Clinical Image

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Bone Marrow Involvement by Visceral Leishmaniasis

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The patient is a 71 year-old-white female with a past medical history significant for anxiety, gastroesophageal reflux disease, hyperlipidemia, hypertension, diabetes mellitus type II who presented at the hospital emergency department with complaints of fever, body aches, arthralgia, frontal headache, and dizziness intermittently over the last 10 days. She reported a fever as high as 1040F. Of note, she returned from Africa about four months before the presentation at the ER when she felt ill for two weeks with similar symptoms but tested positive for COVID-19. While in the emergency department, the patient remained hemodynamically stable. She complained of chills and her temperature was 99.80F. The laboratory work-up at the ER revealed WBC 1.7 x109/L, hemoglobin 10.3 g/dL, and platelet 273 x109/L. She was COVID, and Epstein-Barr virus negative, troponin negative x 2. Urine analysis was unremarkable and creatinine was slightly raised at 1.79 mg/dL. She was admitted to the hospital for further evaluation of neutropenic fever of unknown origin. The infectious disease specialist was consulted who recommended antibiotic therapy.

Multiple bacteriology and virology tests were performed including syphilis, TB, HIV, CMV, EVB, Flu A, and B which were all negative. The heterophile antibody test (mono spot) was negative. The patient's flow cytometry revealed markedly reduced granulocyte gate with circulating CD 34-positive blasts accounting for approximately 1% of total events. There also was basophilia, eosinophilia, and monocytosis present. The flow cytometry findings suggested an involvement with a hematopoietic neoplasm. A bone marrow aspiration and biopsy with cytogenetics and molecular studies were recommended for further diagnostic evaluation. It was performed and the smears of bone marrow aspirate revealed myelodysplastic changes in erythroid, granuloid, and megakaryocytic cells. Plasma cells, eosinophilic granulocytes, and macrophages were prominent. Most importantly numerous amastigotes (the tissue form of the Leishmania parasite) were seen within and external (paracellular) to the mononuclear phagocytes (Figure 1) and of note cytogenetic studies revealed loss of part of the long arm (q arm) of chromosome 5, also known as 5q minus (5q-). Her clinical course continued to improve, her fever resolved, her hemoglobin and WBC count returned to normal and she was discharged to her home. At present for about three months following her discharge from the hospital she has been symptom-free with a normal complete metabolic profile and hematologic indices.

Although serology tests for leishmania immunoglobulins, confirmatory culture testing, polymerase chain reaction, and DNA sequencing analysis were negative, the presence of Leishmania Donovan bodies (amastigotes) (Figure 1) in the bone marrow, clinical features (intermittent fever, arthralgia), splenomegaly and a recent trip to Africa was highly suggestive that the patient did have leishmaniasis. Furthermore unlike MDS her blood indices returned to normal without any further treatment. It is unclear though why the tests for visceral leishmaniasis were negative and we are not sure if broad-spectrum antibiotic therapy may have had something to do with this. In addition, her 5q minus in the background of the MDS features remains unclear. It is known however, that nearly 90% of the so-called MDS patients do not show this chromosomal abnormality, and leishmaniasis masquerading as MDS has also been reported [1].

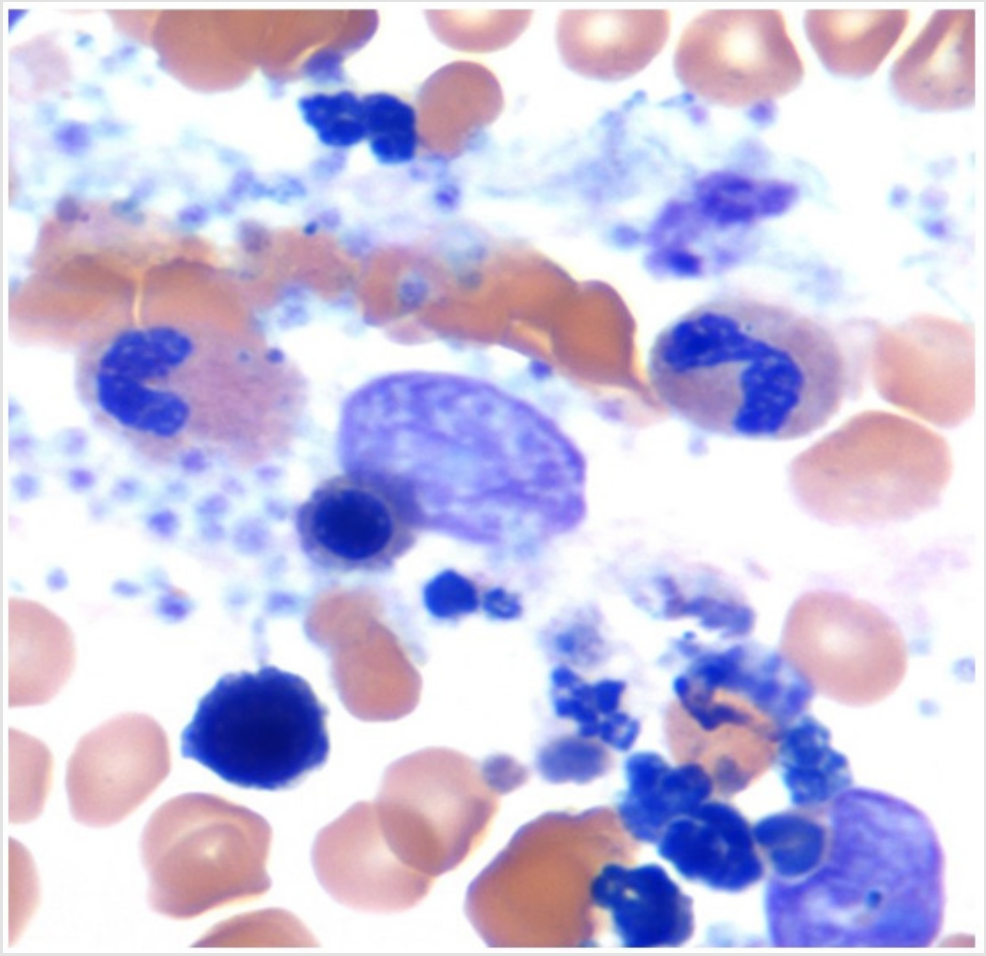

Figure 1: Bone marrow aspirate showing a histiocyte with intracellular and extracellular Leishman Donovan bodies.

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Anwarul Islam. Biomed J Sci & Tech Res