Disseminated Multisystemic Tuberculosis in an HIV Negative Patient: A Case Report

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ABSTRACT

Disseminated Tuberculosis, quite common in immunocompromised patients is uncommon in the immune-competent and at times mistaken for severe immunosuppression or intra-abdominal malignancy. Therefore, a high index of suspicion is required even in the immune-competent to make a diagnosis. We present a case of disseminated Tuberculosis in an immunocompetent individual.

Keywords: Disseminated Tuberculosis, HIV, Immuno-competent, Mycobacteria.

1. INTRODUCTION

Tuberculosis remains a huge health burden and it is regarded as one of the infectious diseases with significant mortality of over 1,600,000 deaths annually [1]. Nigeria ranks seventh among the 30 Tuberculosis high burden countries globally and second in Africa [2]. The incidence of the disease is on the rise in Nigeria due to many factors such as the increasing prevalence of patients living with HIV/AIDS and worsening social determinants of health [3], [4]. Moreover, the use of modern diagnostic tools such as the WHO Pre-qualified molecular test has resulted in an increased case detection rate in Nigeria [5].

Furthermore, reports suggest that there was increased community transmission of Tuberculosis more deaths were recorded as a result of the COVID-19 pandemic which caused disruption of health services [6]. Aside from causing disruption of health services, it was also observed that co-infection with COVID-19 worsened outcomes of patients with Tuberculosis [2].

The World Health Organization estimates that up to 450,000 people developed Tuberculosis in 2020 in Nigeria and 128,000 people died from the disease [1].

It is largely regarded as a disease of opportunity, taking advantage of individuals with reduced immunity such as HIV, Diabetes Mellitus, patients undergoing Chemotherapy, Renal transplant, and Malnutrition [7]. The part of the body commonly affected is the lungs. However, other parts of the body such as the spinal cord and meninges, cervix, bones, etc. are not spared [8].

Severe forms of the disease are common in patients with immunosuppression associated with lymphohematogenous dissemination of the infection to other parts of the body [9]. It is uncommon in immunocompetent individuals [10], [11]. Disseminated Tuberculosis is defined as a Mycobacterial disease in which there is a Lymphohematogenous spread of the organism to more than two contiguous sites in the body [8], [11].

It is said to occur primarily as a result of the reactivation of Latent Tuberculosis, while other authors believe that it is iatrogenic [12]. Other authors argue that the Pathophysiology of dissemination is still not well understood [9]. Disseminated Tuberculosis accounts for up to two percent of all cases of Tuberculosis among immunocompetent individuals.
adults and about twenty percent of all cases of extrapulmonary Tuberculosis [13]. It is speculated that this figure may be higher in areas where there are no diagnostic tools [14], where it is a major cause of morbidity and mortality in the immunosuppressed [9].

2. Case Report

We report a 45-year-old male with a six-month history of cough, progressive weight loss, and muscle wasting, and a 5-month history of low-grade fever with night sweats, progressively worsening breathlessness, and left-sided hemiparesis as presenting complaints on presentation at a private medical facility. There was also a history of associated shortness of breath on mild exertion and bilateral leg swelling.

The patient is not known hypertensive or known to be having a cardiac-related disease as blood pressure was within the normal range on presentation. According to the patient, he has received several forms of treatment at various patent medicine stores for cough and fever and was not getting better. There was no history of contact with anyone with chronic cough, and no history of intake of unpasteurized milk from cattle dealers. The patient does not smoke cigarettes but drinks alcohol which he described as being moderate.

General and systemic examination revealed a man who was severely cachectic with muscle wasting, moderately pale with admitting Haemoglobin concentration of 8.5 g/dL, and mildly dehydrated with bilateral pitting oedema up to the ankle. SpO2 was 93. Examination of the chest revealed diffuse coarse crepitations at the apical region of the lungs. Power on the left Upper Limb was 3/5 while on the Left Lower limb was 2/5. There was full power on the right upper and lower limbs.

An initial assessment of severe immunosuppression with Pulmonary Tuberculosis to rule out malignancy was made. HIV, Hep B, and HCV screening was negative for both HIV, Hep B, and HCV antibodies. Liver function tests showed that the liver enzymes were within normal ranges except Serum Glutamic-Oxaloacetic Transaminase (SGOT) otherwise known as Aspartate Aminotransaminase (AST) which was markedly elevated. Urinalysis with microscopy, sensitivity, and culture was not remarkable. Serum electrolyte urea and creatinine were within normal limits. Casino embryonic antigen (CEA), Alphafetoprotein (AFP), and Venereal Disease Research Laboratory (VDRL) were all negative. The stool analysis was normal. Both Random and Fasting Blood Sugar tests were within normal ranges.

