OPEN ACCESS

Saudi Journal of Pathology and Microbiology

Abbreviated Key Title: Saudi J Pathol Microbiol
ISSN 2518-3362 (Print) |ISSN 2518-3370 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Case Report

Incidental Finding of Leishmania Donovani Bodies in Bonemarrow Aspiration in a Case of Pancytopenia

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DOI: 10.36348/sjpm.2023.v08i12.001 | **Received:** 16.10.2023 | **Accepted:** 27.11.2023 | **Published:** 05.12.2023

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Abstract

Leishmaniasis is a tropical infection transmitted to humans by the female sandfly (Phlebotomus argentipes). Leishmaniasis is widely prevalent in the Eastern states of India namely Bihar, Jharkhand, Uttar Pradesh and West Bengal having a hot and humid climate.

Keywords: Leishmaniasis, tropical infection, sandfly.

INTRODUCTION

Visceral leishmaniasis is endemic in 62 countries. 90% of the estimated 500,000 new cases, which occur annually, are confined to the rural areas of India, Nepal, Bangladesh, Sudan and Brazil; as many as onehalf of these cases occur in India [1]. There are 30-100 subclinical infections for every overt case of visceral leishmaniasis**.** In human beings, the disease presents in four different forms with a broad range of clinical manifestation: 1) Visceral leishmaniasis, or kala-azar 2) Cutaneous leishmaniasis, 3) Mucocutaneous leishmaniasis 4) Diffuse cutaneous leishmaniasis [2].

CASE REPORT

A 62 year old female with history of fever, fatigue, pain abdomen and swelling of both legs since 1 week was admitted in General Medicine ward. On examination: Pallor present and Hyperpigmented patches noted on forearm.

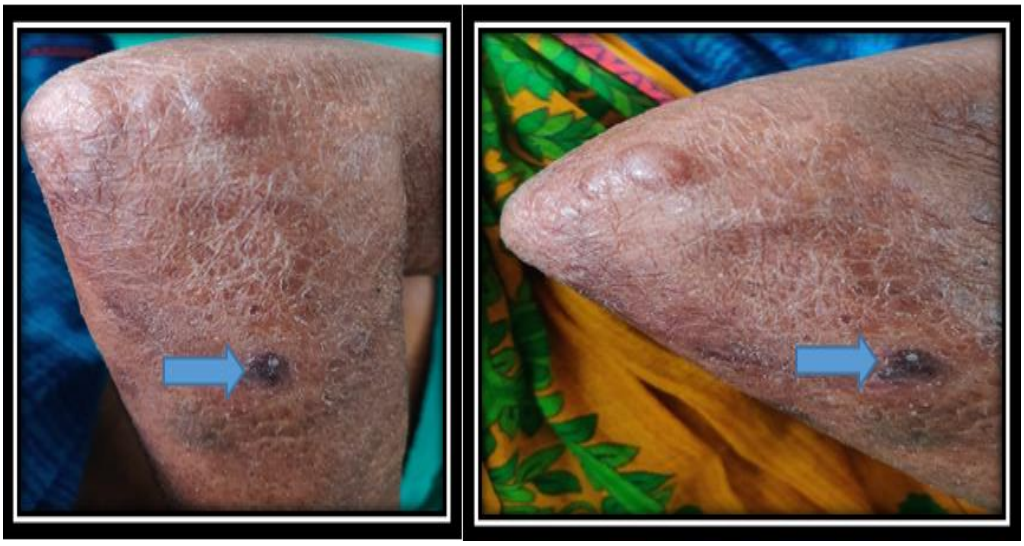

Figure 1 and Figure 2: Hyperpigmented patches are present on the forearm

USG Abdomen: Mild hepatomegaly, prominent splenic vein with few collaterals, prominent portal vein, minimal ascites.

CBP: Hb-5.9gm/dl**,** RBC-2 million/ul**,** WBC-1,100cells/ul**,** Platelets-80000/ul**.**

Differential Count: Neutrophils-38%**,** Lymphocytes-50%**,** Eosinophils-4%**,** Monocytes-8%**.**

Impression

RBC–Normocytic Normochromic to Normocytic Hypochromic, WBC-Leucocytopenia with relative lymphocytosis, Platelets-Thrombocytopenia, Hemoparasites: Not Detected [Figure 3].

