



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

“A CASE OF PERITONEAL TUBERCULOSIS MIMICKING OVARIAN MALIGNANCY”

KEY WORDS: peritoneal tuberculosis, mycobacterium tuberculosis, QuantiFERON assay, gene Xpert

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ABSTRACT

Background: Tuberculosis is the disease of ancient times. Abdominal tuberculosis can present with involvement of any of the following sites: peritoneum, stomach, intestinal tract, hepatobiliary tree, pancreas, perianal area, and lymph nodes. The most common forms of disease include involvement of the peritoneum, intestine, and/or lymph nodes. Here is a case of 54-year-old female who had presented with the complaint of abdominal distension and ultrasound report suggestive of ascites.

Result: the symptoms that mimicked ovarian carcinoma, but laparoscopic findings jaw dropped the surgeons, and it was peritoneal tuberculosis.

Conclusion: Tuberculosis of the abdomen may occur via reactivation of latent tuberculosis infection or by ingestion of tuberculous mycobacteria (as with ingestion of unpasteurized milk or undercooked meat). True diagnosis with and correct follow-up can decrease patient morbidity and deaths. Peritoneal tuberculosis is a rare entity in the literature and will be discussed in this case report.

INTRODUCTION

Tuberculosis is the disease of ancient times that affects human health and is caused by the bacteria Mycobacterium tuberculosis. This old disease may be fatal within just 5 years in more than 50% of cases [1]. Extra pulmonary tuberculosis (ETB) accounts for 18.7% of all tuberculosis patients in India, and peritoneal tuberculosis is not a common form of it. With the implementation of the Health Transformation Programme, our health indicators reached the same level as those in upper-income countries. According to the World Health Organization (WHO) Global Tuberculosis Report 2017, estimated tuberculosis incidence is 6 (5.1–6.9) per 100,000 in the female group, 8 (6.8–9.2) per 100,000 in the male group, and 14 (12–16) per 100,000 population [4]. Also, peritoneal tuberculosis is a disease which can mimic malignancy especially in women who present with ascites and elevated CA125 levels. Ascites of tuberculosis is an exudative form just as in malignancy cases. Moreover, they share many similarities in symptoms and radiology and laboratory results.

Case Report

A 54-year-old female was admitted to a tertiary care centre with a history of pain in the abdomen for 2 months, increase in the size of the abdominal girth gradually over two months and loss of 6 kg of weight over 2 months. The patient was referred from a primary health care centre to us with reported ascites in ultrasonography. She had no history of any chronic diseases, no alcohol use, no family history of any major illness, no use of herbal agents, or no drug abuse were reported.

On Examination:

- Vital signs of the patients were in the normal ranges with 36.3 body temperature.
- Heart rate of 82 beats per minute, arterial blood pressure: 120/70 mm of mercury.
- On physical examination there was ascites in the abdominal region, and there was no other abnormal finding.

Laboratory Investigation:

reported no anaemia, no white blood cell elevation, and no thrombocyte abnormality. Her peripheral smear was normal with no atypical cells. There was no renal function or hepatic function abnormality, and no electrolyte abnormality were also reported.

- CRP was 39 (normal range: 0–5 mg/L) and erythrocyte sedimentation level was 37 (normal range: 0–20 mm/h). Her chest X-ray was completely normal with no infiltrations or effusions.
- The patient's thyroid function tests were completely normal. CEA level 1.4 (normal range: 0–3.8 ng/mL), CA19-9 level 1.14 (normal range: 0–27 U/mL), and elevated CA125 level of 122.4 (normal range: 0–35 U/mL).
- Her abdominal and pelvis ultrasonography reported gross ascites with internal echoes with multiple subcapsular deposits in hepatic diaphragmatic region and right paracolic area, in which the biggest one was 22 millimetres, with septations in the fluid accumulation, Endometrium thickness was 4 mm corresponding to her post-menopausal status of 5 years. Bilateral ovaries weren't visualised.
- Abdominal magnetic resonance imaging reported enhancing nodular thickening in the peritoneal cavity, with thickening of the bilateral adnexa (right > left) with multiple sub centimetre iliac lymph nodes and ascites.

The suspicion was towards an ovarian pathology considering the age of the patient. Patient was posted for a diagnostic laparoscopy and sent the peritoneal biopsy and endometrial biopsy for Histopathological examination, GENE XPRT, and mycobacteria growth indicator tube (MGIT). Samples of ascitic fluid were sent for cytology, Adenosine deaminase (ADA) and Routine microscopy.

RESULT

- Pathology reported inflammatory cells which are rich in lymphocytes. There were no malignant cells in the fluid.
- According to the laboratory results, serum albumin ascites gradient was < 1.1 and showed us that the fluid was an exudate.
- Tuberculosis QuantiFERON PCR was negative.
- Ascites fluid direct microscopic examination revealed that there were no tuberculosis bacilli and acid-fast stain was negative.
- The GENE XPRT of peritoneal biopsy revealed Mycobacterium tuberculosis in traces and RIF resistance indeterminate.
- HPE of Peritoneal biopsy revealed peritoneal tuberculosis.
- ADA (adenosine deaminase) level was 37 (normal range: 0–30 U/L).

