PERITONEAL TUBERCULOSIS WITH ASCITES : A CLINICAL CASE REPORT

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ABSTRACT

Peritoneal tuberculosis (TB) is a rare extrapulmonary manifestation of Mycobacterium tuberculosis infection, often presenting with nonspecific gastrointestinal symptoms. It can mimic other abdominal pathologies such as cirrhosis or malignancy, making diagnosis challenging [1]. A 19-year-old female who presented with complaints of nausea, vomiting, loss of appetite, and significant weight loss over two months. She also developed mild abdominal distension and was found to have mild ascites. Clinical evaluation and imaging revealed chronic hepatic parenchymal disease with portal hypertension and mesenteric thickening. A diagnostic laparoscopy with peritoneal, omental, and liver biopsy was performed. Histopathological findings were suggestive of peritoneal tuberculosis. There was no history of previous tuberculosis, altered bowel habits, or comorbid illnesses. Peritoneal TB typically results from hematogenous spread, reactivation of latent foci, or direct extension from abdominal lymph nodes or the gastrointestinal tract. This case highlights the diagnostic challenge of peritoneal tuberculosis due to its nonspecific presentation and overlapping features with other intra-abdominal diseases. Early laparoscopy and tissue biopsy play a crucial role in establishing the diagnosis, enabling timely initiation of antitubercular therapy and preventing complications.

INTRODUCTION

Tuberculosis continues to be a major global health concern, especially in low- and middle-income countries where overcrowding, malnutrition, and limited access to healthcare contribute to its persistence. While the lungs are the primary site of infection, extrapulmonary tuberculosis represents a considerable proportion of total cases and can involve lymph nodes, bones, the central nervous system, genitourinary tract, and the abdomen [2]. Peritoneal tuberculosis is a relatively rare form of abdominal tuberculosis and results from the spread of Mycobacterium tuberculosis through the bloodstream, reactivation of dormant bacilli, ingestion of infected material, or contiguous spread from nearby infected lymph nodes. Clinically, peritoneal tuberculosis often presents with vague and slowly progressive symptoms, making early recognition difficult. Patients commonly report abdominal discomfort or distension, low-grade fever, anorexia, unexplained weight loss, fatigue, and altered bowel habits. Ascites is a frequent finding and may develop gradually. Because these features overlap with conditions such as chronic liver disease, intra-abdominal malignancies, inflammatory bowel disease, and other infectious peritonitis, the diagnosis is frequently delayed or misinterpreted [3].

Laboratory evaluation typically reveals inflammatory markers and anemia, while ascitic fluid analysis plays a crucial role in raising suspicion. The fluid is usually exudative, characterized by high protein levels, low serum-ascites albumin gradient, and a predominance of lymphocytes. Elevated adenosine deaminase (ADA) levels in ascitic fluid further support a tuberculous etiology, particularly in endemic regions. Imaging studies such as ultrasonography and computed tomography

may demonstrate peritoneal thickening, omental caking, mesenteric lymphadenopathy, and loculated ascites, but these findings are not entirely specific. Therefore, definitive diagnosis requires histopathological confirmation through peritoneal or omental biopsy, which typically reveals granulomatous inflammation with or without caseation. Early recognition and timely initiation of antitubercular therapy are essential to prevent complications and improve clinical outcomes.

CASE PRESENTATION

A 19-year-old female presented with complaints of decreased appetite and reduced food intake for one month, along with nausea and vomiting for two weeks. She reported significant weight loss of approximately 10 kilograms over two months and intermittent low-grade fever. There was no history of altered bowel habits, gastrointestinal bleeding, or known comorbidities. On examination, the patient was conscious and oriented, with mild pallor but no icterus, cyanosis, clubbing, pedal edema, or lymphadenopathy. Her vital signs were stable, with a pulse rate of 73 beats per minute, blood pressure of 120/80 mmHg, respiratory rate of 18 cycles per minute, and oxygen saturation of 100% on room air. Abdominal examination revealed a soft, non-tender abdomen with minimal ascites and no organomegaly. Other systemic examinations were unremarkable.

