Article published online: 2020-04-19

Letters to Editor

Triple Co-infection of Malaria, Filaria, and Dengue: A Rare Entity

Sir,

Concurrent malaria and dengue or malaria and filaria have been reported in past. However, concurrent infection by three infectious agents is rare. Here, we are reporting a case of concurrent malaria, filaria, and dengue from the Tarai of Uttarakhand (India).

A 30-year-old male, farmer by occupation, referred from private clinic, presented with complaint of mild - moderate grade intermittent fever for about 3 months duration, which became continuous high-grade fever with chills and rigor 4-5 days prior to admission to our hospital. He also had severe body pain, headache, and vomiting at the time of admission. Physical examination revealed just palpable spleen and unilateral mildly pitting limb edema in left lower limb. A further history regarding this limb swelling revealed that it started about 5-6 months back following the development of tender cord like area in his left leg, which subsided on its own after few weeks.

His laboratory investigations revealed- Hb-10.6 g/dL, total leukocyte count-28400, P-18, L-25, E-57, absolute eosinophils count 16188, platelet count 2.29 lac/μl, (serial platelet examinations were within normal limits) liver and kidney function tests, and blood sugar levels were within normal limits. Malaria antigen test (Advantage Mal card, J. Mitra and Co. PVT, India) was reactive for *Plasmodium falciparum*.

The thick and thin smear for malarial parasite revealed only ring stages of *P. falciparum*. Nonstructural protein (NS1 antigen) and IgM antibody for dengue were positive by rapid card test. (Dengue day 1, J. Mitra and Co. PVT, India), which was further confirmed by NIV DEN MAC ELISA (National Institute of Virology, Pune, India). Hepatitis B surface antigen, HIV and hepatitis C virus antibodies were nonreactive. Stool examination for helminthic ova and cyst was negative. The nocturnal smear examination for microfilaria was negative for microfilaria.

Decision to treat malaria was taken; dengue being a self-limiting viral infection was managed conservatively. Patient was given intravenous artesunate 2.4 mg/kg twice daily for 1st day than once daily for total 7 days along with other supportive measures. Patient became afebrile after 3 days of treatment. Hematocrit and platelet counts were monitored serially during the period of hospitalization which remained within the normal limits. NS1 antigen became negative on 10th day. After completion of therapy for malaria, in view of his elevated absolute eosinophil count, patient was kept on diethylcarbamazine (DEC) 6 mg/k in three divided doses. Once patient tolerated this drug, he was discharged from the hospital with the advice to take DEC for 3 weeks.

Patient reported 10 days later with history of high-grade fever for 3 days and left sided chest pain. On examination of chest, signs suggestive of left sided pleural effusion were noted, which was confirmed by chest roentgenogram. Aspirated pleural fluid was exudative in nature with 3.4 g/dL protein and 6800 total cell counts, predominantly polymorphic (92%). No organism was seen on gram stained smear of pleural fluid and culture was sterile. Filaria antigen for *Wuchereria bancrofti* was detected by using Binax Now filarriasis; immunochro-matographic test (ICT), (Inverness Medical, Princeton, NJ, USA) which has been found to be 93.8% sensitive and 84% specific.[1]

Patient admitted that he did not continue the DEC after discharge from hospital. Antifilarial therapy was given for 3 weeks. He continued to have mild pedal edema, his pleural effusion resolved after therapy.

Dengue, malaria, and filaria are endemic in South Asia, and represents major public health problem. Concurrent infection of dengue with malaria[2-4] and malaria with filaria[5] have been reported in past. In our case, we found the concurrent infection by dengue, malaria and filaria, which is unusual.

We presume that our patient had chronic infection of filaria and super added infection by dengue and *P. falciparum* made him to consult the doctor. Concurrent infections have been reported in past and are well-tolerated. In a study by Dolo *et al*.[5] it has been seen that the preexistent filarial infection attenuates cytokine/chemokine responses known to be associated with severe malaria, and attenuates the development of anemia.

The accuracy of serological diagnosis of dengue fever in cases of malaria has been questioned previously, because of some nonspecific reactivity of certain rapid serological

assay. In this case, NS1 antigen and IgM antibody positive for dengue by the rapid test was further confirmed by NIV DEN MAC ELISA, which has >95% specificity. This makes us belief that the patient was suffering from dengue as well as malaria. Pleural effusion in our case seems to be as a result of filarial infection as also reported in past.[6,7] Moreover, pleural effusion was exudative in nature, which is not a feature of dengue infection resulting from capillary leak.

Concurrent infection with three infectious agents can result an illness having overlapping symptom, resulting in a situation where the diagnosis and treatment of patient may be difficult.

Hence, high-index of suspicion should be kept in the mind in endemic area where chances of concurrence of infections are also dependent upon the prevalence rate of each infection in community.

VK Satyawali, Shanti Pandey[1], Vinita Rawat[2], Mohm Khalil

Departments of Medicine, Opthalmology[1] and [2]Microbiology, Government Medical College, Haldwani (Nainital), Uttarakhand, India

Address for correspondence:
Dr. Vinita Rawat,
E-mail: drvinitarawat31@rediffmail.com

REFERENCES

1. Iqbal J, Sher A. Determination of the prevalence of lymphatic filariasis among migrant workers in Kuwait by detecting circulating filarial antigen. J Med Microbiol 2006;55:401-5.
2. Charrel RN, Brouqui P, Foucault C, de Lamballerie X. Concurrent dengue and malaria. Emerg Infect Dis 2005;11:1153-4.
3. Mushtaq MB, Qadri MI, Rashid A. Concurrent infection with dengue and malaria: An unusual presentation. Case Rep Med 2013;2013:520181.
4. Wiwanitkit V. Concurrent malaria and dengue infection: A brief summary and comment. Asian Pac J Trop Biomed 2011;1:326-7.
5. 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.
6. Arora VK, Gowrinath K. Pleural effusion due to lymphatic filariasis. Indian J Chest Dis Allied Sci 1994;36:159-61.
7. Gowrinath K. Filarial pleural effusion. Ann Thorac Med 2011;6:46-7.

Access this article online

Quick Response Code:

Website: www.jlponline.org

DOI: 10.4103/0974-2727.141522