

TRANSVERSE MYELITIS DUE TO TUBERCULOSIS: CASE REPORT WITH NARRATIVE REVIEW

Jorge Luis Alvarado Sepulveda*

MD. Universidad del Cauca. *Corresponding Author

Mateo Saénz Rengifo

MD. Fundación Universitaria de Ciencias de la Salud.

David Esteban Martínez Gallardo

MD. Universidad Cooperativa de Colombia.

Jorge Luis Gil Gil

MD. Universidad Simón Bolívar de Barranquilla.

ABSTRACT

Tuberculosis is a global public health problem, which continues to increase morbidity and mortality around the world. The infectious agent is the well-known Koch bacillus, *Mycobacterium tuberculosis* complex, discovered in 1882 by Robert Koch. Tuberculosis in the central nervous system with spinal cord involvement is a rare event. It is believed that the medullar infection is due to the contiguity of a bone infection at the vertebral level. The initial symptoms of spinal cord infection are due to the motor and sensory compromise of the compromised spinal cord level. Infection in the central nervous system occurs mainly due to the presentation of meningitis and intramedullary tuberculosis in HIV-positive patients, which is considered to represent only 2% of the cases of tuberculosis of the central nervous system. We present a case of spinal cord involvement due to tuberculosis.

KEYWORDS : Meningitis, tuberculosis, myelitis.

INTRODUCTION

Tuberculosis is a global public health problem, which continues to increase morbidity and mortality around the world (1). The infectious agent is the well-known Koch bacillus, *Mycobacterium tuberculosis* complex, discovered in 1882 by Robert Koch. Its incidence is much higher in patients with HIV, increasing its mortality (2). It is considered that 5% of tuberculosis infections are multiresistant, and the success of this infectious agent is due to its high adaptability (3).

The main clinical forms of tuberculosis are pulmonary in a proportion of 85%. Involvement in the central nervous system is rare, it is 5% of tuberculosis cases, with a high mortality of up to 30% (4). Infection in the central nervous system occurs mainly due to the presentation of meningitis and intramedullary tuberculosis in HIV-positive patients, which is considered to represent only 2% of the cases of tuberculosis of the central nervous system (5). We present a case of spinal cord involvement due to tuberculosis.

Case report

A 55-year-old male patient with a history of tuberculosis infection 5 years ago treated with a full regimen of Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol. Consultation to the emergency service due to decreased muscle strength in the lower limbs lasting 1 week, associated with cough, fever, expectoration. Physical examination revealed a patient with decreased muscle strength, with auscultation of rales in both lung fields. A chest X-ray was taken, showing findings compatible with miliary tuberculosis, and a nuclear magnetic resonance of the spine revealed extensive myelitis with involvement of T2 to T9 (See figure 1). In sputum, infection by *Mycobacterium Tuberculosis* is confirmed. The study of the cerebrospinal fluid shows pleocytosis at the expense of lymphocytes with a positive ADA test. HIV infection in the patient is ruled out. Intensive management with RZHE scheme begins until completing 12 months of management. At 6-month follow-up, patient without detection of bacilli in sputum and with resolution of symptoms. At the end of 13 months of follow-up, a patient with complete resolution of symptoms was considered a patient with successful treatment.



Figure 1. NMR alteration in signal intensity at the level of the spinal cord in the posterior T2 sequence of the vertebral bodies from T2 to T9 suggestive of a spinal cord inflammatory process.

DISCUSSION

Tuberculosis in the central nervous system with spinal cord involvement is a rare event. It is believed that the medullar infection is due to the contiguity of a bone infection at the vertebral level. The initial symptoms of spinal cord infection are due to the motor and sensory compromise of the compromised spinal cord level. Generally, patients with spinal cord involvement have brain involvement, which indicates a poor prognosis for patients (6).

The diagnosis of tuberculosis myelopathy is a diagnostic challenge. It is based on clinical suspicion and a thorough physical examination. In addition, the main suspicion falls on the detection of pulmonary tuberculosis, mainly miliary tuberculosis as a clinical presentation, because the infection at the level of the central nervous system is due to hematogenous spread of the bacillus (7). In these patients, HIV infection should always be ruled out, due to the coalescence of both infections is very common. Many of these patients, due to their cerebral involvement, may debut with intense headache that could be associated with other symptoms of intracranial hypertension (8).

Treatment will depend on the patient's immunosuppression status. In our case, the patient had a negative test for HIV. In addition, the compromise of the central nervous system implies prolonged management with RZHE for 12 months, due to the high risk of resistance and therapeutic failure. In the case of our patient, adherence and treatment were adequately met, resulting in a curative state of the disease (9).

Diagnostic images are a mainstay for diagnosis, especially nuclear magnetic resonance (NMR), which can detect early changes of marrow involvement, which are related to the typical histopathological finding of liquefaction necrosis (9).

The prognosis of patients with tuberculosis in the central nervous system is poor, with sequelae occurring between 40% in early stages, and up to 90% of patients in late stages. Mortality will depend on the early start of medical management, with an incidence of up to 50% in the case of late onset (7,9).

In the case of our patient, given the history of tuberculosis infection, with pulmonary involvement, and findings consistent with miliary tuberculosis, it led to a high suspicion of involvement of the central nervous system by tuberculosis, which led to early diagnosis and effective treatment, which ended in a curative case of myelitis due to tuberculosis infection.

Ethical standards and patient consent

We declare that the patient described in this study gave informed consent prior to inclusion in this study.

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