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Case Report

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A Case Report of Visceral Leishmaniosis with Pancytopenia and Splenomegaly a Diagnostic Challenge

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Abstract

Visceral leishmania is a neglected tropical, gradually progressing and endemic vector borne disease caused by the protozoan leishmania parasite, transmitted through the bite of sandflies that usually effects poor socioeconomic populations. In this case report, we present a case of an 8 years old male hailing from rural Bakool area in the southcentral Somalia, with history of irregular high grade fever associated with rigors, generalized weakness, abdominal distension and weight loss for more than a month whose leishmania test revealed negative even with negative screen test for other infectious agents. Despite the diagnostic challenge, the patient was later successfully treated with amphotericin B as a suspected visceral leishmaniasis. This case illustrates the lack of accurate diagnostic tests for visceral leishmaniasis in Somalia, which poses a challenge in proper diagnosis and treatment of patients effected with visceral leishmaniasis.

Keywords: Visceral Leishmania, Neglected Tropical Diseases, Case Report

Introduction

Visceral leishmania (kala-azar) is a gradually progressing disease caused by the protozoan leishmania parasite, transmitted through the bite of phelobotomus sandflies in developing countries [1]. VL is caused by different species of leishmania such as *Donovani, Chagas* and *Infantum* [2]. The disease is spread by the bite of infected sandflies that feed from animal to human The incubation period of VL lasts from several weeks to months and sometimes a year [3]. The clinical manifestation of VL is associated with a wide spectrum of symptoms, from subclinic, mild to acute form [4].

The major cause of VL in Somalia is attributed to *L. Donovani* that usually presents with irregular fevers, splenomegally, weight loss, anemia, swollen hands and legs and other nonspecific signs and symptoms.

Here we report a case of a young child patient who had the clinical symptoms of VL with negative test for Rk39 antigen based test as no other cause identified. Despite the diagnostic challenge, the patient was treated with Amphotericin B and the outcome was successful.

Case Presentation

An 8 years old male from a rural farm land area called Qasaale in bakool region came to the ER in our hospital complaining with irregular high grade fever associated with rigors, generalized weakness, abdominal distension, loss of appetite and weight loss for more than a month.

Initially the patient's condition started 40 days before the admission with high grade fever with chills on and off which was not relieved after taking paracetamol for about two weeks followed by gradual increase of generalized weakness and loss of appetite. His previous medical history was unremarkable. There was no history of contact with TB or night sweating. The informant reported his elder brother had died due to this condition for two years ago. On generalized examination, the patient had severe pallor on the conjunctiva and palms, he was cachectic, slightly jaundice, febrile with TEM of 39.5c, no cyanotic or lymphadenopathy was noted.

On chest examination, bilateral crackles on both of his lungs was noted, there was no any visible pathologic abnormality on his chest. On abdominal examination, there was a palpable spleen for up to 14cm below the left costal margin. Examination of the other systems was normal. The laboratory investigations revealed a marked pancytopenia with hemoglobin level reaching up to 4gm/dl and we immediately ordered an emergent blood transfusion of 75mg/dl based on his body weight after we took the sample. Screen tests including Acid Fast Bacilli, Malaria, Widal, HBV, HCV and HIV tests were performed and all showed with negative result. ESR evaluation was in a normal range. We reffered to SOS in baidoa for rK39 test, and the result revealed negative.

Unfortunately, to further confirm for visceral leishmaniasis, DAT test was not available to us; however, we decided to initially give antimalarials and certain antibiotics for suspected malaria and pneumonia with artesunate (36mg/dose), ceftriaxone (750mg/dose) and clocxacillin injections (450mg/dose), respectively. We continued for a week and there was no improved symptoms whatsoever, we however decided to discontinue the current treatment and recheck the rK39 test again, and revealed negative.

After further consultation with experts we decided to start visceral leishmaniasis treatment of Liposomal Amphotericin B injection despite a negative result in rK39 rapid test. A total dose of 75mg per day in 5% dextrose followed by ferro-folic acid tabs was given and continued for up to five days.

After a week of follow up, the patient showed a good response to the treatment, the fever become subsided, the spleen started to shrink upto 12.2cm in diameter, he also started to gain weight and his appetite was improved. The hemoglobin level increased up to 6.8gm/dl. The patient was discharged in a good condition.

Discussion

Based on global estimates, around 50,000 to 90,000 new cases of VL occur worldwide each year (World Health Organization, 2019). In 2017, more than 95% of new cases reported to WHO occurred in 10 countries: Bangladesh, Brazil, China, Ethiopia, India, Kenya, Nepal, Somalia, South Sudan and Sudan [5].

Visceral leishmaniasis in Somalia was first identified in 1934 by Penso [6]. In 1965 Baruffa identified and treated 12 patients with leishmania in Jowhar area [7]. Bakool and Bay regions, bordering with Ethiopia and Kenya are currently considered as an endemic area for visceral leishmania. Termite hills and red acacia trees are the breeding sites for the vector.

Diagnosis of visceral leishmaniasis is made by combining signs with parasitological or serological tests (mainly rapid diagnostic tests). However, diagnosing visceral leishmaniasis in developing countries with limited resources such as Somalia, poses a challenge in the absence of accurate diagnostic tests suitable for the field.

Despite the development of new diagnostic tests for detection of Visceral Leishmaniasis, in Somalia we only have the rK39 antigen based test available. The rK39 dipstick contains aminoacid repeat that's a part of kinesin protein of *L. chagasi*. The repeat is conserved within *L. Donava*ni complex. It's suitable for the field and the result can be easily obtained in 15 minutes. However, as with DAT, it has not been universally accepted as the result from different studies vary [8]. A recent Cochrane review of metaanalysis for the rK39 ICT data showed overall sensitivity of 91.9% (95% CI 84.8- 96.5) and specifity of 92.4% (95% CI 85.696.8) for the diagnosis of visceral leishmaniasis in Indian subcontinent. The sensitivity was lower in East Africa which was 85.3% (95% CI 74.5-93.2) [9].

A similar study which has proved limited reliability and low sensitivity of rK39 for detection of visceral leishmaniasis. In 2013, a published novel of recombinant protein (rKLO8) of L. Donavani from Sudan highlighted the antigenic variation of L. Donavani subspecies has proposed low sensitivity in VL diagnosis based on rK39 [10].

Highly accurate diagnostic tools including DAT tests are badly needed in Somalia to replace the current rapid tests we used for VL diagnosis.

Another challenge for VL diagnosis which was reported from Sudan include when the patient come with concomitant illness like malnutrition, such patients may have reduced immune responses and may therefore reveal false negative results [11].

Visceral leishmania is treated with Sodium Stibogluconate (SSG) IM/IV 20mg/kg/day for 30 days and Miltefosine 100mg for four weeks. In this patient, we treated with Amphotericin B 45mg per day due to SSG was not available [12,13].

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Author Contribution

Abdirahman Moallim contributed for the preparation, editing and revision of the manuscript.

Ethical Statement

Consent from the patient's informant and the BRH administration was sought for publication of this article. No ethical committee approval was required for this publication.

Conflict of Interest

The authors claim no conflict of interest

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