Laboratory evaluation showed significant anemia, with a hemoglobin level of 8 g/dL, along with raised inflammatory markers such as C-reactive protein, indicating an active inflammatory process. Liver function tests revealed increased transaminases and alkaline phosphatase levels, along with hypoalbuminemia, suggesting impaired liver function and chronic disease. Coagulation studies demonstrated a mildly prolonged prothrombin time, reflecting partial hepatic dysfunction.

Abdominal ultrasonography revealed features of chronic hepatic parenchymal disease associated with portal hypertension and the presence of minimal ascites. Further imaging with contrast-enhanced computed tomography showed an enlarged liver with fatty changes and diffuse thickening of the mesentery, raising suspicion of an underlying inflammatory or infectious condition.

Analysis of ascitic fluid showed a total cell count of 1446 cells/mm³ with marked lymphocyte predominance (94%) and a small proportion of polymorphs (6%), indicating a chronic inflammatory etiology. The ascitic fluid protein level was elevated at 5.5 g/dL, confirming its exudative nature. In addition, adenosine deaminase levels were significantly increased to 89 U/L, strongly supporting a diagnosis of tuberculous peritonitis.

To confirm the diagnosis, diagnostic laparoscopy was performed, and biopsy samples were obtained from the peritoneum, omentum, and liver. Histopathological examination revealed findings consistent with peritoneal tuberculosis. Upper gastrointestinal endoscopy was carried out to assess possible gastrointestinal involvement and was found to be normal, ruling out mucosal pathology.

DISCUSSION

Peritoneal tuberculosis is an uncommon but important form of extrapulmonary tuberculosis that frequently presents with nonspecific clinical manifestations, resulting in diagnostic delay [4]. The present case involved a 19-year-old female with constitutional symptoms, ascites, lymphocyte-predominant peritoneal fluid, elevated protein levels, and high adenosine deaminase (ADA), with biopsy confirmation of peritoneal tuberculosis. The clinical presentation and diagnostic findings are consistent with previously published case reports describing similar patterns of disease.

In the case reported by Sharma et al., a young female presented with abdominal distension, low-grade fever, anorexia, and significant weight loss. Imaging showed ascites with peritoneal and omental thickening, raising suspicion of intra-abdominal malignancy[5]. Ascitic fluid analysis revealed exudative fluid with high protein content, lymphocytic predominance, and elevated adenosine deaminase (ADA) levels. Definitive diagnosis was made through peritoneal biopsy demonstrating granulomatous inflammation [6].

Similarly in the case reported by Khan et al., the patient presented with chronic abdominal pain, fever, anemia, and massive ascites. Laboratory findings showed elevated inflammatory markers, and ascitic fluid examination demonstrated high protein and lymphocytic predominance with raised ADA levels[7]. Imaging revealed

mesenteric thickening and lymphadenopathy. The diagnosis was confirmed by peritoneal biopsy, and the patient improved with antitubercular therapy[8].

Comparable to these cases, our patient demonstrated nonspecific clinical features, high-protein lymphocytic ascites, and elevated ADA, with histopathology confirming tuberculosis. A notable difference in our case was associated hepatic involvement, which required careful therapeutic planning. Overall, these comparisons emphasize that peritoneal tuberculosis often mimics other abdominal conditions and that early biopsy and prompt antitubercular therapy are essential for favorable outcomes.

CONCLUSION

Peritoneal tuberculosis should be strongly considered in young individuals presenting with unexplained ascites along with constitutional symptoms such as fever, anorexia, fatigue, and significant weight loss, particularly in regions where tuberculosis is highly prevalent [9]. Owing to its nonspecific and insidious presentation, it is frequently misdiagnosed as chronic liver disease, malignancy, or other intra-abdominal inflammatory conditions. Detailed ascitic fluid analysis is essential in raising suspicion, especially when the fluid shows an exudative pattern with high protein concentration, predominant lymphocytosis, and elevated adenosine deaminase levels. Although laboratory and imaging findings provide important clues, histopathological confirmation through peritoneal or omental biopsy remains the definitive diagnostic method. Early recognition and prompt initiation of appropriate antitubercular therapy are crucial for favorable clinical outcomes, and this case emphasizes the importance of maintaining a high index of suspicion for extrapulmonary tuberculosis in patients with atypical abdominal presentations [10].

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