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Case Report

Asymptomatic Wuchereria Bancrofti Filariasis Discovered from a Dengue Positive Patient: A Case Report from Tamil Nadu

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Abstract

Concurrent infection by dengue and filaria with in a single individual is rarely known. This type of case can present with a very challenging clinical profile to Clinicians and Hematologist. Filarial co-infection can be a risk factor of severity in dengue infection. Filaria is chronic infection while dengue is an acute infection. Filarial infection is endemic in the tropical regions and a public health problem in Africa, Asia. Co-infection with filarial nematodes, if unrecognized, can result in untoward therapeutic consequences. Both Infection is transmitted by mosquito vectors (Culex, Anopheles, Aedes and Mansonia species) and humans are the definitive host. We report a case of co-infection of Wuchereria bancrofti and Dengue, which was diagnosed by peripheral blood smear examination (W. Bancrofti) and NS 1 antigen positivity (Dengue). We present here a case of 20-year-old male with dengue and microfilaria co-infection with bilateral hydrocele.

Keywords: Dengue, Microfilaria co-infection, Wuchereria Bancrofti, Peripheral blood smear, eosinophilia.

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INTRODUCTION

Filariasis is endemic in many parts of India, especially in the southwestern costal region and is caused most frequently by Wuchereria Bancrofti. But, Tamil Nadu is a non-endemic state of India for the disease. It is diagnosed by finding the larva or microfilaria in blood, fluids, needle aspirates and tissues (1,2). Dengue infection is one of the most prevalent mosquito-borne viral infections affecting humans, with multiple outbreaks recorded every year. Dengue virus belongs to the Flaviviridae family, which is a single-stranded positive-sense RNA virus. It has four strains (DENV 1-4), all of which are spread by Aedes mosquito (7). Although most of the infections are self-limiting and asymptomatic, dengue can lead to severe complications, such as dengue hemorrhagic fever and dengue shock syndrome. Filarial co-infection can be a risk factor of severity in dengue infection (6).

CASE REPORT

A 20-year-old male was apparently asymptomatic; he developed high-grade fever, associated with joints pain, nausea, vomiting, abdominal pain chills and rigors for past 5 days. On clinical examination, there was pallor, pedal edema and bilateral hydrocele. His blood pressure was 110/70mmHg and spO 2 was 98 %. There was no history of travel in regions endemic for filaria in the country. The family and other history were not significant. On lab investigation showed decreased hemoglobin concentration 11.6 g/dL, total leukocyte count was 10,190/cu.mm, differential leukocyte count was neutrophil 45.8%, lymphocyte 36.8%, eosinophil 9.5% and monocyte 7.7%. Platelets count was 93,000/cmm. Peripheral blood examination showed microcytic hypochromic anemia, eosinophilia (Fig 1), reactive lymphocytes (fig 2), Thrombocytopenia and moderate parasitic load of microfilaria of Wuchereria Bancrofti. (Fig 3). Erythrocyte sedimentation rate (ESR) 31 mm in the first hour by Wintrobe`s method. Microbiological tests showed positive for dengue specific IgM antibodies

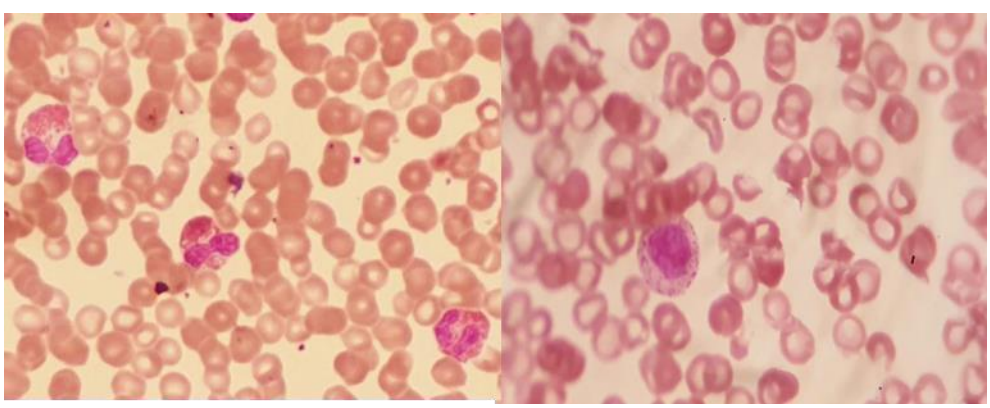

Fig 1: Peripheral bloods smear analysis showing microcytotic, hypochromic red cells along with eosinophilia (a) and reactive lymphocytes

Fig 2: Section evidencing the presence of parasites - Microfilaria (Wuchereria Bancrofti).

DISCUSSION

W. Bancrofti is not always easy to detect in haematological laboratories, even in patients with suggestive symptoms, as the diagnosis essentially relies on the microscopic detection of Microfilaria in the blood (3,4). Because, it have a different periodicity depending of the geographical region from where the parasite originates implying the need for blood collection appears in the bloodstream usually at night between 10 pm to 4 am to render the parasite detectable by the both thin and thick blood films microscopy . Concentration techniques such as Knott's technique, micro hematocrit tube, and membrane filtration technique facilitate detection by microscopy but time-consuming (12). Serological tests that are considered a better alternative than microscopic methods have been developed in two approaches, immunoenzymatic method detecting antifilarial antibodies (IgG4) that are usually high in patients with active filarial infection and immunochromatographic tests detecting circulating filarial antigen. Indirect methods, we have skin allergic test and eosinophilia in peripheral blood smear examination. Most widely used diagnostic test for Dengue is an enzyme linked immunosorbent assay, which measures dengue Ig M or Ig G antibodies (5,7). This test can only be reliably detecting dengue antibodies 4 days after the onset of symptoms. So, false negative results remain a concern. The alternatives are the use of the dengue non-structural protein antigen (NS1), which is a glycoprotein necessary for the viability of dengue virus; and the dengue RT-PCR (7). But these tests are not useful for the prediction of dengue severity. Presences both atypical lymphocyte count and thrombocytopenia gives clue for dengue fever. During dengue progression, it has been observed that affected patients produced atypical lymphocytes seen in the peripheral blood circulation. These atypical lymphocytes have been identified as CD19+ B lymphocytes using flow cytometry. It is postulated that these lymphocytes are antibody immune reaction to the dengue virus, which could explain the significant increase in anti-dengue immunoglobulin G (IgG) antibodies (5,6). Both filariasis and dengue still been considered as a potential public health threat, particularly due to the natural presence of common competent mosquito vectors (11). Hence the present case report should help to raise awareness in non endemic zones of India.

CONCLUSION

Concurrent infections with two shown infectious agents may have an overlapping and or atypical syndrome, giving rise to a condition where treatment may need caution and individualised approach. So, while dealing with severe cases in dengue high suspicion should be kept for other co infection; and filarial should be an important consideration especially in filarial non endemic zones also.

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Conflicts of interest - There are no conflicts of interest

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. The presented patient have given their written informed consent for publication of data and images of this patient.

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