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A Case Report of Visceral Leishmaniasis in Punjab, India

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Abstract

Leishmaniasis, a vector-borne disease, has been endemic in India since ancient times^{1, 2}. At present, it is a serious public health problem in Indian subcontinent, especially in state of Bihar. It is caused by obligate intracellular protozoa of the genus *Leishmania* and is responsible for a broad spectrum of clinical syndromes: Cutaneous leishmaniasis (CL), Visceral leishmaniasis (VL) and Mucocutaneous leishmaniasis (ML).

VL, locally known as kala-azar in India, is the most aggressive form and if undervalued is fatal. Here we describe an imported case of visceral leishmaniasis reported in the State of Punjab which is non-endemic for the disease. The importance of the case lies in the fact that, a case of Visceral Leishmaniasis has been reported after a gap of 4 years in the State.

Key words: Leishmaniasis, kalaazar, Anemia, LD bodies.

Introduction

Leishmaniasis is a chronic inflammatory parasitic disease that is transmitted through a bite of some species of infected sandflies of the genus *Phlebotomus*.

The visceral disease (classically known as “kalaazar”) is the most aggressive form and if undervalued is fatal.

Visceral leishmaniasis results in systemic infection of the liver, spleen and bone marrow.

Internationally, the disease is endemic in 88 countries, infecting around two million people each year^{3,4}.

It is endemic in 62 countries and about 90% of the estimated 500,000 new cases that occur annually, are reported from India, Nepal, Bangladesh, Brazil and Sudan. As many as one-half of these cases occur in India especially in the Eastern states.⁵ The life cycle of *Leishmania* involves two forms, the promastigote which develops and lives extracellularly in the sandfly vector and the amastigote which multiplies intracellularly in the reticulo-endothelial cells of the host⁶. Mammals including rodents, dogs and foxes are the reservoirs of infection.

In India where visceral leishmaniasis or kalaazar is endemic, man is the main or the only source of infection⁷. How far the amastigote spreads throughout the body of the host depends on the *Leishmania* species. Cutaneous disease (Delhi Boil) is caused primarily by *L. major* and *L. tropica*. Mucocutaneous disease (also called espundia) is caused by *L. braziliensis* whereas the visceral disease involving the liver and spleen is caused by *L. donovani*.

Case History

We present a case of a four year old male child residing presently in Banur, District SAS Nagar, Punjab and presenting with Visceral Leishmaniasis.

Four-year old Pawan, residing at Banur presented at a Tertiary care teaching hospital with history of distended abdomen, intermittent high grade fever, dry cough and a voracious appetite for the last three months. His family had migrated from Bihar to Punjab one and a half month back.

On examination the child looked lethargic with a dry, rough, dark skin. He had severe pallor, though there was no pain abdomen, icterus, cyanosis or lymphadenopathy. His weight was 14.5 kg and he had tachycardia (PR: 120/min). On abdominal examination, there was abdominal distension with tenderness. His spleen was grossly enlarged and extended about 9 cm below the costal margin (3 cm below umbilicus) and liver was palpable about 2.5 cm below the costal margin in the mid-clavicular line.

Examination of the other systems was insignificant. Routine haematological investigations revealed severe anaemia with a haemoglobin level of 3.5g/dl. RBCs were microcytic hypochromic while TLC was 1300/ cumm, DLC showed neutropenia and platelet count was 60,000/ cumm.

USG abdomen revealed massive splenomegaly with mild hepatomegaly. (Fig-1)

Serological tests for tuberculosis & salmonellosis were negative. Bone marrow aspiration from the posterior superior iliac spine was performed to further investigate the likely cause of anaemia. Bone marrow smears revealed cellular marrow with erythroid hyperplasia, megaloblastic and micro normoblastic maturation and prominence of plasma cells. Also seen were Amastigote forms of *Leishmania donovani* (LD bodies) intracellularly within the macrophages as well as extracellularly. The LD bodies were seen as ovoid structures 2-4 microns in longitudinal axis with a round basophilic nucleus of upto 1 micron and an elongated kinetoplast lying tangentially to the nucleus. On the basis of bone marrow examination results the child was diagnosed as having visceral leishmaniasis or Kala azar and was immediately put on Liposomal Amphotericin B, 3 mg/kg body weight on days 1 through 5 and repeated on days 14 and 21 (Total dose of 21 mg/kg) along with nutritional supplements.

Three units of packed cells were also transfused to maintain haemoglobin levels.

He responded to the treatment and showed visible signs of improvement such as diminution of pallor and regression of spleen within three weeks.

The child was healthy at the time of documentation of this report.

Discussion

The different forms of Leishmaniasis and their causative *Leishmania* species exhibit a distinct geographic distribution, this being determined by the composition of the parasitic system (parasite-vector-host) and by environment conditions⁸. *Leishmania donovani*, the parasite causing visceral leishmaniasis or kalaazar is endemic in many places in India, particularly being prevalent in the eastern states along the coasts of the Ganges and Brahmaputra having a hot and humid climate, while the drier western parts of the country are home to *Leishmania tropica*, the causative parasite for Oriental sore⁷. The State of Punjab is non-endemic for the disease as indigenous cases of leishmaniasis have never been reported. Although an imported case from Bihar was reported for the first time in District Amritsar, Punjab in 2010 and this present case has been reported after a period of four years. This case (again an imported case) has been reported from the family of migrants from the State of Bihar. Survey of close contacts of patient's family was done by the Department of Health and Family Welfare, Punjab and no other person was found to be having signs and symptoms of

the disease. Remedial preventive measures in the form of IRS (Indoor Residual Spray) with suitable insecticides were undertaken in the area.

Conclusion

We report the occurrence of visceral leishmaniasis in a 4 year old boy, as a rare presentation that not only merits documentation but also mandates further research into the epidemiology, geographic distribution and inter-species interactions of the Leishmania parasite since many migrants from the endemic states visit the state of Punjab every year.

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Fig- 1: USG showing massive splenomegaly