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CONTINUING MEDICAL EDUCATION
ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Hematology Quiz – Case 57

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2018, 35(1):138–140

G. Dryllis,[1]
J.V. Asimakopoulos,[2]
I. Stergiou,[1]
L. Chatzis,[1]
L. Papageorgiou,[2]
P.M. Arapaki,[2]
T. Giannikos,[2]
M. Belia,[2]
E.F. Triantafyllou,[2]
E. Konstantinou,[2]
M. Efstathopoulou,[2]
C. Chatzidimitriou,[2]
E. Sinni,[2]
P. Tsaftaridis,[2]
E. Plata,[2]
T.P. Vassilakopoulos,[2]
M.K. Angelopoulou,[2]
K. Konstantopoulos,[2]
J. Meletis[2]

[1]Pathophysiology Department, National and Kapodistrian University of Athens, School of Medicine, "Laiko" General Hospital, Athens
[2]Hematology Department and Bone Marrow Transplantation Unit, National and Kapodistrian University of Athens, School of Medicine, "Laiko" General Hospital, Athens, Greece

During admission, the patient was well-orientated and uptight. His temperature was 38.6 °C with chills and sweats, blood pressure was 100/70 mmHg, pulse rate 124/min, and the respiratory rate was 22/min. The fever demonstrated a characteristic pattern being intermittent every 48 hours. The clinical examination was significant for mild hepatomegaly and splenomegaly (2–3 cm below each costal margin). Neither palpable lymph nodes nor skin rash were noted. There was no sign of bleeding diathesis.

The patient's complete blood count (CBC) revealed normochromic normocytic anemia (Ht 35.1%, Hb 12 g/dL, reticulocytes 18/μL), and remarkable thrombocytopenia (52×10^9/L) with normal WBC 5.83×10^9/L. The peripheral blood smear morphology is shown in figures 1–5. The erythrocyte sedimentation rate was 34 mm/h, while C-reactive protein was 131 mg/L. His biochemical tests revealed normal renal function with mild elevation in LDH (236 IU/L), SGPT (138 IU/L), γ-GT (110 IU/L), with no evidence of hemolysis (normal serum bilirubin and haptoglobins). The serum protein electrophoresis was normal. Direct and indirect Coombs tests were negative. Coagulation tests and serology for hepatitis B, C and HIV were within normal limits.

The patient was treated with chloroquine and primacine from the first day of his hospitalization. After the third day, chloroquine administration was stopped, while primacine administration was continued for the next two weeks. Patient's condition was