Although malignancy was strongly suspected, these results strongly supportive of tuberculosis. The infectious disease team of

the hospital was involved, and the patient was started on four-agent tuberculosis treatment (isoniazid, ethambutol, pyrazinamide, and rifampicin). Patient was compliant to the medications and her abdominal distension complaint also resolved.

DISCUSSION

Peritoneal tuberculosis is a very rare disease in developed countries but always should be considered in developing countries. It accounts for 0.1% to 0.7% of tuberculosis cases [2]. It usually presents with fever, loss of weight, infertility, abdominal and pelvic pain, and irregularities of menstruation. The other symptoms include ascites, adnexal masses, and increased level of CA125.

- This peritoneal tuberculosis case is very difficult to distinguish from abdominal malignancy cases. Symptoms can be similar, for example, weight loss, fever, abdominal pain, and abdominal swelling.
- CA125 levels can be high in both these cases. Moreover, radiological imaging of abdomen is very similar in both these cases such as ascites, nodular irregularities in the peritoneal surface, adnexal and fallopian masses, and septation and multiloculated ovarian cysts [3]. CA125 levels are usually higher in peritoneal carcinomatosis cases. But it should be noted that CA125 can elevate to about 10-fold of normal value in patients who have peritoneal tuberculosis [4].

Our case was mimicking ovarian cancer completely. Thus, peritoneal tuberculosis must always be considered in differential diagnosis of ovarian carcinoma especially in the developing countries or underdeveloped countries. In the literature, most of the cases have encounter with tuberculosis patients and have different symptoms, cavitation in the lung or pulmonary focus appearance. Additionally, the patients who have peritoneal tuberculosis also have other comorbidities like immunocompromising, cirrhosis, renal failure, diabetes mellitus, and malignancy [5].

However, in our case, there were no symptoms other than ascites, no pulmonary complaints, no encounter with any tuberculosis patient, no pulmonary foci in the chest X-ray or physical examination, and there were no other medical conditions which can be helpful to suspect tuberculosis. There are a lot of diagnostic procedures for tuberculosis in the literature, but none of them is completely specific or sensitive. Radiologic imaging techniques are not sensitive or specific for diagnostic purposes. Ascitic fluid cytology has a low negative predictive value. Although the test for acid-fast bacilli in the peritoneal fluid is highly specific for the diagnosis, it lacks sensitivity. There are high false-negative rates for tuberculosis skin tests.

- There are new diagnostic procedures like PCR assay for bacteria which could help to identify this subject, since they can decrease the time taken to get a true diagnosis and especially helpful when AFB test is negative. In our case AFB and cytology were performed from abdominal ascites fluid and were negative.
- In the literature, it is said that the use of the QuantiFERON assay for the detection of TB infection in patients with active pulmonary tuberculosis yielded sensitivity of 86 %, specificity of 94 %, PPV of 16.7 %, and NPV of 96.1 % [6].
- QuantiFERON test is precious for latent tuberculosis infection. Even though identification of mycobacteria in any material is the gold standard method to evaluate the disease, negative result of culture cannot exclude the tuberculosis diagnosis.
- Activity of ascitic fluid adenosine deaminase (ADA) has been proposed as a useful test for abdominal tuberculosis cases. In countries with a high incidence of tuberculosis, measurement of ADA may be a helpful screening test. A value of ADA higher than 30units/ litre has 100% sensitivity and a specificity of 99% for diagnosing tuberculous peritonitis [7]. Fortunately, our case's ADA level is high enough to support a diagnosis of tuberculosis.
- In selected cases, performing tissue biopsy is appropriate

to identify the disease. Since our case did not have any respiratory complaints that would make one consider tuberculosis, the tissue biopsies performed would eventually confirm the diagnosis. So, diagnosis of peritoneal tuberculosis is usually made by histology of biopsy material which reveals granuloma.

Extrapulmonary tuberculosis usually results from hematogenous or lymphogenous dissemination. Peritoneal infection may represent seeding from abdominal lymph nodes or from salpingo-oophoritis.

CONCLUSION

Tuberculosis is also affected by current health situation of the human body [8].

- Immunocompromised patients must be evaluated on a case-by-case basis as patients with HIV infection are 26 to 31 times more likely to develop tuberculosis than patients without HIV infection.
- Diabetes is a common comorbidity in people with tuberculosis, and malnutrition increases the risk of tuberculosis.
- Tobacco smoking increases the risk of tuberculosis two- to threefold and is associated with poor TB treatment results.
- About 20%–40% of patients with abdominal tuberculosis present with an acute abdomen and need surgical management. Surgery is essentially reserved for those with acute surgical complications including free perforation, confined perforation with abscess or fistula, massive bleeding, complete obstruction, or obstruction not responding to medical management.

Fillion et al.'s study in a low prevalence country reported that, out of 86% presenting with abdominal symptoms, 76% underwent surgery, with 10% in an emergency setting [9]. Abdominal tuberculosis is generally responsive to medical treatment, and early diagnosis and management can prevent unnecessary surgical intervention.

By information given in this case report, one can understand that peritoneal tuberculosis can often mimic advanced ovarian cancer and peritoneal carcinomatosis. It should always be considered in 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.

Declaration

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