

Diagnostic challenge of peritoneal tuberculosis: A case report**Desafio diagnóstico de tuberculose peritoneal: Um relato de caso**

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ABSTRACT

Tuberculosis is caused by bacteria of the *Mycobacterium tuberculosis* Complex, which mainly affect the lungs, but other sites can also be infected, such as the peritoneum. The clinical manifestations of peritoneal tuberculosis are nonspecific, with ascites (93%), abdominal pain (73%), and fever (58%). This makes the diagnostic process more complicated and leads to a delay in adequate treatment. We report a case of ascites caused by peritoneal tuberculosis in an elderly patient being treated for bladder cancer by intravesical therapy with BCG. There was a diagnostic dilemma due to the possibility of carcinomatosis related to a history of bladder cancer.

Keywords: Ascites, Peritonitis Tuberculosa, BCG Vaccine

RESUMO

A tuberculose é causada por bactérias do Complexo *Mycobacterium tuberculosis*, que afetam principalmente os pulmões, mas outros locais também podem ser infectados, como o peritônio. As manifestações clínicas da tuberculose peritoneal são inespecíficas, com ascite (93%), dor abdominal (73%) e febre (58%). Isso torna o processo diagnóstico mais complicado e leva a um atraso no tratamento adequado. Relatamos um caso de ascite por tuberculose peritoneal em paciente idoso em tratamento de câncer de bexiga por terapia intravesical com BCG. Havia um dilema diagnóstico devido à possibilidade de carcinomatose relacionada a história de câncer de bexiga.

Palavras-chaves: Ascite, Tuberculose Peritoneal, Vacina BCG

1 INTRODUCTION

Tuberculosis is an infectious disease caused by bacteria from the *Mycobacterium tuberculosis* Complex and, as widely known, they have a low growth rate and promote a granulomatous inflammatory response, showing or not a caseous necrosis center that mainly affects the lung tissues. This infection can also affect other sites, causing extrapulmonary tuberculosis and, due to its lower frequency compared to pulmonary tuberculosis as well as the absence of specific symptoms, its diagnostic process is more difficult and leads the patient to be exposed to this clinical condition for a greater amount of time¹.

In 2019, more than 300 tuberculosis cases were already confirmed (85.98% in the pulmonary form, 10.67% in the extrapulmonary form, and 3.35% in the pulmonary + extrapulmonary forms). Peritoneal tuberculosis is an extrapulmonary disease that shows a difficult diagnose and has high morbidity and mortality. The Brazilian Ministry of Health, 2018 confirmed 92.256 cases of tuberculosis (84.46% were pulmonary, 12.54% extrapulmonary, 2.95% in pulmonary + extrapulmonary forms and 0.05% in ignored / wrong form filling)².

Clinical manifestations of peritoneal tuberculosis are nonspecific, often presented with ascites (93%), abdominal pain (73%), and fever (58%), which make the the diagnose process more complicated³.

Despite the ascites is the main symptom found in peritoneal tuberculosis, the differential diagnosis of ascites also involves investigations of etiologies such as chronic liver diseases and peritoneal diseases⁴⁻⁵. The ascitic fluid puncture, especially when there are no signs of liver disease, is essential for this diagnostic distinction⁵⁻⁶. When the findings of fluid present some exudative pattern, an inflammatory peritoneal disease by infection or neoplastic etiology is the most probable cause⁶⁻⁸. Cases in which Bacillus Calmette-Guerin therapy (BCG therapy) is performed to treat bladder cancer, peritoneal tuberculosis, although rare, can be an adverse effect of this therapy⁹⁻¹¹.

We report a case of ascites caused by peritoneal tuberculosis in an elderly patient under treatment for bladder cancer by BCG-intravesical therapy. There was a diagnostic dilemma due to the possibility of carcinomatosis related to his bladder cancer history.

