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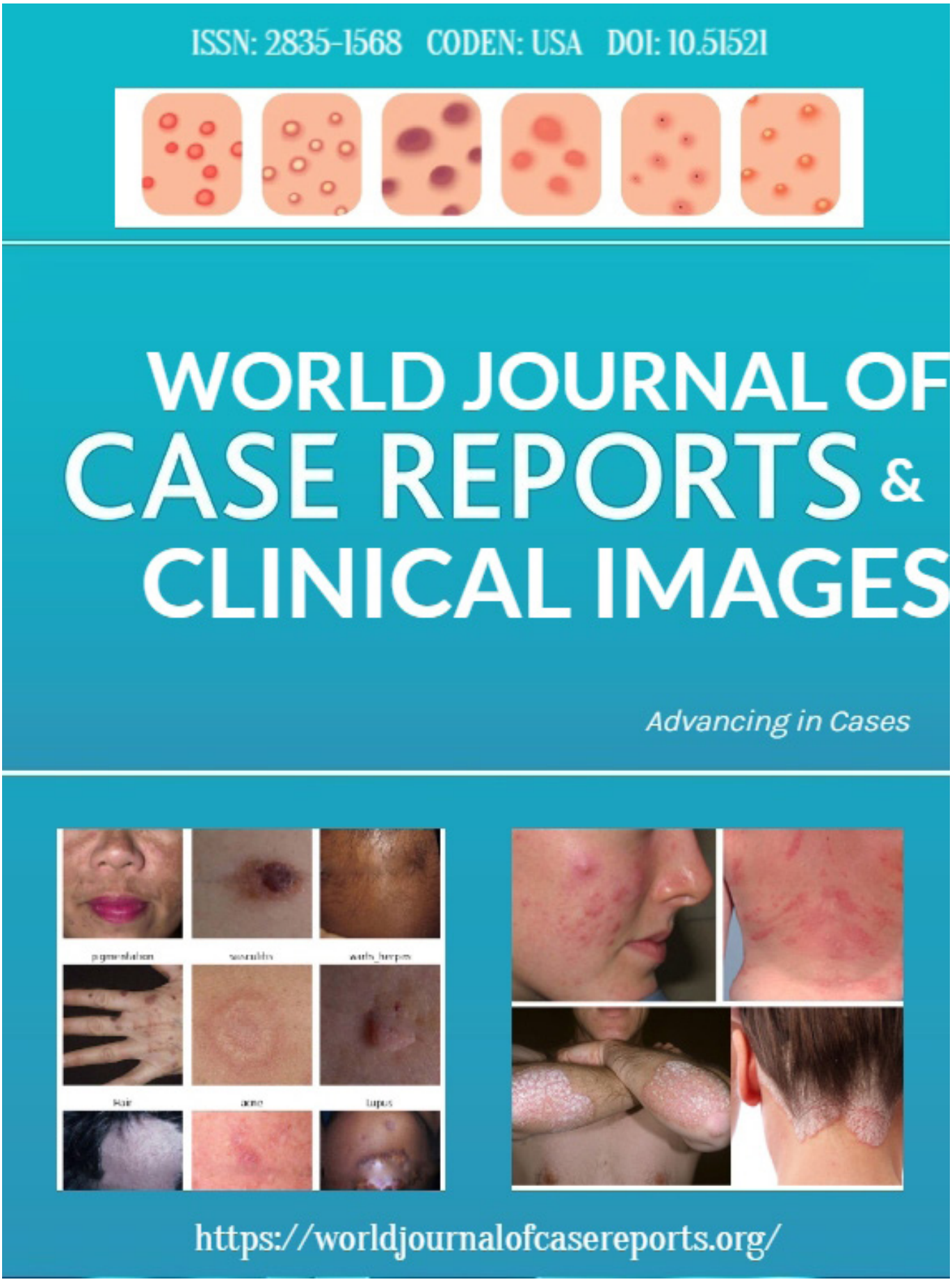

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CASE STUDY

Polyserositis and Cholestasis in a Young Immunocompetent Foreign Woman: An Unexpected Final Diagnosis

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ABSTRACT

Extrapulmonary tuberculosis (EPTB) represents a diagnostic challenge due to its nonspecific nature and clinical features. Objective: To describe an unexpected case of EPTB in a young patient with polyserositis and cholestasis. Case presentation: A 25- year-old female patient presented with chest pain, dyspnea, weight loss and asthenia. Physical examination revealed pericardial rub and hepatomegaly. Hepatic profile showed cholestasis. Electrocardiogram was consistent with pericarditis. Chest X-ray and echocardiogram showed cardiomegaly, pleural and pericardial effusion, so thoracentesis and pericardiocentesis were performed, confirming polyserositis. Abdominal tomography showed hepatic infiltrations, and a liver biopsy was performed confirming the diagnosis. Finally, antituberculosis treatment was indicated in addition to colchicine and prednisone, with favorable response and no adverse effects. Conclusion: To recognize polyserositis and cholestasis as atypical presentations of EPTB to optimize multidisciplinary care.

