Case Report

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Emergence of visceral leishmaniasis in Kollam district, Kerala, southern India

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ABSTRACT

An outbreak investigation was initiated following an unusual occurence of kala azar reported among people residing in the tribal belt of Kulathupuzha area, eastern part of Kollam district, Kerala, Southern India. 2 cases of kala azar were investigated during 2016-2018. Epidemiological analysis indicated no epidemiological link between the cases. However the Visceral leishmaniasis and cutaneous leishmaniasis intruding into newer regions pose a major threat to ongoing leishmaniasis elimination and maintenance programs.

Keywords: Cross sectional study, Newborn care practices, Rural area

INTRODUCTION

Kala-azar (KA) also called visceral leishmaniasis is a parasitic disease with anthroponotic infection which is confined to human only with no animal reservoir in Asian continent. It is caused by the protozoan leishmania parasites which are transmitted by the bite of infected female phlebotomusargentipes (sand fly). In India, the geographical distribution of kala-azar though extensive is mostly confined to the eastern part of country. Kala azar was not a major public health problem in Kerala, the southern Indian state except a few isolated cases being reported in the last decade. Example 2.8

Kollam, a district with a population of 2.6 million typically represents cross section of Kerala's natural attributes. 81,438 hectares of land are under forest cover, in the eastern portion of the district. The district reported two cases of visceral leshmaniasis till date whose details are summarized below.

CASE REPORT

Case 1

In June 2018, a 38-year-old male, native of villumala-a tribal colony Kulathupuzha block of Kollam district presented with abdominal distension, bilateral pedal edema, and fatigue of two months duration. There was associated loss of weight and loss of appetite. No history of fever was present. Clinical examination findings included pallor, pedal oedema and axillary lymph node enlargement of less than 1 cm. Hepatomegaly of 4 cm below right costal margin and splenomegaly of 8 cm was observed. Routine investigations revealed pancytopenia. patient was evaluated for hematological malignancies. Bone marrow biopsy was done at a tertiary care center which reported three fragments of moderately cellular marrow showing erythroid, myeloid, megakaryocytic elements, several histiocytes, intracellular and extra cellular amastigotes of leishmania species. The

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patient was started on liposomal amphotericin B and his conditions improved.

A preliminary home inspection was conducted in the area by the primary health care team and public health team which revealed the presence of insect vector of leishmaniasis, the phlebotomine fly. The patient residing near forest has no travel history to any of the endemic places. Domesticated dogs and cattles were widely present in that area.

House to house awareness regarding the disease was done. Indoor residual spraying was done covering 287 rooms nearby including cattle sheds. Fever and vector surveillance were strengthened in the area. 179 people were screened and 57 blood samples were collected. No other suspected cases were found till date. Samples collected from dogs also were negative.

Case 2

Another case was reported in the district two years back in February 2016. It was in a 63 year old female from Chempanaruvi in Piravanthoor panchayath. She was admitted at medical college hospital, with the history of tiredness, decreased appetite, intermittent fever and weight loss for two months. There was no history of bleeding manifestation. Pallor, Hepatomegaly (2 cm) and splenomegaly (3 cm) was present. Routine investigation revealed pancytopenia. Bone marrow trephine detected leishmania and polymerase chain reaction (PCR) analysis carried out evidenced that the parasite species involved in the infection to be leishmania donovani.

She lived in a pucca house with cement plastered wall and tiled roof, but lawn and compounds had muddy walls having cracks and crevices from where sand flies were collected. The locality is inside a forest area with thick plantations. Presence of domesticated dogs and cattles were also present in that area. A few cases of cutaneous leshmaniasis were also observed from the nearby tribal colony. Phlebotomusargentipes, the most important vector for visceral leishmaniasis could be found in large numbers from several houses around the residence of the patient. Vector surveillance, fever surveillance, indoor residual spraying around one-kilometer area and awareness classes was conducted. PCR analysis of sandflies collected from various households in the locality and the blood samples of the human contacts also failed to show any evidence for the presence of leishmania at that time. The blood samples collected from suspected animal reservoirs also failed to show any confirmatory evidence for leishmania infection.

Epidemiological analysis

Even though both of them were from the same district, the residences of these patients were 35 kilometers a part (Figure 1). Both gave no history of travel outside the state

during the past one year. No epidemiological link could be identified between the two cases. The family members of both cases were tested with the RK 39 antigen based immune-chromatographic field-testing kit to identify presence of antibodies in them signifying recent infection. All family members were tested negative. Continuous surveillance didn't yield any further cases from the district even after one year. Both the cases were from eastern part of the district and were residing near to forest with thick vegetation and people are having close contact with the vegetation.

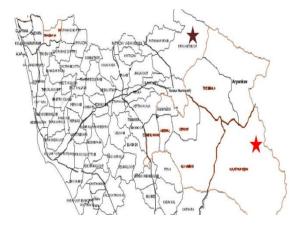


Figure 1: Spot map of two visceral leishmaniasis cases reported from Kollam district in 2016 and 2018.

DISCUSSION

Leishmaniasis was not endemic to Kerala but identification of indigenous foci of leishmaniasis recently changes the status. Two imported cases of cutaneous leishmaniasis were reported from Trivandrum in 1988 followed by the first indigenous case of cutaneous leishmaniasisfrom Malappuram district after 2 years. In 2010, 12 cases of cutaneous leishmaniasis have been reported from one of the forest tribal settlements of Kani tribes in Western Ghats of Thiruvananthapuram district followed by studies which confirmed the endemic nature of cutaneous leishmaniasis there. In 2003, two indigenous cases of visceral leishmaniasis were reported from Thrissur district in the state. In 2016, two indigenous cases of visceral leishmaniasis were reported from Malappuram district in Kerala.

Leishmaniasis presents in varied forms so diagnosis becomes difficult unless a high index of suspicion is maintained in nonendemic areas. Both the cases which we described could be diagnosed after a long delay that too after an extensive laboratory works up at several hospitals. Many cases might have gone undetected and undiagnosed. A high index of suspicion in cases reporting with fever and hepatosplenomegaly from areas where leishmaniasis has been reported is the only means of ensuring early diagnosis. Continuous surveillance for both cutaneous and visceral forms of the disease is essential for the health department to institute control measures in order to contain spread.

Animal reservoirs have been postulated to be an important factor in the epidemiological triad associated with leishmaniasis. This has been proven in similar setting in Kerala in the recent past with respect to dogs. In the present investigation, presence of animal reservoirs could not be established despite efforts to establish the same

The number of reported visceral leishmaniasis cases has decreased substantially in the past decade in the country as a result of better access to diagnosis and treatment and more intense vector control within an elimination initiative. However visceral leishmaniasis and cutaneous leishmaniasis intruding into newer regions pose a major threat to ongoing leishmaniasis elimination and maintenance programs.

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