Impression: Pancytopenia

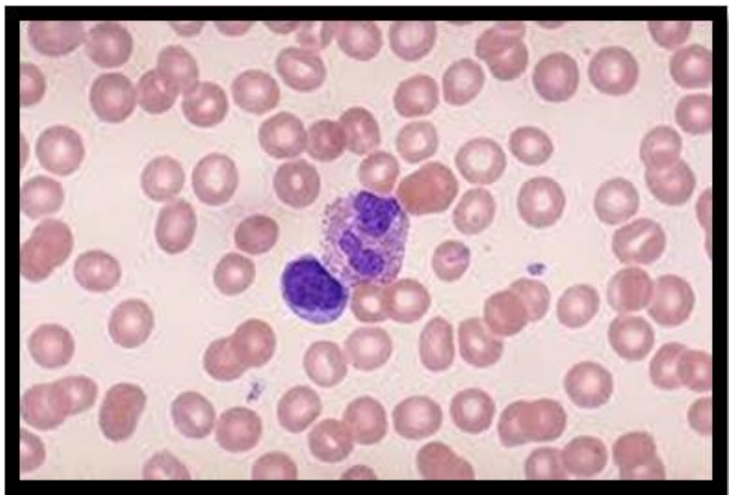

Figure 3: Peripheral smear shows Normocytic Normochromic to Normocytic Hypochromic RBC, 10X, Leishman stain

Bone Marrow Aspiration

Site-Left posterior superior iliac spine**,** Cellularity-Hypercellular, M:E ratio-1:1, Erythropoiesis- Mild erythroid hyperplasia with Normoblastic maturation. All series of maturation noted. Myelopoiesis-Relatively suppressed with all series of maturation noted with slight increase in eosinophils**.** Megakaryopoiesis –Adequate and active**.** Parasites: Organisms morphologically akin to Leishmania Donovani noted within the macrophages as well as extracellularly.

Impression: Normoblastic Erythroid Hyperplasia associated with parasitic infection suggestive of Leishmania Donovani [Figures 4-7]

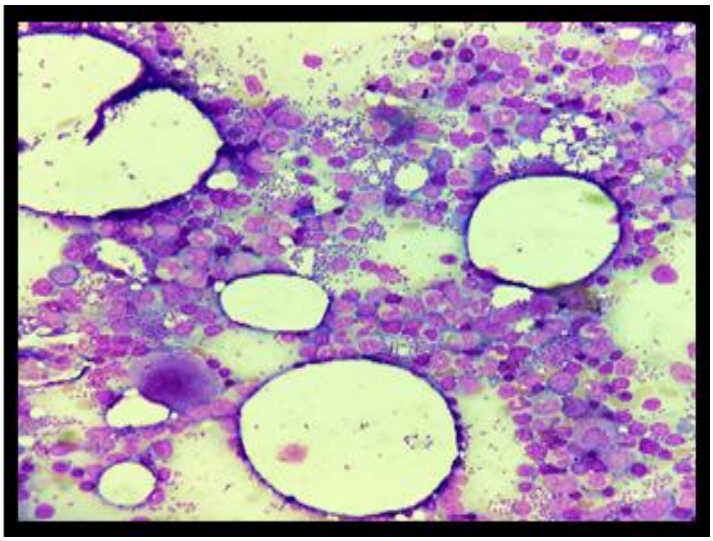

Figure 4: shows amastigotes extracellulary in bone marrow smear. 10X, Leishman stain

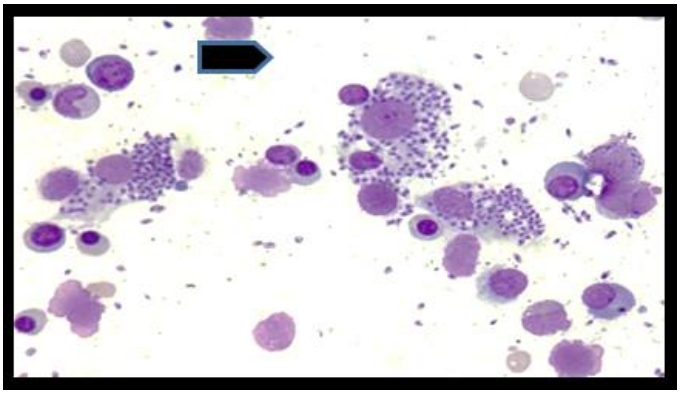

Figure 5: Shows amastigotes extracellularly in a bone marrow smear.10X, Leishman stain

