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Original Research Paper

Pathology

MICROFILARIA IN BONE MARROW ASPIRATE: A CASE REPORT

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ABSTRACT

Wuchereria bancrofti is the most common parasite causing lymphatic filariasis. Microfilariae are demonstrated in the peripheral blood, body fluids, fine needle aspirates and in bronchial brushings but it is an uncommon finding in the bone marrow.

We report a case of a 45-year old male who presented with pyrexia of unknown origin and on peripheral blood and bone marrow examination found to have pancytopaenia with megaloblastoid changes in the bone marrow and W. bancrofti microfilariae.

KEYWORDS : Bone marrow, Filariasis, Microfilariae, Pyrexia of unknown origin, Wuchereria bancrofti,

INTRODUCTION

Filariasis is endemic in tropical countries including India and is a major health concern. There are 4 different species of nematode causing filariasis but in India it is caused by *Wuchereria bancrofti* and *Brugia malayi*.[1] The disease is transmitted by female *Culex* mosquito. Human beings serve as the definitive host for the parasite and mosquitoes serve as the intermediate host. In the natural history of lymphatic filariasis, the adult worm lodges in the lymphatics and the microfilariae circulate in the blood stream.[2]

Usually patients present with fever, lymphadenopathy,epididymo-orchitis and elephantiasis. The disease is confirmed by demonstrating microfilaria in peripheral blood film of patients usually taken between 12 midnight to 4 am in morning.

During circulation in the peripheral blood, the microfilariae may get lodged in various organs and body fluids. They may get trapped in the bone marrow during circulation.

Microfilaria in the bone marrow aspirate is a rare finding [3,4]. It may be detected in bone marrow when aspiration was performed for other haematological disorders.

CASE REPORT

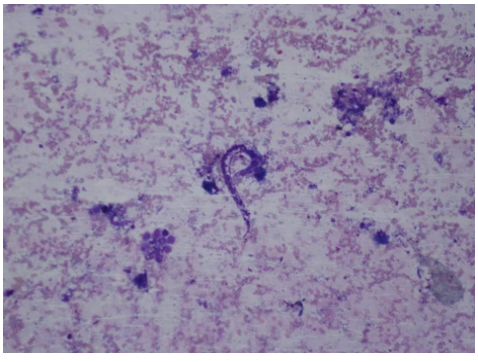
We present a case of a 45- year old male who presented with pyrexia of unknown origin and complains of back pain and weakness since 6 months. He was of average socio-economic status. Fever was associated with 2-3 episodes of vomiting per day, decreased oral intake, and abdominal pain. There was no history of haematuria, dysuria or any other past illness. On examination, the patient was febrile, poorly built, and showed pallor. There was no evidence of icterus, clubbing, bony tenderness, lymphadenopathy. On admission his Haemoglobin was 7.5 gm/dl.Pancytopenia was observed with the Total Leukocyte Count reduced to 1440/per cumm, Differential Count showing Neutrophil 64% Lymphocyte 32% Monocyte 02% Eosinophil 02%. Platelet Count being 50,000 per cumm .Mean Corpuscular Volume (MCV) Mean Corpuscular Haemoglobin(MCH) and Mean Corpuscular Haemoglobin concentration (MCHC) and RDW-CV were within normal limits. The Peripheral Blood Smear revealed predominantly normocytic normochromic RBCs. Other biochemical tests were within normal limits. Tests for detection of Malarial Parasite were negative. Serological test for dengue was also negative.

Ultrasound examination of abdomen showed Spleenomegaly.

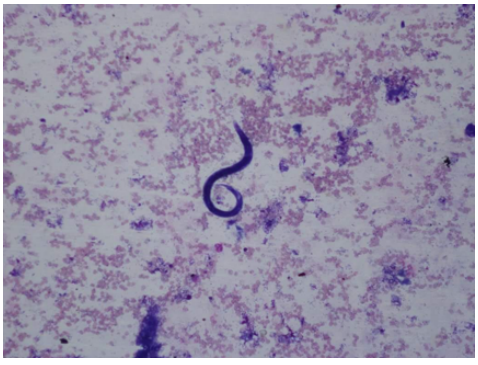
With the cause of fever unknown and anaemia not responding to treatment, a bone marrow aspiration was advised.It was performed from the anterior superior iliac spine. The smears were stained with Leishman's stain. The M:E ratio was 3:1. Erythroid series was predominantly normoblastic with megaloblastoid changes. Leucopoiesis and megakaryopoiesis were within normal limits. Megakaryocytes were morphologically normal .There was no evidence of leukemia or kala- azar.

One of the smears revealed a sheathed organism resembling microfilaria and was morphologically typed as Wuchereria bancrofti.

The patient was treated with Diethylcarbamzine and Hematinics and showed improvement.



Figure(1)



Figure(2) Microfilaria in Bone Marrow aspirate (Leishman stain 40X)

DISCUSSION

Filariasis is one of the most prevalent helminthic infections worldwide and is a major public health problem in the endemic areas of India. The common clinical features are asymptomatic

lymphatic filariasis, acute adenolymphangitis, hydrocele, elephantiasis and peripheral blood eosinophilia.

Microfilariae are an uncommon finding in the bone marrow and may be present in the absence of the clinical features of lymphatic filariasis. The peripheral blood may or may not reveal the microfilariae and eosinophilia is absent in a majority of the cases. It is possible that microfilaria may get trapped in the bone marrow during their circulation.[5,6,7]

The definitive diagnosis of filariasis is made after demonstrating the microfilariae in the peripheral blood smears. Indirect haemagglutination, ELISA, immunoassays and polymerase chain reaction (PCR) are also helpful in making the diagnosis [8, 9.] Microfilariae in the bone marrow aspirates is a rare finding. A few cases have been reported in association with various hematological findings, such as pancytopenia, bone marrow hypoplasia, megaloblastic anemia and acute leukemia[4,5,6,7,10,11]

Eosinophilia is a common hematological finding in filariasis. But in a majority of the reported cases, in which microfilariae were demonstrated in the bone marrow, eosinophilia was absent . The absence of eosinophilia in these cases may be attributed to the oxidative stress which was associated with the chronic and occult filariasis, which had caused altered immune responses [3,10.] Pancytopenia is the other frequent peripheral blood findings [4, 6, 7,.12] The bone marrow may be aplastic, hypoplastic or hyperplastic with a normoblastic or a megaloblastic maturation.[5, 6, 7,.13] The bone marrow hypoplasia may be attributed to drugs and viral infections such as those which are caused by varicella[4] and HIV[11] or it may be idiopathic . In this case, the pancytopenia, macrocytic RBCs and the hypersegmentation of the neutrophils were attributed to the megaloblastic anemia which was caused by a nutritional deficiency.

The first documentation of microfilariae in bone marrow aspirate, available in literature was by Pradhan et al. in 1976.

In our patient, filariasis was not suspected clinically due to the lack of a typical clinical picture. Bone marrow aspirate to evaluate pyrexia of unknown origin and anaemia refractory to treatment, revealed the finding of microfilaria.

In endemic areas, a thorough work up of patients to rule out filariasis is a must, especially in patients presenting with pyrexia of unknown origin

CONCLUSION

All the bone marrow aspirates must be screened for microfilariae.It may present as pancytopenia and megaloblastic changes in bone marrow examination.

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