

**CASE REPORT**

## Visceral Leishmaniasis In A Native Kashmiri Boy

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### Abstract

Leishmaniasis, though widely prevalent in South Asia, is not seen in the Kashmir valley where the cold climatic conditions create a hostile environment for the growth of the parasite or its vector, the sandfly. However, a few cases of cutaneous leishmaniasis have been documented from the hot and arid Uri belt of Kashmir. We present a case of visceral leishmaniasis in a boy hailing from Uri, a rarity in this region.

### Key Words

Visceral leishmaniasis, Cutaneous Leishmaniasis, Leishmania Donovanii, Leishmania Tropica

### Introduction

Leishmaniasis is a chronic inflammatory disease of the skin, mucous membranes or viscera caused by obligate intracellular kinetoplastid protozoan parasites transmitted through the bite of infected sandflies of the genus *Phlebotomus*. Leishmaniasis is endemic throughout the Middle East, South Asia including India, Africa and Latin America (1). 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 host (1). Mammals including rodents, dogs and foxes are the reservoirs of infection. In India where visceral leishmaniasis or kala azar is endemic, man is the main or the only source of infection (2). 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* (1).

In India visceral leishmaniasis or Kala azar is prevalent in the eastern states having a hot and humid climate while the drier western parts of the country are home to *Leishmania tropica*, the causative parasite for Oriental sore (2). We present a case of a five-year old boy belonging to the Uri region of South-West Kashmir and presenting with Visceral Leishmaniasis

### Case Report

A five-year old male child residing at Uri in South – West Kashmir was referred from the Sub-district Hospital

to the GB Pant Paediatric Hospital Srinagar, J&K (India) with a history of severe anaemia and intermittent high grade fever for the last two months not responding to antibiotics or antimalarials. On examination the child looked emaciated with a dry, rough, dark skin. He had severe pallor, though, there was no icterus, cyanosis or lymphadenopathy. On abdominal examination mild ascites, mild hepatomegaly and moderate splenomegaly of upto 2cm below the costal margin were noticed. Examination of the other systems was unremarkable. Routine haematological investigations revealed severe anaemia with a haemoglobin level of 5g/dl. RBCs were normocytic hypochromic while TLC, DLC and platelet counts were within normal limits. Serological tests for Tuberculosis, Salmonellosis and Brucellosis were negative. Bone marrow aspiration from the sternum was performed to further investigate the likely cause of anaemia. Bone marrow smears revealed erythroid hyperplasia with normoblastic erythropoiesis. Myeloid and megakaryocytic series were normal. Plasma cell count was raised slightly upto 5%. The most striking feature was the abundance of amastigote forms of *Leishmania donovani* (also known as LD bodies) both intracellularly within the macrophages as well as extracellularly (Fig.1). The LD bodies were seen as ovoid structures 2-4 micro in longitudinal axis with a round basophilic nucleus of upto 1 micro and an elongated kinetoplast lying tangentially to the nucleus (Fig 2). On the basis of Bone marrow examination results the child was diagnosed as having visceral leishmaniasis or Kala azar and was immediately put on Pentavalent

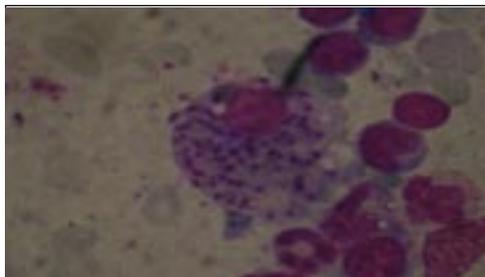
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antimonials along with nutritional supplements. The child responded to the treatment and showed visible signs of improvement such as increase in weight, diminution of pallor and regression of spleen within three weeks. The child was alive and well at the time of documentation of this report.

**Fig. 1** Bone Marrow Aspiration Smear Showing LD Bodies within the Cytoplasm of a Macrophage (X 400)



**Fig. 2** Photomicrograph Showing the Ovoid LD bodies with a Nucleus and a Kinetoplast (X 1000)



## 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 conditions (4). *Leishmania donovani*, the parasite causing visceral leishmaniasis or kala azar is endemic in many places in India, China, Africa, Southern Europe, South America and Russia. In India it thrives in the hot and humid climes of Assam and Bengal along the coasts of the Ganges and Brahmaputra. It is also quite common in Bihar, Orissa, Tamil Nadu and the eastern parts of Uttar Pradesh as far as Lucknow (2). *Leishmania tropica*, the parasite causing cutaneous leishmaniasis, on the other hand, is found along the shores of Mediterranean through Syria, Arabia, Mesopotamia, Persia to Central Asia, Central Africa, all the four provinces of Pakistan and Western India (2, 5). Cutaneous leishmaniasis is also quite prevalent in the Pakistan administered areas of Kashmir including Muzaffarabad (3, 5). In India the cold and harsh winter conditions of the Kashmir valley do not favour the survival and growth of the leishmania parasite or its vector, the sand fly and the disease is practically unheard of in the valley. Although, three cases of

cutaneous leishmaniasis in native Kashmiris have been reported from this institution in the past, all the three belonged to the Uri belt in South-west Kashmir (6). This region borders Muzaffarabad and shares many geographic and climatic similarities with it. Unlike the Kashmir valley, the hot and arid climate of this area is quite conducive to the growth and development of *Leishmania* and the sandfly (4). It is to be noted that although *L. tropica* exists in many countries where *L. donovani* is prevalent, the two parasites are not found in the same locality and kala azar is very rare from places where oriental sore is endemic (2, 4). In India, where as, kala azar is confined to the moist eastern parts of the country, the oriental sore, on the contrary, is limited to the dry western parts including the Uri region (2). However, recent studies in Pakistan administered Kashmir have shown that childhood visceral leishmaniasis is quite common in Muzaffarabad and adjoining areas (otherwise known to be endemic for the cutaneous form) with a disease frequency of 1.73% in the paediatric age group (7). No such case of visceral leishmaniasis, however, has been documented previously from the Indian side of Kashmir.

## Conclusion

Therefore, we report the occurrence of visceral leishmaniasis in a young Kashmiri 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.

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