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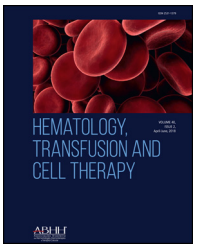

Images in Clinical Hematology

Malaria, the role of the blood smear – a case report

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A 28-year-old woman arriving from Africa came to the hospital presenting with fever, sweat and chills twice a day during the preceding week. The complete blood count showed a severe thrombocytopenia (47×10^9/L (150–450 $\times 10^9$/L)). In the clinical chemistry tests the following alterations were found: ALT 124 U/L (0–33 U/L), AST 99 U/L (0–32 U/L), LDH 374 U/L (100–250 U/L), GGT 165 U/L (0–40 U/L) and CRP 2.66 mg/dL (<5 mg/dL). The leakage of parenchymal (transaminases) and membranous (GGT) enzymes into the circulation is due to the infection of liver cells by the sporozoite form of *Plasmodium*, which can cause hepatic congestion, sinusoidal blockage, and cellular inflammation. Transaminases increase with an increase in malaria parasite density. Thrombocytopenia emerges as a predictor of malaria.

The peripheral blood smear showed the presence of merozoites outside erythrocytes (Figure 1A); trophozoites (Figure 1B – band form); schizonts (Figure 1C – rosette pattern) and gametocytes (Figure 1D) of *Plasmodium malariae*.

In endemic countries, the precise and timely diagnosis of malaria plays a capital role in the timely treatment and overcoming of the risks of fatal outcomes. The peripheral blood smear is a simple technique that, within a few hours of blood collection, can show if *Plasmodium* is present and in most cases allows for the identification of the species involved.[1] It also provides an estimate of parasite density.[1] If the clinical suspicion is substantial and the parasite is undetectable in the first blood smear, it must be repeated every 12–24 h for a total of three sets.[2] If all three sets are negative, this diagnosis may be ruled out.

The malaria parasite life cycle involves two hosts, an insect (e.g. female of the mosquito *Anopheles*) and a vertebrate (e.g. humans).

In humans, when the female insect (in which the sexual cycle occurs) takes a blood meal, gametocytes are ingested from the infected person. A human being (in whom the asexual cycle occurs) is infected when the infected female insect injects sporozoites into the host during a blood meal.

In humans, the major agents of malaria are *P. malariae*, *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium knowlesi*.[3] The parasite forms, trophozoites, merozoites and gametocytes, can be found in blood, and the schizonts can be found in the blood and liver.

Treatment with Atovaquone/Proguanil Hydrochloride (1000 mg/400 mg *sid*) for three days was effective, and the patient returned to her country already recovered from the disease.

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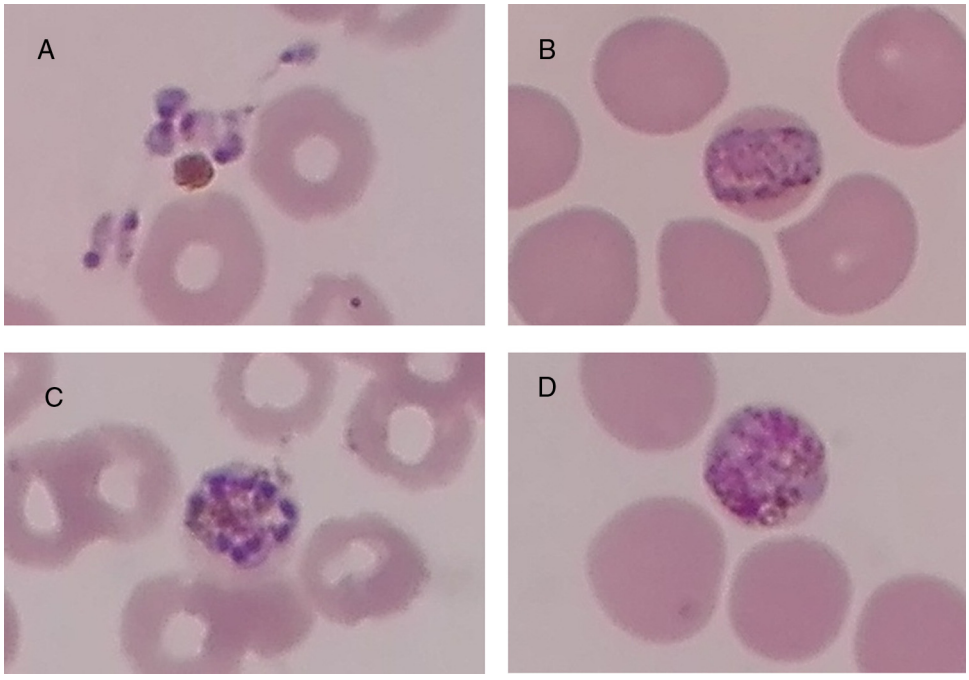

Figure 1 – "Peripheral blood smear (thin film) of the patient".

Conflicts of interest

The author declares no conflicts of interest.

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