

# Unmasking the challenges: misdiagnosis of extra pulmonary tuberculosis

## Abstract

Extra-pulmonary tuberculosis (EPTB) is a type of tuberculosis that occurs outside the lungs and can affect various body parts. Misdiagnosis of EPTB is a serious issue that can lead to delayed or incorrect treatment, resulting in serious complications and even death. The lack of awareness and training among healthcare professionals, inadequate diagnostic tools, and limited access to specialized tests are the primary reasons for misdiagnosis. Misdiagnosis can have severe consequences for patients with EPTB and contribute to the spread of TB. Increased awareness and training among healthcare professionals, the use of more sensitive diagnostic tools, and the development of new technologies are needed to improve the accuracy and speed of diagnosis. Timely and accurate diagnosis is crucial in preventing the spread of TB and reducing the burden of the disease on individuals and communities.

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## Introduction

EPTB is a type of tuberculosis that occurs outside of the lungs, affecting various parts of the body such as lymph nodes, bones, joints, and the nervous system. Due to its varied and often nonspecific symptoms, it can be difficult to diagnose, and misdiagnosis can lead to delayed or incorrect treatment, which can result in serious complications and even death. Diagnosing patients in the clinical field arguably is the most important foundation upon which all clinical decisions pertaining to treatments are made. Therefore when an accurate diagnosis is made within a duly time manner, a patient may have a better chance of attaining positive health results. On the contrary, misdiagnosis in any form such as inaccurate diagnosis and wrong diagnosis may pose a serious threat to the health of patients and play a significant role in economic loss.<sup>1</sup>

## Scope of the problem

Tuberculosis (TB), an infectious disease caused by *Mycobacterium tuberculosis* is the thirteenth leading cause of death worldwide classified by the World Health Organization (WHO).<sup>2</sup> In 2021, an estimated number of 6.1 million new cases of TB was recorded with about 1.6 death reports of which 11% represents HIV positive patient.<sup>3</sup> Although TB disease mostly affects the lungs causing pulmonary tuberculosis (PTB) with a rate of about 70% of all TB cases, the TB pathogen may also affect other organs such as the bones, lymph nodes and urogenital tract causing extrapulmonary TB (EPTB).<sup>4</sup> EPTB as described by the WHO is an infection caused by *M. tuberculosis* affecting organs and tissue outside of the pulmonary parenchyma.<sup>4</sup> In 2019 the prevalence rate of EPTB worldwide was 16% of the 7.5 million cases recorded of TB.<sup>5</sup> EPTB can affect a wide variety of organs, thereby generating a large spectrum of signs and symptoms making it difficult for accurate diagnosis leading to misdiagnosis often times. Misdiagnosing of some forms of EPTB such as meningeal forms can have detrimental impact on the public's health may lead to death. Also, delayed treatment resulting from misdiagnosis of EPTB may lead to an increase rate of morbidity which in tend will cause the continual spreading of the disease.<sup>5</sup> Further more may increase the healthcare costs associated with delayed treatment and the potential for the spread of TB. This study seeks to bring to the concern of the public the misdiagnosis of extra pulmonary tuberculosis.

## Causes of misdiagnosis of extra-pulmonary tuberculosis (EPTB)

One key factor contributing to misdiagnosis of EPTB is the atypical clinical manifestations making it difficult to be detected. This is so because unlike the pulmonary tuberculosis which affects the lungs showing definite symptoms such as weight loss and persistent coughs EPTB may show various varieties of symptoms and signs. This is evident in the case of a 59 year man in Sri Lanka who was first diagnosed with granulomatosis with polyangiitis after experiencing symptoms such cervical pain, fever, large joint pain who was later re-diagnosed with EPTB after further confirmatory tests.<sup>6</sup>

Also, since the EPTB disease affects a lower percentage as compared to the pulmonary tuberculosis, it is mostly underrated with health care providers having little or no experience in dealing with such situation and thereby may misdiagnose patients who are experiencing the signs and symptoms of the disease. In 2011 it was reported in Netherland having low number of medical professionals diagnosing and treating of EPTB since it had a low prevalence rate and thereby increasing the rate of misdiagnosis.<sup>6</sup>

Some medical facilities lack the adequate, appropriate, specific, and efficient diagnostic tools in diagnosing the disease and therefore could contribute to misdiagnosis of EPTB. Due to this challenge, most health care providers are not able to perform adequate confirmatory tests on samples of patients and as a result may misdiagnose the disease as evident in African and European countries.<sup>7</sup>

## Possible solution and recommendation

Diagnosis of EPTB poses challenges due to the diversity of symptoms with which EPTB may present the low level of suspicion among clinicians, and the difficulty in obtaining an adequate sample for confirmation. Thus, there is a need for increased awareness and training among healthcare professionals about the diagnosis and management of EPTB. The use of more sensitive diagnostic tools and the development of new technologies, such as rapid molecular tests and point-of-care diagnostics, may also aid in improving the accuracy and speed of diagnosis.

## Conclusion

In conclusion, misdiagnosis of EPTB is a concerning issue that warrants attention from healthcare professionals, policymakers, and researchers alike. Timely and accurate diagnosis is crucial in preventing the spread of TB and reducing the burden of the disease on individuals and communities.

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## Conflicts of interest

The authors declare no conflict of interest.

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