2 CASE REPORT

The case report was approved by the Research Ethical Committee, presenting the following approval number: 3.521.705. JFP, an 82-year-old man with weight loss, increased abdominal volume, and edema. He was referred by a general practitioner to a hepatologist for investigation. He reported resection of bladder neoplasm 10 years ago and the realization of BCG-therapy. The physical examination revealed: 57kg, Body Mass Index (BMI) 16.4kg/m², and abdomen with

moderate ascites. After some blood exams, it was found normal hepatic and renal functions and also negative results for chronic liver disease etiologies. Computed tomography and angiography showed no signs of vascular involvement. Paracentesis was performed because of the ascites, and it showed leukocytic exudate and lymphocyte predominance. Due to the suspicion of peritoneal carcinomatosis, he was admitted for a diagnostic laparoscopy, with ascites fluid evaluation, that revealed elevated ADA (adenosine deaminase) and peritoneal biopsy showed granulomas containing caseous necrosis. He evolved with a progressive decline in general condition, presenting daily fever and severe night sweats. Given the hypothesis of peritoneal tuberculosis due to his BCG-therapy, the results of ADA and histopathological data, since without acid-alcohol resistant bacilli detection, it was decided to interrupt the therapy and initiate the treatment with RIPE (Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol) the standard tuberculosis regimen. After two weeks, the patient presented good tolerance to the scheme, with progressive improvement of symptoms, weight gain of 7.0kg, and resolution of ascites. The clinical follow-up was continued for four years and no sign of relapse was seen.

3 DISCUSSION

Differential diagnosis of ascites is still one of the major challenges since in most cases it is attributed to liver cirrhosis (80-90%). However, when there are no signs of liver disease, a comprehensive etiological investigation is required⁴. According to some studies, the first line for diagnostic definition is the analysis of the ascitic fluid through paracentesis⁴⁻¹¹, which corroborates the procedures developed in this case reported.

Previous studies have attempted to standardize which tests should be ordered. Cell count and serum ascites albumin gradient (SAAG) were considered as mandatory tests, and the others should be performed according to diagnostic suspicion⁴⁻¹¹. In the presented case, the analysis of ascitic fluid revealed a leukocytic exudative pattern, with lymphocyte predominance. The diagnostic hypothesis was of peritoneal disease due to carcinomatosis, considering the patient's history of bladder cancer. On the other hand, not only peritoneal carcinomatosis but also tuberculosis can cause leukocytic exudative pattern and both require rapid recognition for appropriate therapy⁹.

Several studies have demonstrated the usefulness of ADA in peritoneal fluid for the diagnosis of peritoneal tuberculosis⁵⁻⁹. It can occur anywhere in the peritoneum, meso, or omentum, and its dissemination can be hematogenous, lymph node, gastrointestinal, tubal rupture, and more rarely, by BCG-therapy⁹⁻¹¹. The clinical presentation is often nonspecific, with fever, abdominal pain, and weight loss being the most common symptoms⁸, as reported in the case.

The gold standard diagnosis is usually carried out through the discovery of positive samples for culture tests of acid-alcohol-resistant bacilli⁶. Despite that, the suspicious diagnosis in the reported case was made by: the presence of lymphocytosis in the ascitic fluid, the high ADA, the information about previous BCG-treatment, the negative results of culture performed with the peritoneal samples and the Ziehl Nielsen staining technic. Beyond that, the peritoneal biopsy with the histopathological findings of caseous necrosis and granulomas reinforced the hypothesis. However, it was the therapeutic success with the RIPE regimen that effectively confirmed the diagnosis.

Additionally, in a review developed by Lima and colleagues (2020), the relevance of the rapid diagnosis of tuberculosis in elderly patients was highlighted in order to start treatment more quickly and also to reduce this public health problem¹².

We believe that the origin of tuberculosis has occurred from hematogenous dissemination by BCG-therapy. According to the literature, this condition is usually related to immunodeficiency, which was an absent condition in our patient, a fact that made the diagnosis of the case even more challenging. Besides, we emphasize the need to quickly consider the possibility of peritoneal tuberculosis in patients using BCG-therapy, since it is a condition that, although rare, has been described by other studies and can have unfavorable evolution.

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