CORRESPONDENCE

Clinical Malaria as a Rare post Blood Donation Complication

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Dear Editor,

Asymptomatic and subclinical malaria carriers constitute a significant population even in low transmission settings [1]. Such asymptomatic carriers may also present as volunteer blood donors.

Two male blood donors aged 19 and 38 years and without any previous history of blood donation, presented in a hospital based blood bank for voluntary blood donation. Pre-donation medical history, including a history of malaria in the last 3 months, was unremarkable in both the blood donors according to the prescribed Indian standards [2]. Donors were afebrile, had a hemoglobin of above 14 gm/dL (XP-100, Sysmex corporation, Kobe, Japan) and were found fit for blood donation on physical examination. Donors were bled 450 ml of whole blood uneventfully over a period of 7–8 min and were allowed to go after a brief stay in the blood bank for refreshment and rest.

Both the donors returned to the blood bank after about 3 hours of their blood donation with complaints of chills and feeling of fever. The elder donor had additional complaints of generalized body ache with greater discomfort in the chest and back region. There was no history of fall, pain abdomen, nausea, vomiting, diarrhea, any outside food or drink consumption or drug intake before or after the blood donation. Additionally, in both the cases, physical examination did not reveal any signs of rash, thrombophlebitis, hematoma or bruise at the site of venepuncture for blood

collection. Repeat, detailed medical history was obtained. The younger donor disclosed an episode of clinical malaria approximately 1 year back and the elder donor had an episode of falciparum malaria approximately 3 years back. The elder donor was a laboratory technician himself and confirmed about the type of malaria and complete treatment received for the falciparum malaria 3 years back. On physical examination, both the donors were found to be having rigors and shaking chills with a body temperature of 99.7 °F.

There was no hepato-splenomegaly or lymphadenopathy in any of the donor. In both the cases, a venous blood sample was obtained for further laboratory testing and work up. Donors were advised rest, hydration, oral paracetamol and were asked to report back to the blood bank, once the laboratory results were available in few hours. However, due to fever and ongoing malaise, both the blood donors chose to leave the blood bank.

In both the cases, the blood samples obtained at the time of donation were found to be positive for pan malaria antigen by rapid card test (CareStart Malaria, Access Bio Inc, Somerset New Jersey). Fresh blood samples as well as donated samples were sent to the microbiology laboratory for malaria parasite detection on the peripheral blood smear (PBS). The PBS was positive for *Plasmodium vivax* (PV) in both the cases. Younger donor had, trophozoites, occasional ring forms and schizonts of PV and a parasite index of 0.2 percent on thin PBS. The PBS of elder donor showed only trophozoites of PV with a parasite index of 0.1 percent.

People in the malaria endemic region develop partial immunity to malaria (premonition [3]) and harbor low grade parasitemia due to a homeostasis existing between the host immunity and the parasite. It can be postulated that the physiological and psychological stress of the blood

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donation [4] coupled with the re-distribution of intravascular RBCs after blood donation [5], leads to an alteration in this homeostasis. This altered homeostasis, in turn may lead to an acute clinical onset of malaria in previously asymptomatic malaria carriers.

Blood donors presenting with a history of chills and fever after blood donation is a rare phenomenon. An unmasking of subclinical malaria should be suspected in such blood donors.

Author Contribution Naveen Agnihotri did the clinical study and designed the research. Ajju Agnihotri prepared the manuscript and assisted in the research.

Compliance with Ethical Standards

Conflict of interest The author declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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