However, the Erythrocyte Sedimentation Rate (ESR) was markedly elevated and the Full Blood Count showed Lymphocytopenia. The Sputum Genexpert test was positive for Drug Sensitive Tuberculosis (DST) which confirmed Pulmonary Tuberculosis and is a molecular test approved by the WHO for diagnosis of Tuberculosis [5]. Chest X-ray findings revealed reticular patchy opacities in the upper and mid-lung field with bilateral hilar lymphadenopathy (See Fig. 1).

Computed Tomography Scan (CT scan) of the abdomen revealed Hepatomegaly with Right lower abdominal lesions suggestive of fistulous lesions and hypodense splenic Granulomatous lesions. (See Figs. 2 and 3). A brain CT scan could not be done by the patient because of funding constraints.

He was then commenced on Anti-Kochs medication for drug-sensitive tuberculosis using Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol (RHZE) for 2 months of intensive phase medications and then Rifampicin and Isoniazid (RH) for 4 months continuation phase according to current national guidelines [15]. While on admission to the hospital facility, he was reviewed daily during the intensive phase, and all his symptoms gradually resolved and was subsequently followed up on an Out-patient basis including visits to the Physiotherapists for rehabilitation. He was
later declared cured following negative sputum follow-up results done at the 2nd, 5th, and 6th months of medications following National guidelines on Tuberculosis treatment [15]. However, due to the patient’s financial constraints, he could not do a repeat CT scan.

3. DISCUSSION

Tuberculosis is regarded as the number one infectious killer disease ranking above HIV/AIDS in causing significant mortality globally [1]. Over 10.600,000 people were reported to have fallen ill from Tuberculosis in 2021 with close to two million deaths [2]. The increase in the prevalence of the disease is due to a surge in the numbers of HIV/AIDS cases, Diabetes mellitus, malignancies, and malnutrition [9].

Other risk factors for the development of Tuberculosis include worsening social determinants of health, and chronic alcoholic consumption [3], [16]. There was a positive history of moderate alcohol consumption over twelve years reported by the patient, and this may have been the major risk factor for the development of the disease in our patient as chronic alcoholic consumption has been reported as a major risk for the development of Tuberculosis [16], [17].

The lungs are the usual site frequently affected, but other organs are also not spared sometimes. Patients recover with prompt treatment [10]. However, dissemination to other parts of the body from the primary site can occur within weeks, months, or even years of developing the active disease largely depending on the condition of the immune system [18].

The dissemination of Mycobacteria from the primary site has two paradoxical implications for the establishment of the disease in the body, on one hand, it is said to promote the build-up of Tuberculosis antigens in the lymph nodes which is necessary for advancing immune response, and on the other, dissemination also result in other forms of the disease such as Miliary Tuberculosis, Tuberculosis of the spine [9].

Clinical manifestations depend on the organ affected, but presentations sometimes can be non-specific [10]. Hepatomegaly is a main sign observed in over half of patients with disseminated Tuberculosis [19], and this finding was also seen in this patient.

Diagnosis of Disseminated Tuberculosis can be challenging due to the atypical and non-specific nature of presentation [14], as it has been observed that up to fifteen percent of patients present with normal chest radiographs [12]. In other cases, presentations can mimic abdominal malignancy [20].

CT scan findings commonly reveal hypodense lesions [11], which was also observed for this patient. For our patient, outside the lungs, other organs that were affected include the Liver, Spleen, and possibly the Spinal Cord due to the partial paralysis that was observed on the left side of the body which resolved on admission with Antikoehs and physiotherapy.

Other Public interventions that were done for the patient outside medical rehabilitation with physiotherapy was contact investigation with close contacts at home according to National Guidelines [15]. They were screened for active tuberculosis, and none had features of the disease and were commenced on TB Preventive Therapy otherwise known as TPT.

4. CONCLUSION

In conclusion, disseminated Tuberculosis is a significant public health challenge associated with extensive mortality and morbidity in uncompromised individuals and less common among immune-competent clients. Making a diagnosis can sometimes be challenging due to the atypical nature of the presentation as having a high index of suspicion is needed to make an early diagnosis which has been proven to be lifesaving. Most cases resolve with treatment with Antikoehs.

CONFLICTS OF INTEREST

Authors declare that they do not have any conflict of interest.

REFERENCES


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