KEYWORDS:

Polyserositis, Cholestasis, Extrapulmonary Tuberculosis (EPTB).

INTRODUCTION

Tuberculosis (TB) persists as a global problem, leading deaths from infectious agents and ranking among the top ten causes of mortality. Approximately 25% of the world's population is infected and at increased risk of developing the disease within two years of infection [1]. EPTB (24.8% of cases) presents a diagnostic challenge due to its nonspecific nature and clinical features [2]. Tuberculous serositis represents 1% of Extrapulmonary forms with a

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mortality of up to 40% [3,4]. Disseminated TB (2 or more systems affected) is a more severe form, accounting for 2 to 5% of all cases [5]. Peru is the country with the second highest prevalence of TB in the Americas [6]; 25% of its cases are reported in Arequipa [7]. This report aims to describe a patient with Disseminated TB and severe polyserositis without any risk factor.

Case Presentation

A 25-year-old female patient from Venezuela was admitted to the emergency department of a Ministry of Health hospital. The patient presented with moderate dyspnea 6 hours before admission and retrosternal chest pain that increased with inspiration. In addition, in the past 21 days she presented diaphoresis, chills, vomiting, asthenia and referred weight loss of 5 kg. Asthma in treatment with budesonide inhaler as the only history. Prior to his admission, he received paracetamol without improvement.

Physical examination showed fever, tachycardia, tachypnea and hypoxemia. Cardiorespiratory examination showed decubitus intolerance, pericardial friction rub, decreased amplexation and elasticity, decreased vocal vibrations in lung bases, dullness in both bases and bilateral cramps. The abdominal examination showed palpable liver.

In addition, alanine aminotransferase was found to be 43 units/L and alkaline phosphatase 299 unit's/L indicative of cholestasis. All other laboratory tests were negative (Table 1, green column).

Table 1: Evolution of Laboratorial Parameters.

	Emergency admission	Hospitalization	Evolution at 2 weeks	Control at 4 months
Hemoglobin	13.1 g/dL	13.5 g/dL	12.4 g/dL	14 g/dL
Leukocytes	17100/mm^3	22600/mm^3	14400/mm^3	9200/mm^3
Neutrophils	90%	90%	88%	93%
Abastinates	6%	6%	9%	2%
Segmented	84%	84%	79%	91%
INR	1.4	-	1.2	1.1
Platelets	154,000/mm^3	298,000/mm^3	202,000/mm^3	250,000/mm^3
Biochemistry and Electrolytes				
Creatinine	1.2 mg/dL	1.20 mg/dL	1.1 mg/dL	0.9 mg/dL
Glucose	183 mg/dL	175 mg/dL	110 mg/dL	82 mg/dL
Sodium	136 mEq/L	135 mEq/L	140 mEq/L	140 mEq/L
Potassium	3.6 mEq/L	3.8 mEq/L	4 mEq/L	3.9 mEq/L
Chlorine	111 mEq/L	105 mEq/L	100 mEq/L	101 mEq/L
Lactate	3.3 mmol/L	-	-	-
T3L	-	2.2 pg/mL	-	-
T4L	-	<1 pg/mL	-	-
TSH	-	1.54 uUI/mL	-	-
Arterial Gases				
pH	7.38	7.40	7.38	-
PaO2	59.4 mmHg	67.8 mmHg	69 mmHg	-
PaCO2	26.8 mmHg	25.8 mmHg	26.3 mmHg	-
Bicarbonate	18.7 mEq/L	19.4 mEq/L	20 mEq/L	-
FiO_2	21%	28%	28%	-
Acute Phase Reactants				
VSG	-	31 mm/h	35 mm/h	5 mm/h
Lactate	-	1.3 mmol/L	1.4 mmol/L	0.2 mmol/L
PCR	-	96 mg/L	74 mg/L	2 mg/L
LDH	-	482 U/L	467 U/L	150 u/L
Hepatic Profile				
Total Bilirubin	-	0.9 mg/dL	1.0 mg/dL	0.4 mg/dL
Direct Bilirubin	-	0.3 mg/dL	0.3 mg/dL	0.1 mg/dL
TGO	-	45 U/L	41 U/L	22 U/L
TGP	-	43 U/L	39 U/L	23 U/L
FA	-	299 U/L	215 U/L	54 U/L
GGTP	-	484 U/L	386 U/L	20 U/L
Total Protein	-	5.3 g/dL	-	-
Albumin	-	2.8 g/dL	-	-
Globulins	-	2.5 g/dL	-	-

