workup, which suggested a nonspecific inflammatory response, were as follows: Hemoglobin was measured at 11.6 g/L (11–15); white blood cell count was 11.8 X109/L (3.5–11); platelet count was 353 x109 (140–400); sodium was 144 mmolL (135–145); potassium was 3.79 mmol/L (3.5–5.1); chlorid was 107 mmol/L (98–107); creatinine was 1 mg/dl (0.6–1.3); serum urea was 28 mg/dl (13–43); uric acid was 3.7 mg/dl (2.6–6); alanine aminotransferase was 17 units/L(10–30);aspartate aminotransferase was 29 units/L (0–35); alkaline phosphatase was 382 units / L (180-700); total bilirubin was 0.54 mg/dl (0.2–1); serum albumin was 4.5 g/dl (3.8–5.4); C reactive protein was 15 (0–5); elevated s sedimentation rate at 41 (3-25); prothrombin time 15.5 sec, INR 1.3. In addition to serological tests for hepatitis and human immune deficiency virus were all negative.

Magnetic resonance imaging (MRI) of the abdomen, showed no enlarged lymph nodes or intra-abdominal pathology, but it did show free intra-abdominal fluid along with nodules and peritoneal thickening. Following this unexpected findings, which increased the likelihood of an underlying malignant process, serological testing for tumor markers were ordered. The following were the outcomes: CA 15.3 was 41.68 U/mL (1–30); CA 19.9 was 14.7 U/mL (1–34); and CA 125 was 468.20 u/ml (1-35). An increased CA125 in this particular clinical setting increased the clinical suspicion of ovarian cancer. An ultrasound check of the abdomen revealed a considerable volume of simple free fluid in addition to normal ovaries and uterus.

Paracentesis showed ascetic fluid with total nucleated cells 4.894 x 103 with 4.2% neutrophil and 95.8% lymphocytes. Peritoneal fluid albumin was 3.23 g/dl (3.2 – 4.5). Ascetic fluid cytology was negative for malignancy. Both acid fast bacilli and Zeihl Neelsen special stain were negative for microorganism. Unfortunately, QuintiFERON test and mycobacterium culture were not available.

Laparoscopic examination was done and multiple white miliary nodules were seen on the parietal peritoneum (Fig. 1). A peritoneal biopsy was subsequently performed in an attempt to reach definite histological diagnosis. This yielded sample of fibroconnecive tissue showing diffuse ill formed granulomas displaying collection epithelioid histiocytes, giant cells and lymphocytes. No caseating necrosis seen. No evidence of dysplasia of malignancy.

Considering all of these findings, the choice to treat her for peritoneal tuberculosis was made. The patient was subsequently initiated on quadruple antituberclosis therapy containing a combination of rifampicin, isoniazid, pyrazinamide and ethambutol for two months. After 2 week of anti-tuberculous therapy, the patient noted a substantial improvement in her general condition. After 4 weeks of therapy, a repeat ultrasound revealed only a small residual amount of highly loculated ascites. After 3 months of therapy, a repeat CT abdomen and pelvis demonstrated resolution of loculated ascites. She was narrowed to INH/RIF after 6 months andcompleted a total of 12 months of therapy without evidence of hepatotoxicity; she had no recurrence of symptoms at 6 months post-completion of therapy.

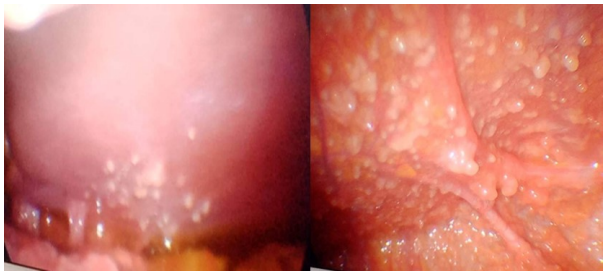

Fig 1. Laporoscopic image of our case. Multiple white miliary nodules are seen on the parietal peritoneum.

DISCUSSION

As of February 2021, Libya had a total of 571,464 migrants, refugees, and asylum seekers, making it a significant country for international migration as both a transit and destination point.[2,4] According to the annual global report on TB incidence, Libya has a moderate TB burden with a rate of 50-99 cases per 100,000 residents in 2022.[1] Even though it decreased in the previous decade, the TB rate in Libya in 2022 is projected to be over 5% higher than in 2015. In terms of public health, the key potential consequence of a rise in TB cases from immigrants from high incidence areas would be a higher transmission rate in countries with low incidence. In Libya, it appears that immigrants from high TB prevalence areas are the primary factor driving this change in incidence. As demonstrated in this case study,[7] abdominal TB can impact a single abdominal organ without involving the chest. With its non-specific clinical symptoms that sometimes generate suspicions of various non-tuberculosis diseases, peritoneal tuberculosis (TB) provides a serious clinical problem even in emergency patients. This study establishes the conclusive diagnostic complexity of peritoneal TB. Due to its tendency to be confused with intra-abdominal malignancies such as primary peritoneal carcinoma and ovarian cancer, the diagnosis of peritoneal tuberculosis is frequently delayed.[5] This is because peritoneal tuberculosis presents in a nonspecific and insidious manner. Furthermore, tumour markers such as cancer antigen CA-125 can be elevated due to TB peritoneal involvement, complicating matters further,5 as demonstrated by this case study. Moreover, the poor yield of the conventional diagnostic techniques and invasive sampling is often required.

In the majority of cases, fever, ascites, loss of appetite, weight loss, and abdominal pain are present for a few weeks or months.[6,7] The most common peritoneal tuberculosis presenting symptom, occurring in nearly 90% of patients, is ascites.[5] In this case report, the woman had irregular menstrual cycles, anorexia, persistent widespread abdominal pain, and no fever. An ultrasound revealed abdominal ascites. Thus, a high level of suspicion regarding peritoneal BT is essential when ascites of uncertain etiology is evident.[5]

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