

CASE REPORT

First case of pulmonary tuberculosis and visceral leishmaniasis coinfection successfully treated with antituberculosis drug and liposomal amphotericin B

Md. Golam Hasnain, Prakash Ghosh, Md. Shadab Ibn Sharafat Sonin, James Baker & Dinesh Mondal

Center for nutrition and food security, ICDDR,B, Dhaka, Bangladesh

Correspondence

Dinesh Mondal, 68, Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka-1212, Bangladesh. Tel: +880-2-8860523-32; Fax: +880-2-9827062; E-mail: din63d@icddr.org

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Key Clinical Message

Successful management of cases with visceral leishmaniasis (VL) and tuberculosis is a challenge for clinicians, because a guideline for that is currently unavailable. We report the first case in Bangladesh who developed VL during her treatment for pulmonary tuberculosis and was treated successfully with multi-dose liposomal amphotericin B for VL.

Keywords

Bangladesh, coinfection, tuberculosis, visceral leishmaniasis.

Introduction

Visceral leishmaniasis (VL) or Kala Azar (KA) is of public health importance in Bangladesh, which is considered to be one of the main VL endemic regions in the world [1]. According to Director General Health Service (DGHS), Government of Bangladesh (GoB), a total number of 1902 cases have been reported from 21 districts of Bangladesh in 2012. The cumulative number of cases and deaths between 1999 and 2012 was 77,269 and 216, respectively. Moreover, the incidence of asymptomatic infection is much higher and in the endemic areas of Bangladesh a 4:1 ratio of infection to disease has been reported [2].

Tuberculosis is a major cause of mortality and morbidity in the world, threatening one-third of the population globally. It is one of the most common opportunistic infections and the burden is the greatest in low- and middle-income countries [3]. TB is a major health problem in Bangladesh as in other South Asian countries [4]. Bangladesh experiences dual epidemics of TB and VL. The annual risk of TB infection is estimated at 220 per 100,000, which gives an incidence rate of TB smear-positive cases of 95 per 100,000 persons/years. Thus, Bangladesh is among the high prevalence countries for TB in the South East Asian Region [5]. Pulmonary cases

represent 85% of TB and extrapulmonary disease constitutes 15%. The National TB Program has successfully introduced the directly observed treatment short course (DOTS) strategy since 1993 (DGHS, GoB, 2010).

TB-VL coinfection is a syndrome that has important clinical implications. Although distinct in etiology and transmission mechanisms, VL and TB share several features and many infections remain asymptomatic. Symptoms usually develop after several months or years in those who progress to clinical disease; very long incubation periods (latent infection) may be related to immune suppression occurring at a later age, which may activate latent infection to active disease [6]. Both TB and VL are considered as a major public health problem in Bangladesh. A number of clinical cases of TB-VL have been reported in different parts of the world but this case report is novel for Bangladesh.

Case Report

A 22-year-old female, living in the Trishal sub district of Mymensingh, the most endemic area for VL in Bangladesh, presented to the study clinic of ICDDR,B with complaints of fever for 9 weeks. However 5 weeks before she was admitted into the Mymensingh Medical College

Hospital (MMCH) with complaints of cough for 6 months, fever for 1 month, and diarrhea for 7 days. MMCH conducted a clinical evaluation and found an Erythrocyte Sedimentation Rate (ESR) 116 mm, hemoglobin level 8.9 g/dL, red blood cell 2.66 million/ μ L, white blood cell 2900/ μ L, platelets 79,000/ μ L, rK-39 strip test and HBsAg negative, sputum for AFB positive, X-ray of the chest's posterior/anterior view showed consolidation in left lower zone, the peripheral blood film showed pancytopenia, bone marrow aspiration showed reactive marrow with erythroid hyperplasia, and ultrasonogram of whole abdomen revealed mild hepatosplenomegaly. On the basis of these signs, symptoms, and laboratory investigations she was diagnosed as a case of pulmonary TB and was treated with a 6-month regimen of anti-TB drug according to the National TB Guideline of Bangladesh. After taking anti-TB drug for 5 weeks, she came to the study clinic and mentioned that her cough had subsided but her fever had not. On examination, we found an enlarged spleen of 8 cm and no hepatomegaly. We performed an rK-39 strip test and a direct agglutination test (DAT). Both yielded positive results. We diagnosed her as a case of active VL according to the National Kala-Azar Guideline, Bangladesh, and treated with Lyposomal Amphotericin B (LAmB) doses with 5 mg/kg for 3 days along with anti-TB drugs. We gave 1- and 6-month follow-up and she showed a complete recovery from fever and splenomegaly. During this time-period she completed her 6-month regimen of anti-TB drugs and also had no complaints regarding TB symptoms.

Discussion

VL is the second leading parasitic killer in the world. VL is responsible for an estimated 500,000 cases each year worldwide [1]. Diagnosis is accomplished by considering clinical signs and symptoms along with Rapid Diagnostic Tests (RDTs). The treatment options are very limited with a significant number of side effects. Diagnosis and treatment are complicated in the field when coinfections arise. This case has certain unique features. This patient was suffering from cough with fever and mild hepatosplenomegaly and was diagnosed and treated as a case of pulmonary TB. Although she was relieved from cough after taking the anti-TB drug, her fever did not subside and her spleen size was increased. Along with diagnostic tests, this symptomology strongly suggested that she was an active case of VL. The clinicians of VL endemic areas should be aware of TB-VL coinfections and their potential presenting symptoms, histories, and outcomes. A significant number of HIV-VL and several VL-TB coinfecting

cases have already been reported and treated in India [7]. As the VL endemic areas in Bangladesh share the same epidemiological and geographical context, VL coinfections should get precedence. Among all the antileishmanial drugs, LAmB is the safest and efficacious drug. In India, few cases of HIV-VL co-infection was successfully treated with LAmB [8]. LAmB has also been considered as the first-line treatment for VL in Bangladesh. This case showed a complete disappearance of all signs and symptoms after treating with LAmB along with Anti-TB drugs. So, in this way, this case has provided an exclusive option in treating TB-VL coinfecting cases with the need for further evaluation.

Conflict of Interest

All the authors of this manuscript are from Bangladesh which is selected in the Wiley Open access Waiver Country List and it was not funded from any other source.

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