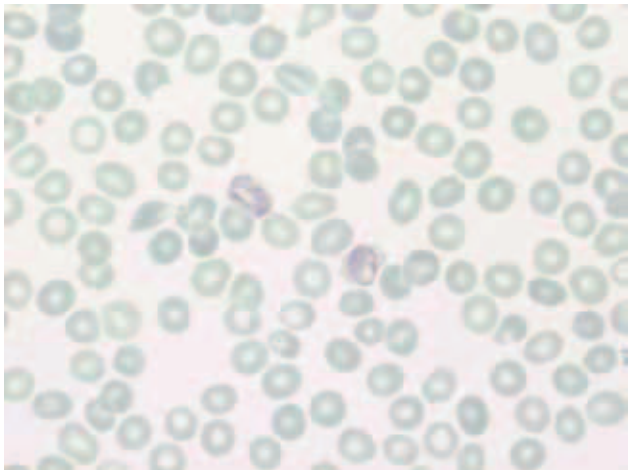

Figure 1

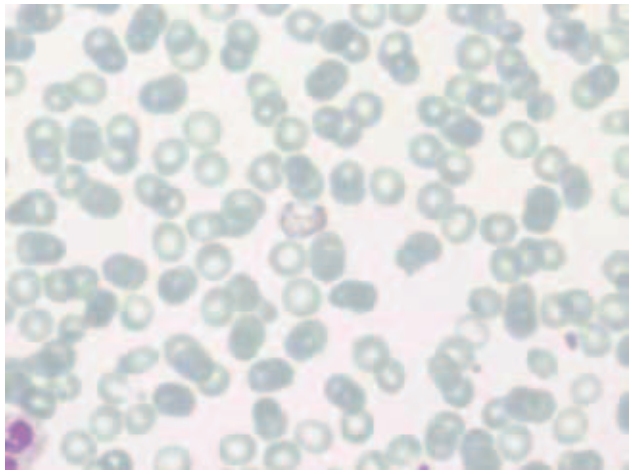

Figure 2

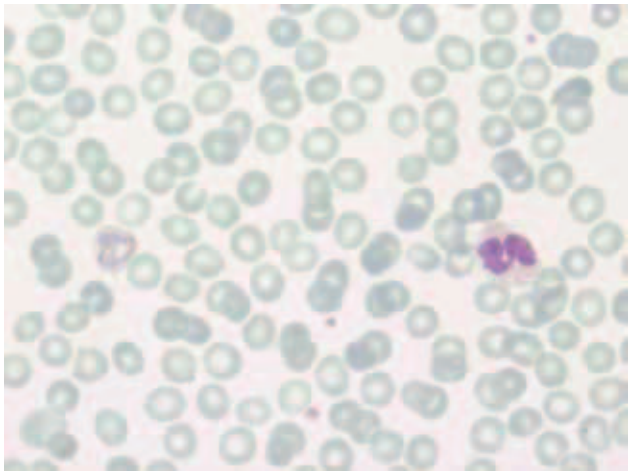

Figure 3

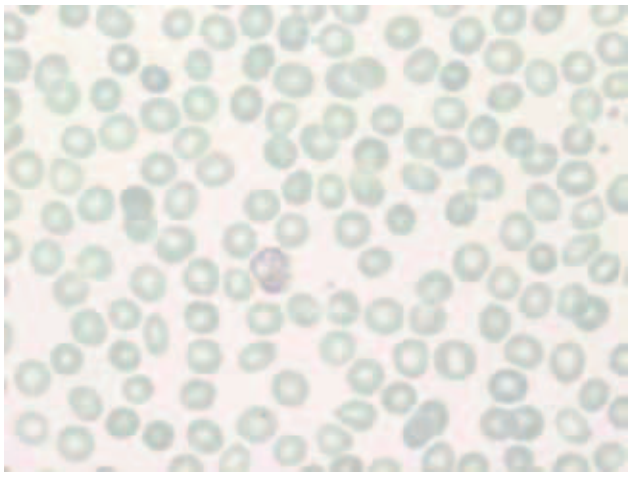

Figure 4

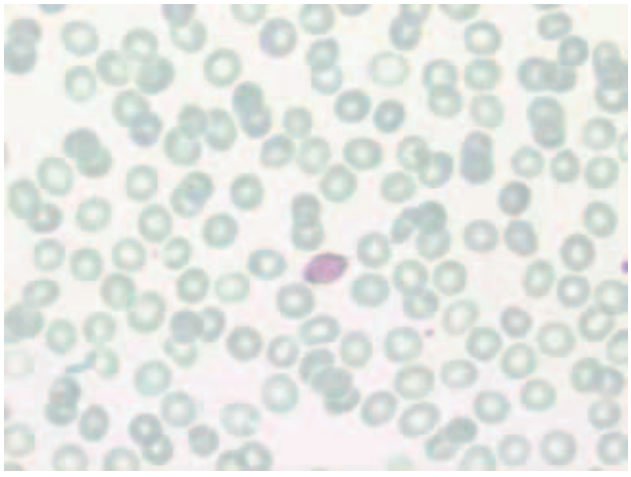

Figure 5

improved within days and hopefully he discharged from the hospital one week after.

Comment

Malaria is a mosquito-borne infectious disease caused by parasitic protozoans belonging to the Plasmodium type. Primarily, the disease is transmitted to humans by the stinging of a female mosquito of the anopheles genus. Stinging introduces parasites from mosquito saliva into human blood. The malaria parasites then travel to the liver (where, some types, may remain for even one year), where they multiply into merozoites, rupture the liver cells, and return to the bloodstream. The merozoites infect red blood cells, where they develop into ring forms, trophozoites and schizonts that in turn produce further merozoites. Sexual forms are also produced, which, if taken up by a mosquito, will infect the insect and continue the life cycle.

Malaria parasites belong to the genus Plasmodium (phylum Apicomplexa). In humans, malaria is caused by P. falciparum, P. malariae, P. ovale, P. vivax and P. knowlesi. Among those infected, P. falciparum is the most common species identified (approximately 75%), followed by P. vivax (approximately 20%). Although P. falciparum is traditionally responsible for the majority of deaths, recent evidence suggests that P. vivax malaria is associated with potentially life-threatening conditions as often as P. falciparum malaria. P. vivax logically is more common outside Africa.

The clinical picture of malaria varies from completely asymptomatic infection to severe disease and death. Severe illness is mainly associated with P. falciparum infection. Fever may occur periodically, depending on the type of parasite ("tertiary or quadruple fever"), though this is uncommon. The clinical picture, particularly at the onset of the disease, is not specific and there are symptoms of common infections (flu-like syndrome, dry cough, abdominal pain, etc.). Individuals with partial immunity (e.g. immigrants) may have an asymptomatic infection or an atypical clinical picture. Malaria during pregnancy can cause serious illness to the mother and lead to premature birth or short-lived newborns.

Diagnosis of malaria infection is based on the microscopic examination of peripheral blood staining (Giemsa staining) either by the thicker or the thin drop method (diagnosis of infection, identification of parasitemia and identification of the plasmid genus). The physician should include malaria in the differential diagnosis of any patient with fever who cannot be attributed to another obvious cause, especially if the patient has travelled or originated from an area endemic to malaria. Of the five species of Plasmodium that have been described globally, in Greece, P. vivax was detected in recent cases of domestic transmission, whereas P. falciparum is found in travelers or foreigners from endemic areas to the malaria parasite.

In conclusion, malaria treatment is determined by the plasmodium type, the severity of the disease, the risk factors of the patient (e.g. pregnancy) and the potential resistance of the Plasmodium to the antimalarials, depending on the patient's country of origin or of travel. It includes the direct administration of antimalarials such

as quinine, chloroquine, mefloquine, atovaquone/proguanil, doxycycline and artemisinin derivatives. Exclusion of G6PD deficiency is recommended prior to starting primacine. The specific treatment of P. vivax infection includes the combined administration of chloroquine and primacine in order to treat the merozoites in the liver and to prevent recurrences of malaria infection.

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Corresponding author:

J. Meletis, Hematology Department and Bone Marrow Transplantation Unit, National and Kapodistrian University of Athens, School of Medicine, "Laiko" General Hospital, Athens, Greece, tel.: +30 210 74 66 902, fax: +30 210 7456698
e-mail: imeletis@med.uoa.gr