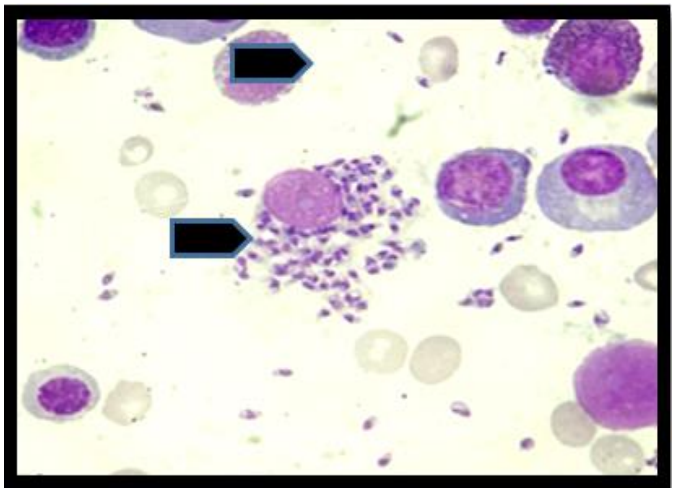

Figure 6: Amastigotes are small, round bodies of 2-4um in diameter with indistinct cytoplasm, a nucleus and a small rod shaped kinetoplast noted giving characteristic "double dot appearance.40X, Leishman stain

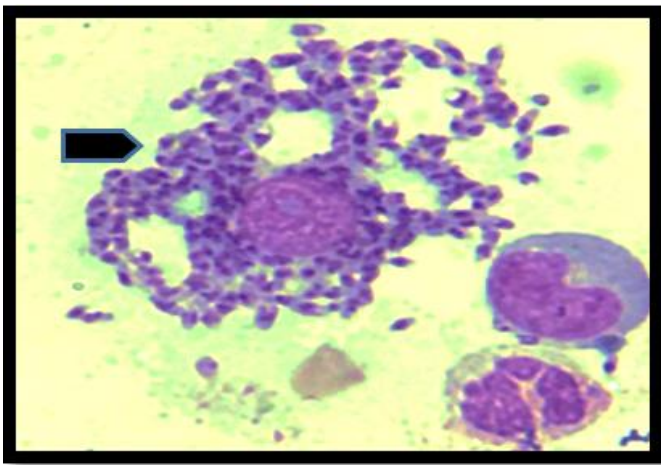

Figure 7: Shows amastigote form of Leishmania donovani in macrophages and extracellularly in a bone marrow. 10X, Leishman stain

DISCUSSION

The life cycle of Leishmania involves two forms, the Promastigote which develops and lives extracellularly in the sandfly vector. The Amastigote which multiplies intracellularly in the reticulo-endothelial cells of the host. The incubation period ranges in between 10 days to 2 years [3].

Sub-clinical form of visceral leishmaniasis characterised as non-specific mild clinical manifestations lasting for more than three weeks. Symptoms include fever, cough, diarrhoea, malaise, mild hepatomegaly and eventually splenomegaly presenting as fluctuating course that evolves over a prolonged period of time. Anaemia is the major and most frequent

haematological sign, generally of Normocytic and normochromic type.

The parasite is largely sequestrated in the spleen, liver and bone marrow. Diagnosis remains difficult in the early infection phase before the classical triad of fever, splenomegaly and pancytopenia. Leishmaniasis is a slowly progressive disease. Diagnosis of visceral leishmaniasis remains difficult in the early infection phase before the classical triad of fever, splenomegaly and pancytopenia appears [4]. That leads to considerable delay in diagnosis.

Moreover, since the parasite is largely sequestered in the spleen, liver and bone marrow, their demonstration entails embarking upon traumatic interventions, which further adds complexity in making the diagnosis. Clinical examination, complete blood picture, and bone marrow aspiration are useful in the diagnosis of leishmaniasis.

Diagnosis in visceral leishmaniasis is usually based on microscopic detection of amastigotes in smears of tissue aspirates or biopsy samples. Bone marrow aspirates or biopsy are frequently the tissues of choice with sensitivities in the 55–97% range. Lymph node aspirate smears (sensitivity 60%) or biopsy, and splenic aspirates (sensitivity 97%) may also be taken for diagnosis, though the latter may give rise to life-threatening hemorrhage [5]. Sometimes the parasite can be cultured from microscopy negative tissue samples on special media like Novy, McNeal, Nicolle (NNN) medium or inoculated into animals such as hamsters. Leishmania antibody (direct agglutination test) may be detected with a sensitivity of 72% and a specificity of 94% [6]. Immunochromatographic strip testing of blood from a finger prick for leishmanial anti-K39 antibody has been used successfully in field serodiagnosis 31 with a sensitivity of 90–100% in symptomatic patients. This test is useful in clinical management in resource-poor areas. Leishmania DNA can also be detected in tissue aspirates and peripheral blood by polymerase chain reaction (PCR), with some series giving a sensitivity of 70–93% in peripheral blood. High sensitivities down to the level of one parasite have been recorded.

Cutaneous Leishmaniasis

Diagnosis is usually based on microscopic examination of skin scrapings or biopsy specimens, usually taken from the edge of lesions. This is rapid and low-cost, but has limited sensitivity, especially in chronic lesions [7].

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