Rev Med Hosp Gen Méx. 2015;78(2):55–61

REVISTA MÉDICA DEL
HOSPITAL GENERAL
DE MÉXICO
www.elsevier.es/hgmx

ORIGINAL ARTICLE

Peritoneal tuberculosis: A persistent diagnostic dilemma, use complete diagnostic methods

L. Salgado Flores[a], A. Hernández Solís[a,*], A. Escobar Gutiérrez[b], L. Criales Cortés José[c], I. Cortés Ortiz[b], H. González González[a], E. Luis Martínez[a], R. Cicero Sabido[d]

[a] *Hospital General de México ''Eduardo Liceaga'', Mexico*
[b] *Instituto de Diagnóstico y Referencia Epidemiológica, Mexico*
[c] *CT Scanner del Sur, Mexico*
[d] *Facultad de Medicina UNAM, Mexico*

Received 26 August 2014; accepted 26 March 2015
Available online 18 July 2015

KEYWORDS
Peritoneal tuberculosis;
Laparoscopy;
Histopathology;
Cultures;
Polymerase chain reaction

Abstract
Introduction: Tuberculosis (TB) is a global public health issue. Peritoneal tuberculosis amounts to 2% of all the extrapulmonary forms. It has a difficult clinical and bacterial diagnosis.
Objective: To establish the usefulness of different methods for the diagnosis of peritoneal TB in Mexican adult patients with abdominal pathology.
Methodology: A total of 44 patients with chronic abdominal pathology, clinically suspected of having peritoneal tuberculosis, were studied. All patients with peritoneum laparoscopic biopsy and ascites were studied. Studies were performed using Ziehl–Neelsen stain, cultures for microbacteria by Löwestein–Jensen (L–J) and tube of the growing indicator of *Mycobacterium* BACTEC (MGIT-960), real-time polymerase chain reaction (RT-PCR) with the 1S6110 insertion sequence for the *Myocobacterium tuberculosis* complex. Antibodies were determined by immunoenzymatic assay (ELISA) and Western blot (WB) in peripheral blood.
Results: Tuberculosis was confirmed in 22 (50%) patients through histology. In peritoneum biopsy, Ziehl–Neelsen stain was positive for AAFB (acid–alcohol-fast bacilli) in three cases (13%), in Löwestein–Jensen's cultures in five cases (22%) and in MGIT-960 in ten cases (45%). The RT-PCR was positive in twelve cases (54%). In ascites, the Ziehl–Neelsen stain was positive in one case (4%), the Löwestein–Jensen culture in nine cases (40%), in MGIT-960 culture in eight cases (36%), and in RT-PCR was positive in eleven cases (50%). The immunological methods recorded a low positivity.

* Corresponding author at: Servicio de Neumología y Cirugía de Tórax, Hospital General de México ''Eduardo Liceaga'', Dr. Balmis 14, Col. Doctores, CP 06726, México, D.F., Mexico.
E-mail address: drhernandezsolis@yahoo.com.mx (A. Hernández Solís).

http://dx.doi.org/10.1016/j.hgmx.2015.03.009

Conclusions: The bacterial and RT-PCR methods had low performance, probably due to the low bacillary load of lesions. The histopathological study with characteristic tuberculosis lesions turned out to be the most useful, and it must be jointly performed with bacteriological and molecular studies in suspected cases of tuberculosis with unknown cause ascites.

PALABRAS CLAVE
Tuberculosis peritoneal;
Laparoscopía;
Histopatología;
Cultivos;
Reacción en cadena de la polimerasa

Tuberculosis peritoneal: un dilema diagnóstico persistente, utilidad de los métodos diagnósticos

Resumen
Introducción: La tuberculosis (TB) es un problema de salud pública mundial. La tuberculosis peritoneal corresponde al 2% de todas las formas extrapulmonares y es de difícil diagnóstico clínico y bacteriológico.
Objetivo: Establecer la utilidad de los diferentes métodos para el diagnóstico de TB peritoneal en pacientes adultos mexicanos con patología abdominal.
Metodología: Se estudiaron 44 pacientes con patología abdominal crónica, clínicamente sospechosos de tuberculosis peritoneal. Todos los pacientes se estudiaron con biopsia laparoscópica de peritoneo y líquido de ascitis; se realizaron tinción de Ziehl-Neelsen, cultivos para micobacterias por Löwestein-Jensen (L-J) y tubo del indicador del crecimiento de Mycobacterium BACTEC (MGIT-960), reacción de cadena de polimerasa en tiempo real (PCRTR) con la secuencia de inserción 1S6110 para el complejo de Mycobacterium tuberculosis; en sangre periférica, se determinaron anticuerpos por ensayo inmunoenzimático(ELISA) y Western blot (WB).
Resultados: La tuberculosis fue confirmada en 22 (50%) pacientes por histología. En biopsia de peritoneo la tinción de Ziehl-Neelsen fue positiva para BAAR (Bacilo ácido alcohol resistente) en tres casos (13%), en cultivos de Löwestein-Jensen en cinco casos (22%) y en MGIT-960 en diez casos (45%). La PCRTR fue positiva en doce casos (54%). En líquido de ascitis, la tinción de Ziehl-Neelsen fue positiva en un caso (4%), cultivo Löwestein-Jensen en nueve casos (40%), en cultivo MGIT-960 en ocho casos (36%) y en PCRTR fue positiva en once casos (50%). Los métodos inmunológicos registraron una baja positividad.
Conclusiones: Los métodos bacteriológicos y la PCRTR tuvieron bajo rendimiento, posiblemente por la escasa carga bacilar de las lesiones. El estudio histopatológico con lesiones características de tuberculosis resultó el de mayor utilidad y debe realizarse conjuntamente con los estudios bacteriológicos y moleculares en casos sospechosos de tuberculosis con ascitis de causa desconocida.

Introduction

Tuberculosis (TB) is an infectious disease produced by *Mycobacterium tuberculosis* considered as a global pandemia. Most of the cases are pulmonary; however, its haematogenous and lymphatic dissemination can result in extrapulmonary forms that correspond to approximately 20% of the total cases.[1–3] Extrapulmonary TB has increased in the world and is linked to malnutrition, diabetes mellitus, pandemia of the infection caused by the human immunodeficiency virus (VIH)[4] and the appearance of resistant strains to specific drugs.[5] In 2008 in Mexico, over 18,000 new cases were registered, 82% pulmonary and 28% extrapulmonary, with a mortality rate of 1.7 per 100,000 inhabitants.[6] Abdominal TB is rare and affects the peritoneum and abdominal organs. It can match with hepatic cirrhosis,[7] carcinomatosis,[8] sarcoma and in patients with peritoneal dialysis,[9] it is thought that it has reappeared since 1990.[10] In the United States, it takes the sixth place after the lymphatic, genitourinary, osseous, articular, milliary and meningeal locations.[11]

Abdominal TB appears as consequence of the reactivation of latent TB disseminated by contaminated food intake or sputum intake of pulmonary TB. The symptoms are unspecific, chronic abdominal pain, fever, loss of weight, decreased appetite, nocturnal diaphoresis, deterioration of the general status, malnutrition with weight loss, diarrhoea and sometimes poor intestinal absorption.[12,13] It can be confused with Crohn's disease, amoebic dysentery, histoplasmosis, and appendicular abscesses.[14] In most of the abdominal TB cases, the peritoneum is involved due to its anatomical direct relation with the organs and abdominal