

Mixed Malarial Infection with Pancytopenia in a Child with Acute Lymphoblastic Leukemia: An Unusual Presentation

Sir,

A coinfection with *Plasmodium vivax* and *Plasmodium falciparum* complicating a hematological malignancy in a child has rarely been reported. We present a child with underlying acute leukemia who had mixed malarial infection at presentation. An 18-month-old male child presented with intermittent high-grade fever with no localizing symptoms of 2-month duration. On examination, the child had pallor and firm splenohepatomegaly. There were no clinical bleeds or significant lymphadenopathy or bone tenderness. Complete blood count showed pancytopenia (Total Count (TC) – 1800 cells/cumm, P18 L80 M2, Hb – 5.7 g/dl, platelet count – 46,000 cells/cumm). Peripheral smear showed numerous ring forms and trophozoites of *P. vivax* and *P. falciparum*. Child was treated with artesunate combination therapy and primaquine. There was good response to antimalarial, child became afebrile and organomegaly regressed in size. Repeat smear for malarial parasite was negative. On follow-up after 2 weeks, there was recurrence of fever and laboratories showed persisting pancytopenia (TC – 2700 cells/cumm, P15 L82 M3, Hb – 6 g/dl, platelet count – 30,000 cells/cumm). The possibility of hemophagocytosis secondary to malaria or an underlying lymphoreticular malignancy was considered and further evaluation was done. Erythrocyte sedimentation rate was high (112 mm/h) and lactate dehydrogenase was elevated (871 U/L). Bone marrow aspirate showed aparticle dilute marrow with absent megakaryocytes, 12% atypical lymphoid cells, no evidence of hemophagocytosis. Bone marrow biopsy showed abnormal blastoid cells with vacuolated cytoplasm and round vesicular nuclei with inconspicuous nucleoli, consistent with acute leukemia. Bone marrow flow cytometry confirmed CALLA-positive B-cell acute lymphoblastic leukemia. Child is currently on maintenance chemotherapy and is doing well.

Malaria is accompanied by various hematological changes such as anemia, thrombocytopenia, and disseminated intravascular coagulation.^[1] Pancytopenia can occur due to bone marrow suppression or in some cases secondary to hemophagocytosis. In our child, the pancytopenia was initially thought to be secondary to mixed malarial infection. However, the persistence of pancytopenia despite the clearance of parasitemia and subtle pointers, such as lymphocytosis, helped us suspect an underlying malignancy. Malaria complicating hematological malignancies, such as leukemias and lymphomas, has been reported.^[2,3] Although malaria is a recognized cofactor in the genesis of endemic

Burkitt lymphoma, its role in acute leukemia is not known.^[4]

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Conflicts of interest

There are no conflicts of interest.

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