IMAGE

Case 11

Caso 11

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CASE

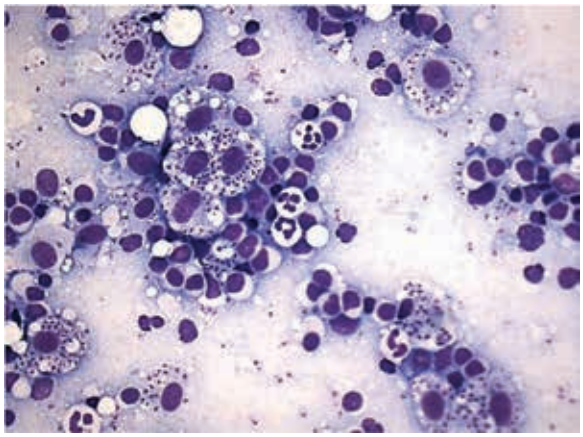

Figure 1 - Giemsa stain smear of bone marrow showing Leishmania-infected macrophages.

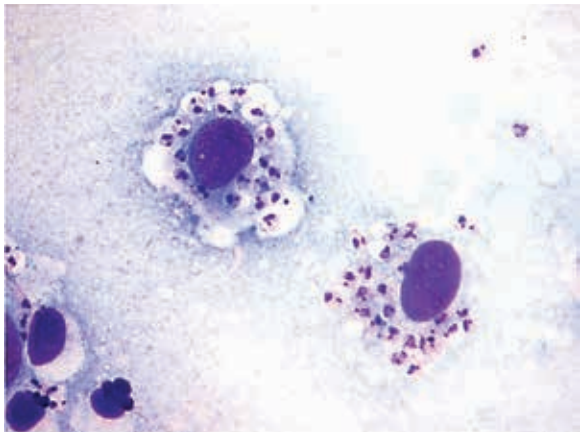

Figure 2 - Giemsa stain smear of bone marrow showing Leishmania amastigotes.

Female patient, 57 years old, born and residing in Belo Horizonte, is admitted into a Basic Health Unit reporting lack of appetite, progressive emaciation, prostration, persistent abdominal pain, and episodic fever starting about a year and a half

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previously. Previous tests showed pancytopenia, altered liver enzymes, and hypoalbuminemia. There are dogs and a chicken coop in the peridomiciliary area. When the examination was done, she had fever, hypercolored mucous membranes, scaly skin with decreased turgor and elasticity. Palpable spleen (Boyd II). Absence of superficial lymphadenopathy.

Based on the images and on the clinical history, which is the most likely diagnosis?

- multiple myeloma;
- chronic myeloid leukemia;
- visceral leishmaniasis;
- prolonged septicemic enterobacteriaceae

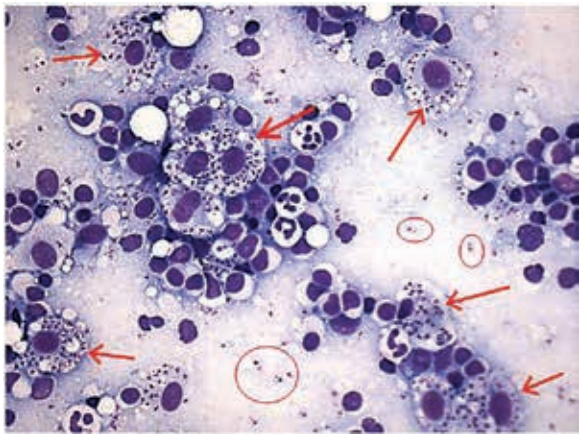

Figure 3 - Giemsa stain smear of bone marrow showing macrophages infected by amastigote forms of Leishmania (red arrows) and amastigotes in the extracellular environment (circled in red). Increase: 400x.

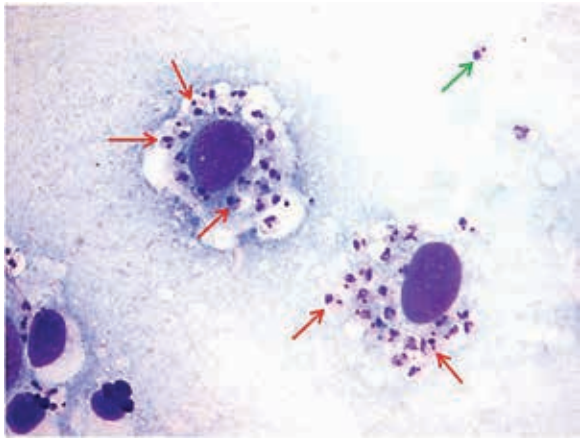

Figure 4 - Giemsa stain smear of bone marrow showing amastigote forms of Leishmania in macrophage cytoplasm (red arrows) and in the extracellular environment (green arrows). Increase: 1000x

IMAGE ANALYSIS

The amastigotes are rounded and without flagella. They multiply exclusively within the vacuoles of macrophages by simple division.

DIAGNOSIS

Nonspecific signs and symptoms such as fever, weight loss, prostration, and cytopenias, associated or not with hepatosplenomegaly and a history of contact with dogs (household reservoirs) and birds (breeding place for mosquitoes/vectors), suggest a diagnosis of visceral leishmaniasis (VL), which is confirmed by the amastigote myelogram.[1-3]

The disorders in all the alternatives present with chronic clinical pictures of insidious onset, with nonspecific manifestations and similar to VL.

