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A Rare Case of Sickle Cell Anemia Crisis Triggered by Plasmodium Falciparum Malaria

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Malaria is a common public health problem in Sub-Saharan African countries such as Niger and one child dies every two minutes due to this disease (1, 2). Although the defense mechanism is not clear, sickle cells are 90% protective especially for Plasmodium falciparum malaria. In Niger, malaria is among the first to be considered in patients admitted to the emergency departments (EDs) with high fever. It is important for physicians to resolve the clinical manifestation in a patient who admits due to acute abdominal pain and high fever in a hospital with limited facilities. Failure to provide information about the patient's history and admission to the ED alone led to a delay of diagnosis and treatment of this rare coexistence (3).

A 19-year-old Nigerien boy admitted to the ED with complaints of shaking chills, sweats, agitation and sudden onset abdominal pain. Any information about was obtained about the patient's history including drug use or disease. His blood pressure was 90/50 mmHg and his fever was 39.6°C. High grade fever, icterus, right upper quadrant sensitivity and hepatosplenomegaly were detected on physical examination. The laboratory findings were as follow: hemoglobin 7.3 g/dL, hematocrit 22.1, MCV 62 fl, MCH 21 pG, white cells 19.3×109/L, neutrophils 51%, platelets 210×109/L, AST 485 U/L, ALT 356 U/L, total bilirubin 5.8 mg/dL and indirect bilirubin 4.9 mg/dL. Malaria rapid diagnostic test used for the diagnosis of malaria by providing evidence of malaria parasites including P. falciparum, P. vivax, P. malariae and P. ovale in his blood and P. falciparum was positive for the patient.

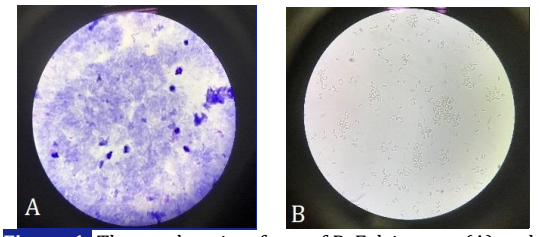

Figure 1: The trophozoites form of P. Falciparum (A) and sickle red blood cells (B) are seen.

We used thick drop thin red blood cell smear with Giemsa coloring method for the detection of plasmodium in the blood for accurate diagnosis and appropriate treatment. The stained smear was read with microscopy 100 times in immersion, for approximately 10 minutes and ring-shaped trophozoites confirming the P. Falciparum were seen (Figure 1a). A microcytic anemia, hepatosplenomegaly and sudden onset abdominal pain suggested diagnoses such as sickle cell disease other than malaria. A new sample was prepared with 2% sodium bisulfite and numerous sickle red blood cells were determined with light microscopy (Figure 1b). A sickle cell crisis triggered by P. falciparum malaria was considered in the boy. The patient was given vigorous intravenous hydration, controlled analgesics and oral arthemeter-lumefantrin (six packs, twice a day) for the treatment and transfusion was required to increase the hemoglobin concentration to between 10 g/dL and 12 g/dL. After the patient was hospitalized for three days, he was transferred to the sickle cell anemia center in Niamey, Niger.

References

1. Eleonore NL, Cumber SN, Charlotte EE, Lucas EE, Edgar MM, Nkfusai CN, et al. Malaria in patients with sickle cell anaemia: burden, risk factors and outcome at the Laquintinie hospital, Cameroon. BMC Infect Dis. 2020;20(1):40.
2. Moiz B, Majeed A. No risk reduction for Plasmodium vivax malaria in sickle cell disease. Clin Case Rep. 2018;6(6):1187-8.

3. Gupta NK, Gupta M. Sickle cell anemia with malaria: a rare case report. Indian J Hematol Blood Transfus. 2014;30(1):38-40.