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Chest X-ray showed bibasal alveolo-interstitial infiltration, bilateral pleural effusion and cardiomegaly (Figure 1), so an electrocardiogram was performed showing diffuse ST- segment elevation, characteristic of pericarditis (Figure 2). Subsequently, a transthoracic echocardiogram was performed where the left ventricular ejection fraction (LVEF) was 50%, with no evidence of cavity collapse. Fibrin deposits were also identified in the left ventricle, visible as linear echoes extending from the visceral to the parietal pericardium and the presence of moderate pericardial effusion was confirmed with a 17.7 mm well in the inferior face (Figure 3), so thoracentesis and pericardiocentesis were performed, the samples were analyzed and the results were classified as exudates, confirming polyserositis (Table 2).

Table 2: Pericardiocentesis and thoracentesis results.

Characteristics	Pericardial Fluid	Pleural Fluid
Color	Light red	Citrine
Appearance	Serohaematic	Fluid
Quantity	100 ml	500 ml
Cell count	15/mm3	2/mm3
Polymorphonuclear	10%	60%
Mononuclear	90%	40%
----	60-80/mm^3	5-10/mm^3
Red blood cells	Normal: 95%	Normal: 95%
Glucose	85 mg/dL	88 mg/dL
Proteins	3.7 g/dL	4.7 g/dL
ADA	38.11 IU/L	22.5 IU/L
ANA	Negative	Negative
Common bacteria culture	Negative	Negative
PAP	Negative	Negative
BK	Negative	Negative
LDH	301 U/L	292 U/L

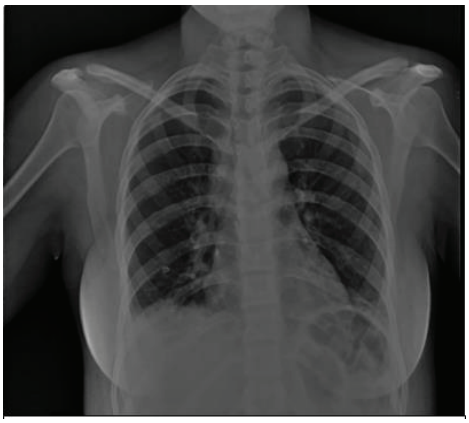

Figure 1; Chest X-ray, showing increased cardiac silhouette with alveolar-interstitial infiltrates and bilateral pleural effusion.

Two days after hospitalization, the patient evolved unfavourably, so a chest CT scan was performed, which showed moderate to severe pericardial effusion (Figure 4), while the abdominal CT showed hepatic infiltrates and hepatomegaly (Figure 5); apart from new laboratory

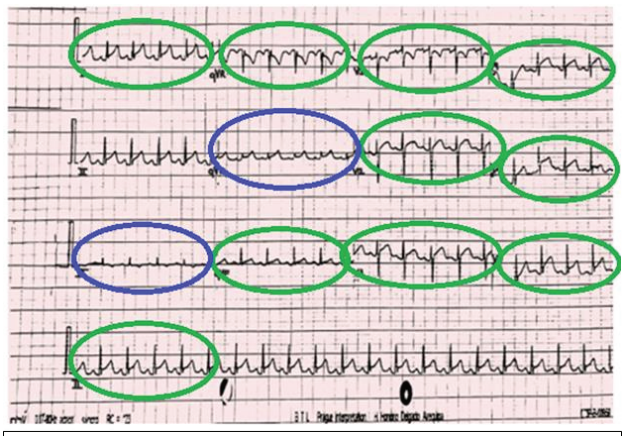

Figure 2; Electrocardiogram, showing diffuse ST-segment elevation in DI-DII and V3-V6 (green); and low voltage complexes in DIII and aVL (blue).