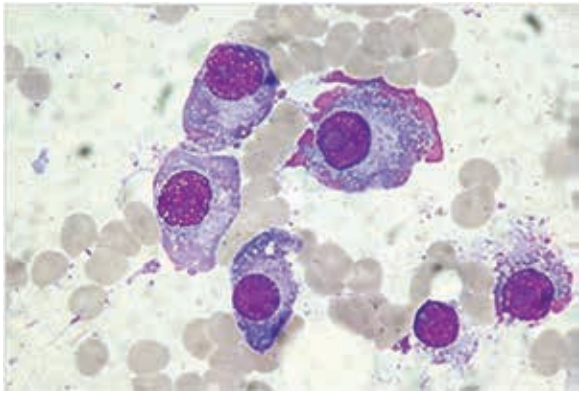

Figure 5 - May-Grünwald Giemsa stain smear of bone marrow showing plasmacytosis (black arrows) in multiple myeloma. Source: Funari, MFA, *et al.*[4]

In multiple myeloma, bone pain is the most common symptom. The diagnostic criteria include monoclonal peaks of gamma globulins, plasma cells in the bone marrow, and osteolytic lesions. [1-3]

Chronic myeloid leukemia (CML) leads to changes in bone marrow cellularity, with increased myeloid and megakaryocyte lineages. The diagnosis can be confirmed by identifying clones of haematopoietic stem cells with translocation between chromosomes 9 and 22 (Philadelphia chromosome) (Figure 6).

Prolonged speticemic enterobacteriose is caused by the association between enterobacteria, mainly *S. typhi* and *Schistossoma mansoni*. The clinical picture most resembles that of LV, and the diagnosis is made by isolation of bacteria in blood cultures.

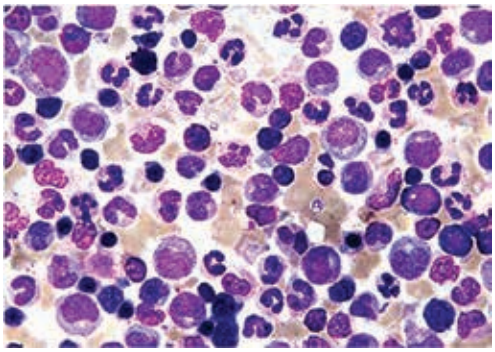

Figure 6 - Bone marrow smear of CML bearer evidencing hyperplasia of elements of granulocytic series. Examples: promyeolcytes (red arrow), myelocytes (yellow arrow), mature granulocytes (green arrow) Source: Retten, RAV.[5]

CASE DISCUSSION

Visceral leishmaniasis (VL) or kalazar is a systemic infectious disease caused by protozoa of the genus Leishmania. Transmission occurs when mosquitoes of the genus Lutzomyia (sandfly) bite and regurgitate the promastigote forms of the parasite present in their digestive tract. After inoculation in the host's skin, the protozoa reach the reticuloendothelial system and multiply in the macrophages' cytoplasm in amastigote form.

The incubation period of VL oscillates between two and eight months, with an insidious beginning, difficult to diagnose. The clinical presentation varies from asymptomatic and oligosymptomatic until the classic chronic pictures is presented, characterized by fever, hepatosplenomegaly, asthenia, anorexia, weight loss, cough, pain, and increased abdominal volume. Diarrhea, jaundice, vomiting, and peripheral edema may occur with the progression of the disease and indicate poor prognosis.

VL has tropical and subtropical occurrence and about three decades ago it lost its eminently rural character. It is currently an expanding endemic in urban Brazil and in the Americas, where dogs are the main reservoir. It is estimated that there are 500,000 new cases and 50 thousand deaths every year worldwide by kalazar.

Every individual showing fever, even episodic, and splenomegaly associated or not to hepatomegaly should be suspected of VL. Laboratory findings such as pancytopenia, polyclonal hypergammaglobulinemia, increased ESR, C-reactive protein, and liver enzymes reinforce this clinical hypothesis. The serologic tests are useful, but in isolation do not exclude the diagnosis. Confirmation of VL is only made by direct observation of amastigotes in samples aspirated from the liver, spleen, lymph nodes or bone marrow (myelogram), the latter being the most suitable (sensitivity: 85%).

Notification of suspected cases is compulsory. After the diagnosis is established, treatment should be instituted quickly, preferably in specialized center, given that VL is a serious and potentially fatal protozoosis. The drug of choice is pentavalent antimony. In refractory or contraindicated cases (pregnancy, liver or heart failure), amphotericin B, whose liposomal form is also used in severe cases and in renal failure, is recommended.

The removal of reservoirs and the reduction of the mosquito breeding places (garbage, organic matter and animals cages) are disease prevention strategies.

RELEVANT ASPECTS

- visceral leishmaniasis, or kalazar is a systemic infectious disease caused by protozoa of the genus *Leishmania*;
- it generally follows a chronic course, with insidious onset and variable clinical presentation, which makes its diagnosis difficult;
- the gold standard diagnostic method is the myelogram, which demonstrates the amastigote form of the parasite;
- it is currently an expanding endemic in urban centers in Brazil and the Americas;
- the diagnosis must be done quickly, and the treatment preferably in a specialized center, seen that the VL is a serious and potentially fatal protozoosis;
- the prescribed treatment is pentavalent antimonial or amphotericin B.

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