

Case Report

Concomitant of Malaria and Filariasis in Peripheral Blood Smear Incidentally

Sujatha R, Pal N

ABSTRACT

Malaria parasite and microfilaria are blood born parasites that are endemic in many countries, including the Indian subcontinent and central Africa. This case report of coinfection with *P.vivax* and *W.bancrofti* was reported in peripheral blood smear from a patient who had shown symptoms of malaria. The case was detected during random screening of smear from a patient diagnosed with malaria. This contributes to focus for future studies involving coinfection between parasites.

Keywords: Malaria; Filaria; Blood smear, Plasmodium

INTRODUCTION

In few words for Malaria

Malaria and filaria are the two major mosquito borne public health diseases in India. Symptoms of filariasis are dependent on species and body type and can be acute or chronic in nature. Up to 70% of infected individuals remain asymptomatic. Both parasite affect the same human hosts and share common mosquito vectors.[1] Symptoms usually do not manifest until adolescence or adulthood, when parasitic burden is usually the highest. Several variations have been observed.[2]

CLINICAL PRESENTATION: A 50 year old man, from Kanpur (UP) was complaining of high grade fever with severe headache and convulsion also, with body ache and weakness. On abdominal examination, there was no palpable liver and spleen. Upon doing investigations, his renal function test and liver function test were normal. His haematological finding, showed low haemoglobin level 7.5g/dl and erythrocyte count of 1.43 million per dl. His platelet count was 1.0 lac/cub. The packed cell volume was 22%, mean corpuscular volume (MVC) was 84 fl, the mean corpuscular haemoglobin concentration 32 g/dl and total leukocyte count was 3100 cell/cub mm. Differential leukocyte count was polymorphs 50%, lymphocytes 40%, monocytes 2% eosinophils 5% and basophils-nil. Serological diagnosis revealed insignificant titre for Widal test, non reactive for HIV, HBsAg and HCV. Due to low platelet count, dengue was also ruled out, antigen NS1 and immunoglobulin IgG, IgM were non reactive.

In microscopic examination, thick and thin smear were observed. The peripheral blood smears

showed pancytopenia with macro-ovalocytic RBCs, hypersegmented neutrophils and low platelet counts. The presence of *Plasmodium vivax* gametocyte was observed in PBS.[Figure-1] During a random revision of thick and thin smears microfilaria was also observed along with *P.vivax*, which morphologically presented as the microfilariae of *W. Bancrofti*, as they lacked terminal nuclei.[Figure-2] Microfilaria antigen test for microfilaria was not done because of unavailability. For treatment chloroquine and primaquine were given for 2 weeks for malaria and for microfilaria DEC was prescribed.

DISCUSSION: The diagnosis of malaria is related to intermediate fever and generally nematodes that cause filarial found accidentally when patients with symptoms of malaria, thick and thin smear revealed the presence of microfilaria with malaria parasite.[3] Co infection of malaria and filarial have been reported in earlier studies also.[4,5,6,7] In our study we found concomitant infection of malaria parasite *Plasmodium vivax* and *Wuchereria bancrofti*. In contrast, the majority of malaria parasite reported were *P. vivax* co infection with *M.ozzardi*. [3] But other cases revealed *P.falciparum* and *W. Bancrofti* as a more prominent concomitant parasite.[8] In the present case, patient harbouring both parasites *P.vivax* and *W. Bancrofti* had no clinical symptoms of filaria and was examined accidentally, by routine screening of Peripheral blood smear, similar to other study.[9] The co infection of malarial and filarial infection raised an important issue relating to early diagnosis of filariasis, as the symptom of filariasis do not rapidly appear within 7-8 days after infection, as

is the case in malaria, and would not normally be diagnosis prior to onset of symptoms.[8]

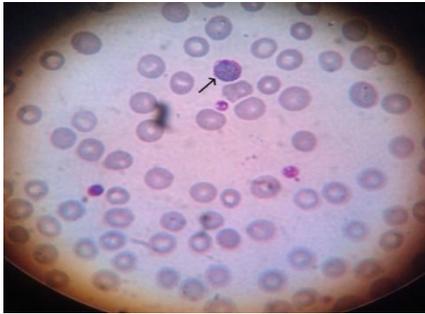


Figure 1 Microscopic examination of Leishman stained thin smear from a patient infected with *Plasmodium vivax* (Malaria)



Figure 2 Microscopic examination of Leishman stained thin smear from a patient infected with *Wuchereria bancrofti* (Microfilaria)

Careful evaluation of concomitant filariasis should be pursued prior to treatment. Although this can be done by antigen testing, examination of blood smears is an acceptable diagnosis where antigen testing is not available.[1]

CONCLUSION: Combined malaria and filarial should not be overlooked in patients from endemic areas, including the Indian subcontinent and central Africa. To conclude, microfilariae may be an incidental finding in the absence of the clinical features of filariasis. In the endemic areas, all the blood smear for malarial finding must be screened for microfilariae also, to detect any asymptomatic carriers. This study may be useful to future workers considering mass chemotherapy for either malaria or filariasis.

REFERENCES:

1. Arwa Z. Al-Riyami and Murtadha Al-Khabori Concomitant microfilaria and malaria infection May 30, 2013; Blood: 121 (22)
2. Kazura J, Guerrant R, Walker DH, Weller PF, eds. *Tropical Infectious Diseases: Principles, Pathogens and Practice*. Vol 2.

Philadelphia, PA: Churchill Livingstone; 1999:852.

3. María J Dantur Juri, Cecilia A Veggiani Aybar¹, Eugenia S Ortega, Guillermina B Galante and Mario O Zaidenberg *Plasmodium vivax* and *Mansonella ozzardi* co-infection in north-western Argentina. *Malaria Journal* 2013, **12**:248 doi:10.1186/1475-2875-12-248
4. VK Satyawali, Shanti Pandey, Vinita Rawat, and Mohm Khalil. Triple Co-infection of Malaria, Filariasis, and Dengue: A Rare Entity. *J Lab Physicians*. 2014 Jul-Dec; 6(2): 136–137.
5. Wiwanitkit V. Concurrent malaria and dengue infection: A brief summary and comment. *Asian Pac J Trop Biomed*. 2011;1:326–7.
6. Dolo H, Coulibaly YI, Dembele B, Konate S, Coulibaly SY, Doumbia SS, et al. Filariasis attenuates anemia and proinflammatory responses associated with clinical malaria: A matched prospective study in children and young adults. *PLoS Negl Trop Dis*. 2012;6:1890.
7. B Ravindran, P K Sahoo, A P Dash. Lymphatic filariasis and malaria: concomitant parasitism in Orissa, India. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 01/1998; 92(1):21-3.
8. Chadee DD, Rawlins SC, Tiwari TS. Short communication: concomitant malaria and filariasis infections in Georgetown, Guyana. *Trop Med Int Health*. 2003 Feb;8(2):140-3.
9. J. A. Alli, I. O. Okonko, O. A. Abraham, A. F. Kolade, P.N. Ogunjobi, A. O. Salako, M. O. Ojezele and J. C. Nwanze **A Serosurvey of Blood Parasites (*Plasmodium*, *Microfilaria*, HIV, HBsAG, HCV Antibodies) in Prospective Nigerian Blood Donors**. *Res J Med Sci*, 2010;44():255-75