

A Case of Dengue Co-infection with Microfilaria

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ABSTRACT

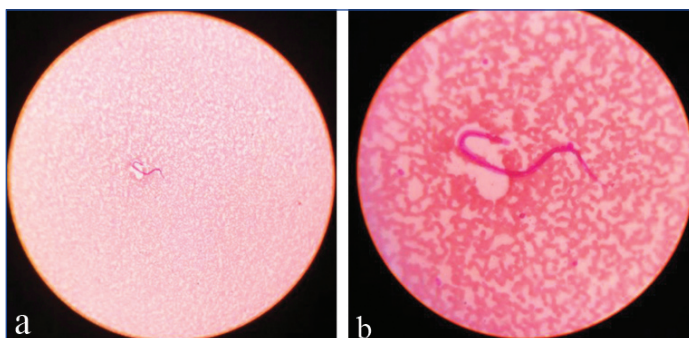
Filariasis is one of the leading causes of long term and permanent disability worldwide. One of the main problem of the disease is that it remains dormant for years but the person is still capable of transmitting the infection to others. Over the past few years dengue has emerged as a rapidly growing and widespread public health problem, with more than half of the world's population and countries at risk. Majority of cases are subclinical i.e., they are asymptomatic or present with mild flu-like symptoms which are often misdiagnosed as acute febrile illness leading to delay of treatment. Here, authors report a case of 20-year-old male, presented with continuous high grade fever for three days associated with severe headache and generalised body pain. On examination, patient was febrile and all vitals were normal. Laboratory results showed thrombocytopenia, increased haematocrit and peripheral smear findings showed leukopenia, thrombocytopenia and eosinophilia with microfilaria. Hence, this is a case of incidental finding of concurrent infection of dengue with microfilaria.

Keywords: Thrombocytopenia, Vector borne, *Wuchereria bancrofti*

CASE REPORT

A 20-year-old male, resident of North eastern India presented with continuous high grade fever for three days associated with severe headache and generalised body pain. On examination, the patient was febrile with 100.4° F and all vitals were normal.

Laboratory results showed thrombocytopenia, increased haematocrit values with dengue Non Structural protein 1 (NS1) antigen positive indicating acute infection. Peripheral smear findings showed leukopenia, thrombocytopenia and eosinophilia with microfilaria [Table/Fig-1a] in the peripheral blood. Wet mount test was done which showed motility of microfilaria [Table/Fig-1b]. The patient was treated with diethylcarbamazine for 12 days with the drug given for six days in a week along with saline infusions, tablet caripill and antibiotics with monitoring of the haematocrit values. The patient started recovering after 1 week of starting the treatment.



[Table/Fig-1]: a) Scanner (4x) view of peripheral smear showing microfilaria- *Wuchereria Bancrofti*; b) Low power (10x) view of peripheral smear showing microfilaria - *Wuchereria Bancrofti* with sheathed and pointed tail tip free of nuclei.

DISCUSSION

Dengue is a mosquito borne viral infection caused by the female species of *Aedes aegypti*. The global incidence of dengue has also been dramatically increased in the recent decades, estimated 100-400 million infections per year [1]. In India, 95% contributes to 40% of the global burden with almost 600 million people staying in filarial endemic area in nearly 20 endemic states. About 40 million people in endemic regions suffer from chronic disfiguring lymphatic filariasis, including 27 million men with testicular hydrocele, lymph scrotum or elephantiasis of the scrotum [2]. Filariasis is also a mosquito

transmitted worm infection. *Aedes* can be a vector for both dengue and filaria in the endemic zones. Concurrent feed of the mosquito in a patient infected with both the diseases has enhanced transmission of virus capacity when compared to when the virus is ingested alone. This is due to the process called as the microfilarial enhancement of arboviral transmission because the external incubation period is decreased in these cases [3]. The immunological feature of lymphatic filariasis is an antigen determined T-helper cells type 2 (Th2) and Interleukin-10 (IL-10) with decreased T-helper cells type 1 (Th1) response. The decreased T-cell is responsible for sustained infection. So, the severity of dengue is more in case of filarial co-infection [4].

In this case, the patient presented with high degree of fever which was continuous, high grade, associated with severe headache and generalised body pain which is common to both the diseases. Dengue NS1 antigen was done which was positive indicating the recent infection of dengue. Peripheral smear findings showed leukopenia and thrombocytopenia and eosinophilia along with the incidental finding of microfilaria- *Wuchereria Bancrofti* having a translucent body, sheathed, blunt head and pointed tail tip which is free of nuclei. An increase in eosinophil count also points towards a parasitic infestation. The patient was treated with diethylcarbamazine for 12 days along with saline infusions, tablet caripill and antibiotics. The patient recovered in the course of treatment.

Concurrent infection of dengue with other infectious disease has to be kept in mind while treating a severe case of dengue since co-infection might need more specific management and may delay the recovery of the disease. A co-infection can occur with microfilaria, malaria, chikungunya, typhoid. A concurrent ingestion of microfilariae and arboviruses by mosquitoes can enhance the transmission of virus compared with when virus is ingested alone by decreasing external incubation process called as microfilarial enhancement of arboviral transmission [5].

CONCLUSION(S)

Acute febrile illness is the tip of an iceberg and proper investigation has to be done while dealing with a case of an acute febrile illness, especially in endemic areas. The patient presenting at the clinical set-up with fever should not only be evaluated for infectious diseases but also for parasitic infestation. Filarial co-infection can

be a risk factor for severity in dengue. Co-infection should also be kept in mind since it could alter the course of treatment and leading to unnecessary consumption of antibiotics which are ineffective for parasitic infection.

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