

TUBERCULAR PERITONITIS DELAYING DIAGNOSIS: CASE REPORT SOLVED BY LAPAROSCOPY

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INTRODUCTION

Tuberculous peritonitis is still a medical problem in developing countries. While previously very low in European countries, its prevalence is now rising due to an increase in immigration, international travels, immune suppressive diseases and socio-economic deprivation.

The symptoms of this disease, however, may vary greatly, often mimicking peritoneal carcinomatosis. Consequently, a misdiagnosis and the lack of antitubercular therapy can lead to avoidable death. Therefore, even in natives of Western countries, tubercular peritonitis may be a diagnostic challenge and should be considered in any febrile patient with abdominal signs and symptoms. As such, an aggressive diagnostic approach with no delay in treatment is warranted for diagnosis.

The following is a case of one Italian immune competent patient with active tuberculous peritonitis in a non-endemic area with delayed diagnosis in spite of extensive but negative laboratory investigations.

CASE REPORT

A 34-year old Italian bricklayer with an unremarkable past medical history was admitted with a 2-week history of continuous fever accompanied by sweats, chills, abdominal distension, pain, fatigue, and weight loss. He was a non-smoker and consumed alcohol only in moderation (daily dose of 20 to 40 g).

Upon examination, he appeared uncomfortable and, febrile (39°C, 103°F), but with stable vital signs. The abdomen was moderately distended due to ascites with diffuse tenderness, slight guarding and rebound. While the liver was enlarged and painful no spleen or lymph node enlargement was found. Additionally, he was anicteric and there were no signs of chronic liver disease.

The laboratory findings revealed high values of C-reactive protein (36.5 mg/dL), erythrocyte sedimentation rate (63 mm/h), alfa1 acid glycoprotein (4.6 g/L) and alfa2globulin (1.20 g/dL). A mild elevation of cholestatic liver enzymes was also present, but transaminases were

within normal limits as were total bilirubin, WBC, haemoglobin and platelet count, coagulation data and biochemical tests of renal function.

A diagnostic paracentesis revealed a clear ascitic fluid with a low serum-ascites albumin gradient (less than 1.1 g/dL) and elevated WBC (3,000/mm³) with lymphocytic predominance (70%); the cytology was negative.

An extensive work-up was done to determine the unknown origin of the fever, including serum immunoglobulins, serum antinuclear, antimitochondrial and anti-smooth muscle antibodies, complementemia, serology for HIV, CMV, EBV, HBV, HCV, ferritinemia, neoplastic markers, and serodiagnosis for brucellosis and typhoid fever. Stool studies, a purified protein derivative test (5 tuberculin units, PPD-test) and repeated blood and ascites cultures were negative, as was a direct smear of ascitic fluid.

Chest radiography and a thoracic-CT were normal, as were upper and lower endoscopic examinations.

An abdominal US demonstrated a mildly enlarged liver with an increased echogenicity, ascites, but no splenomegaly, lymphadenopathy, dilatation or thrombosis of portal and splenic veins. An Abdominal contrast-enhanced CT scan, showed only free ascites; no CT significant findings for diagnosing peritoneal carcinomatosis were found.

Because of the clinical setting (the patient remained symptomatic despite a prolonged course of therapy with broad-spectrum antibiotics and the negative extensive work-up to determine the cause of the fever) and the initial ascitic fluid analysis (ascites with a low albumin gradient and a lymphocytic count), he was submitted to laparoscopy and peritoneal biopsies.

Laparoscopy showed ascites and multiple small yellowish-white nodules on both the liver (Fig.1) and the visceral and parietal peritoneum with a typical “millet seed” appearance (Fig.2), fibrous translucent so-called “curtain lace-like” adhesions (Fig.3), and adhesions with “violin string” appearance (Fig.4) were also shown.

Targeted peritoneal and omental biopsies and mycobacterial cultures were performed. Histopathological examination revealed fibrous tissue thickening omental adipose tissue, epithelioid granulomas and Langhans type giant cells without caseous necrosis (Fig.5).

A more focused reevaluation of the abdominal-CT revealed smooth and slight omental thickening, intestinal clusters (Fig.6). Diagnosis of tubercular peritonitis was consequently made.