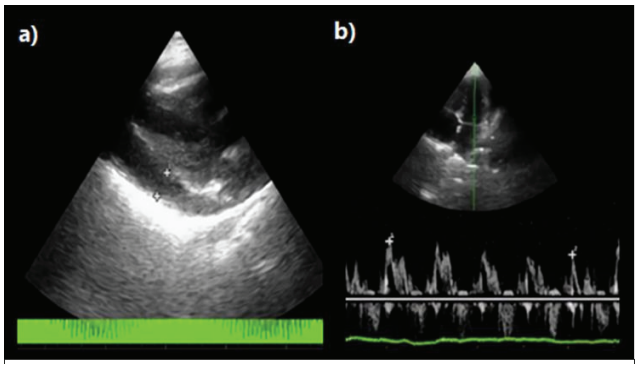

Figure 3; Echocardiogram (A) shows LVEF: 50%, moderate pericardial effusion (17.7 mm in inferior side), absence of cavity collapse. (B) shows filling variability > 25%, signs of tamponade, decreased ventricular filling variability, fibrin deposits (Linear echoes between visceral and parietal pericardium).

tests (Table 1, blue column). It was decided to perform a second pericardiocentesis with a pericardial window surgery where a pericardial biopsy was performed, the result of which was acute-chronic pericarditis without the presence of neoplasms or granulomas in the sample.

After 4 days, it was decided to perform exploratory laparoscopic surgery where the liver exploration found "Gránulos de Mijo", a liver biopsy was taken showing an image of caseous necrosis surrounded by granulomatous reaction, confirming the diagnosis of hepatic tuberculosis (Figure 6).

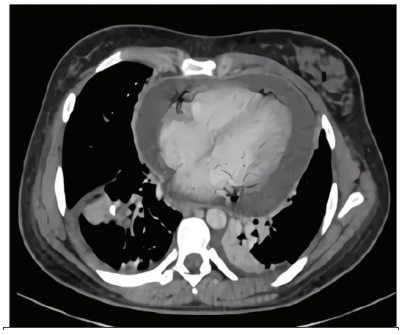

Figure 4; Chest computed axial tomography cross section, showing moderate to severe pericardial effusion of 20 mm deep, mild bibasal effusion.

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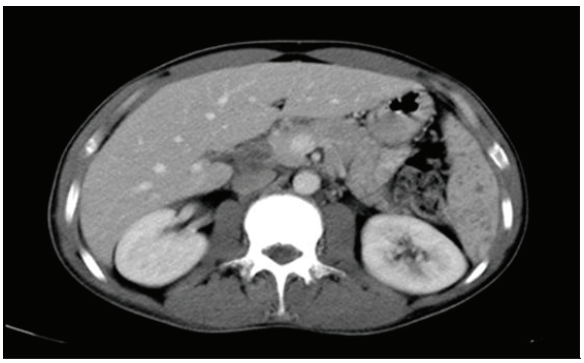

Figure 5: Abdominal computed axial tomography section, showing hepatic infiltrates and mild hepatomegaly.

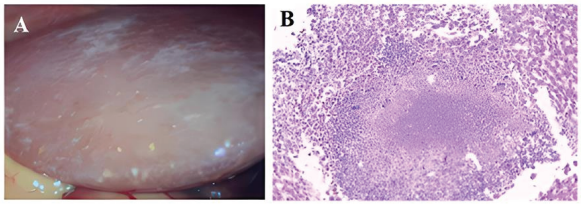

Figure 6: (A) Intraoperative photo showing "Gránulos de Mijo" on the hepatic surface (B) Liver biopsy result showing a chronic granulomatous inflammatory process with caseous necrosis and Langhans giant cells compatible with tuberculous hepatic disease (X100).

The patient received antibiotic therapy with Isoniazid 300 milligrams oral every 24 hours, rifampicin 600 milligrams oral every 24 hours, pyrazinamide 1500 milligrams oral every 24 hours and ethambutol 1200 milligrams oral every 24 hours due to hepatic tuberculosis. The patient received colchicine 0.5 milligrams oral every 24 hours and prednisone 30 milligrams oral every 24 hours due to pericarditis. After 15 days the clinical response was satisfactory and the patient was discharged (Table 1, orange column). The patient had no adverse effects to the treatment given. She was followed up as an outpatient at 2 and 4 months where she did not report any discomfort (Table 1, gray column). A control echocardiogram was performed 7 years after discharge where no lesions were observed (Figure 7).