Therapy with rifampin, isoniazide and pyrazinamide plus ethambutol for 8 weeks was administered, followed by isoniazide and rifampin for an additional 4 months.

The patient's clinical symptoms and laboratory parameters gradually improved and were completely resolved within 3 weeks with hospital discharge.

DISCUSSION

Tuberculosis is relatively uncommon in developed countries and diagnosis can be a demanding task. Tuberculous peritonitis ranges from 0.1 to 0.7 % of all tuberculosis cases and is described in three different types as "wet ascitic" (the most common, 90%), "fibrotic-fixed" and "dry plastic" (1-2). A recent report, however, described tubercular peritonitis as a combination of ascites, peritoneal lesions and lymphadenopathy (3). Tubercular peritonitis is reported especially in immunocompromised hosts, and patients with chronic renal failure are at increased susceptibility of Tbc infection (4).

Moreover, the illness often occurs quite insidiously as symptoms and signs are generally non specific, highly variable and may suggest sarcoidosis, peritoneal carcinomatosis or liver cirrhosis. Because of its association with underlying alcoholic cirrhosis in half of the patients (5), a complete healing of the primary focus in the lung (6) and the clinical pattern often complicated by the association of gastrointestinal lesions (7), difficulties of a correct diagnosis may further increase. Therefore, tuberculous peritonitis is a great mimicker as it has also been included in the differential diagnosis of pyrexia of unknown origin, pelvic mass, and non-responsive ascites (8). This condition however carries good prognosis if promptly diagnosed and treated.

The clinical outcome of the disease in fact depends much on the diagnostic accuracy. Despite the availability of effective antituberculous treatment, its mortality remains high, most-likely due to delayed diagnosis (9-10). Clinical symptoms and laboratory findings are also usually inadequate and elusive.

There still remains controversy regarding the best way to diagnose tuberculous peritonitis due to the following confusing aspects: a) the direct smear of ascitic fluid for detection of

mycobacteria or its cultures are insensitive (< 6% and <20% respectively) and time consuming, taking up to 8 weeks for optimal processing (1-3-7); b) low serum-ascites albumin gradient (<1.1g/dL) does not differentiate from malignancy; c) the enzymatic activity of adenosine deaminase (ADA) in ascites (cut-off >30 U/L) has a sensitivity and a specificity exceeding 90% in endemic areas (12), but this test is not easily available and its diagnostic role in non-endemic areas is unclear (13); d) the PPD-test has a low sensitivity; it was positive in only 27% and 42% of patients with proven peritoneal tuberculosis in two recent series' (7-11). Furthermore, ultrasonography and computed tomography findings are complementary to each other, but do not allow a definite diagnosis because imaging features (mesenteric nodules, omental thickening, adherent small bowel loops, splenic and hepatic parenchymal calcification, enlarged para-aortic and inguinal lymph nodes) are non-specific (5-14) and could be accompanied by any malignant disease (15). Computed tomography has a low sensibility for detecting minimal peritoneal lesions and differentiating between benign or malignant disease, but can achieve high accuracy rate using a multivariate analysis of CT patterns of omental abnormalities (15). Recent studies have addressed the diagnostic efficacy of trans-abdominal image-guided peritoneal biopsy (using US or CT) in patients with suspected peritoneal tuberculosis, a minimally invasive and inexpensive method with a high diagnostic value (95% of sensitivity) (11-16). This method may be of practical benefit in critically ill patients.

No differences in CT or laparoscopic and histologic findings were found in our patient in comparison with analogous findings reported in patients from developing countries.

Because laboratory analysis are not helpful, imaging findings may be misleading, and non-invasive tests are usually inadequate for the diagnosis of peritoneal tuberculosis, the conclusion to draw from the case described is that an invasive diagnostic approach to peritoneum can warrant early diagnosis and timely treatment; laparoscopic examination with guided peritoneal biopsies and mycobacterial culture should be recommended.

In fact, suspected tuberculous peritonitis is one of the best indications for diagnostic laparoscopy; it is safe and is nearly 100% sensitive in detecting this disease in combination with targeted biopsies especially when immunocompromised patients show non specific

symptoms (1-17-18). It unearths the exact nature of disease with no undue delay of treatment.

In our case, based on typical laparoscopic and histopathological findings we started anti-Tbc therapy, which showed marked clinical improvement and the patient's quick cure.

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