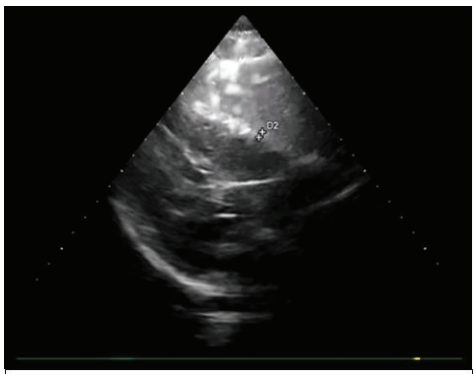

Figure 7: Control echocardiogram at 7 years, showing preserved systolic and diastolic function, LVEF: 2.66%. Normal pericardium (3mm), without pericardial effusion. No signs of hypertrophy or dilatation.

DISCUSSION

This case is highly significant because it manifested one of the rarest forms of EPTB, associated with several comorbidities, in an immunocompetent patient of foreign origin. Risk factors associated with Extrapulmonary Tuberculosis infection such as Presence of HIV, Alcoholism, Smoking and DM [3], were not part of the patient's history.

One of the first-hand methods for the detection of M. Tuberculosis is the Sputum BK test, unfortunately it is one of the tests with lower sensitivity and specificity for extrapulmonary forms [2]. The most sensitive laboratory indicators in cases of abdominal and serosal TB are CA-125 [4] and ADA [2], respectively.

The initial diagnoses were polyserositis and cholestasis; and the etiological diagnoses were Mycobacterium tuberculosis infection, confirmed in hepatic granulomatosis and suggestive in pericardial effusion.

Polyserositis is the simultaneous inflammation of multiple serous membranes in the body, frequently reported in patients with immunodeficiency (HIV) [3]. Tuberculous dissemination to these serous membranes represents less than 1% of all extrapulmonary forms of tuberculosis [3]. They have a high mortality, and their diagnosis is usually delayed due to the complexity of their clinical manifestation. The non-specific clinical presentation is characterized by chest pain, cough, dyspnea, night sweats, orthopnea, weight loss and accumulation of exudate-like fluid in 2 or more serosae [8].

In this case, despite the clear indicators of tuberculous polyserositis in pericardium and pleura, histopathologically the pericardial biopsy did not show granulomas, epithelioid cells with caseification or Langhans giant cells [3]. No pleural biopsy was taken nor was a molecular study (PCR-Xpert MTB/RIF) performed to detect M. Tuberculosis because the reagent was not available in both cases, being the only limitation of the case.

The most relevant comorbidity was pericardial involvement. Pericardial tuberculosis (PTB) represents 1-2% of all forms of EPTB, the prognosis is good if detected early, otherwise mortality is up to 17-40% [4]. The patient did not present pericardial mass on admission [9]. Although the pericardial biopsy did not confirm M. tuberculosis, its presence in the liver allowed establishing the diagnosis of Probable PTB [10]. The initial chest X-ray showed an increased cardiac silhouette, signs of active pulmonary tuberculosis and bilateral pleural effusion, while the CT scan revealed pericardial effusion and thickening with mediastinal lymphonodal changes [11], findings consistent with this case. In endemic areas, pericardial effusion should prompt early suspicion of tuberculous pericarditis, even at the first level of care.

On the other hand, the abdominal involvement represents an important aspect, since it initially presented with cholestasis and ended up being confirmed as Hepatic Tuberculosis

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(HTB). HTB represents less than 1% of EPTB [12]. The clinical manifestations are unspecific, but the following stand out: fever, cyanosis, jaundice, hepatomegaly, splenomegaly and abdominal distension [12]. The patient manifested practically all these clinical signs. There are important studies that help in the diagnosis of peritoneal tuberculosis, such as ultrasound (most important study in the emergency due to high suspicion) [13] and computed tomography (reveals the most specific findings) [14]. In addition, it is possible that, by means of exploratory laparoscopy, biopsy samples are obtained for histological evidence, which shows granulomatous inflammation with the presence of giant Langerhans cells and caseous necrosis, eventually forming a tuberculoma [15].

The initial treatment scheme for EPTB (Isoniazid, Rifampicin, Ethambutol and Pyrazinamide) has shown high effectiveness, with good clinical results and a low rate of therapeutic failure in most cases, if adherence to the antituberculosis regimen is maintained and close follow-up is performed [16].

Conclusion

With the above information, health professionals should be equipped to implement evidence-based protocols in the diagnosis and treatment of the different forms of EPTB in endemic areas, both at the primary health care level and in high-capacity hospitals.

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Conflicts of Interest: The authors disclaim any conflicts of interest.

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