

The Malaria: A Rare Cause of Fever in the Emergency Service

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Introduction

Malaria is a life-threatening disease occurring in more than one hundred countries and is endemic in tropical and subtropical regions. It was reported that each year more than 200 million people have malaria and approximately 650,000 people die due to malaria each year [1]. The bite of an infected female anopheles mosquito transmits *Plasmodium* (P.) species, but this is not the only way of transmission. The other ways of transmission are infected blood products and congenital. *P. vivax* is one of the most frequently observed types of Malaria in our country. However, the other types of P. except for *P. vivax* may also be seen. *P. falciparum* is the most serious type of malaria [2]. In Turkey, Malaria is endemic in the Eastern Mediterranean and Southeastern Anatolia Regions, and is seen sporadically in the other regions [2]. In this case report, we presented a case of malaria caused by *P. falciparum* and we emphasized the importance that malaria should be kept in mind for differential diagnosis of fever in the emergency service.

Case Report

A 46-year-old male patient was admitted to Diskapi Yildirim Beyazit Training and Research Hospital, Department of Emergency Medicine, Ankara, Turkey) due to confusion and fever. He had nausea, vomiting, malaise with fever for last three days. 3 days ago he was referred to the clinic due to dental pain and received antibiotic for tooth infection. It was learned that he had been working in Uganda for 8 months. He came back 10 days ago and did not take any chemoprophylaxis before travelling to this country. At first he had a bad general condition and was unconscious. Blood pressure was 98/53 mmHg, heart rate: 94/min, respiration rate: 16/min, fever: 36.7 °C and O₂ Sat 94%. On physical examination the patient appeared icteric. He had right upper quadrant abdominal tenderness and pain. There was no defence and rebound. Traube was closed. Other systemic examinations were normal. Laboratory values were as follows: haemoglobin: 15 g/dl, white blood cell: 10200/mcl, platelet: 21000/mcl, INR: 1.30, glucose: 75 mg/dl, bun: 47 mg/dl, creatine: 0.92 mg/dl, total bilirubin: 10.1 mg/dl, direct bilirubin: 5.9 mg/dl, AST: 62 U/l, ALT: 72 U/l, amylase: 55 mg/dl, electrolytes were normal. Urine tests, posteroanterior chest radiography, electrocardiography, and computed tomography were normal. He was evaluated by the neurology department and had no neuropathology. The peripheral smear was consistent with malaria and was sent to malaria battle unit (Figure 1). *P. falciparum* malaria was considered in diagnosis and the patients were admitted by infectious disease department and treated with Artesunate (At first hour 2.4 mg/kg, 12. hour 2.4 mg/kg, 24. hour 2.4 mg/kg and then 2.4 mg/kg/day total 7 days) + Lumefantrine. After obtaining the patients' blood cultures, sulbactam-ampicillin therapy was initiated. In his blood culture no bacteria identified. 10 units of platelet were given to the patient. He had no other illness caused to thrombocytopenia. When the patient's general condition deteriorated, he was intubated. Then, the patient was referred to another center for monitoring in an intensive care unit. The patient was retrieved to hemodialysis total 3 times due to acute tubular necrosis. He responded to treatment in the intensive care unit. On the 9th day he was weaned off from mechanical ventilation. He was discharged with recovery on the eleventh day of admission.

Discussion

Malaria has caused epidemics throughout generations in Anatolia.

It is a disease causing death and loss of labor. Despite all eradication efforts in Turkey, one fifth of the population still live in South-eastern Anatolia and regions of Cukurova which are endemic regions in Turkey [3,4]. In Turkey, *P. vivax* is the most frequently type of malaria. Other types of malaria are found mostly in patients from abroad. *P. falciparum* occurs in Africa, Haiti and New Guinea and *P. falciparum* and *P. vivax* occurs in the Southeast Asia, South America and Oceania [5]. In Turkey, most of the *P. falciparum* cases are from foreign countries [6]. However in the patients from abroad, the fever is more constant and the peaks have irregular intervals [7]. In our case, fever and other symptoms were persistent. However in the patients from abroad, the fever is more constant and the peaks have irregular intervals [7]. Clinical characteristics of severe malaria are jaundice, fatigue, impaired consciousness (coma), respiratory distress, pulmonary edema (tachypnea, labored deep breathing), repeated seizures (more than 3 seizures in 24 hours), shock (SBP less than 80 mmHg after volume repletion), abnormal bleeding (retinal haemorrhages), acute renal failure (fluid and electrolyte abnormalities), macroscopic haemoglobinuria, severe anemia (Htc less than 15% or Hgb less than 0.5 g/dl), hypoglycaemia (blood glucose less than 2.2 mmol/l), metabolic acidosis (plasma bicarbonate less than 15 mmol/l or blood pH less than 7.25), renal insufficiency (serum creatinine more than 250 mcmol/l), hyperlactatemia (venous lactate more than 4mmol/l), hyperparasitemia (more than 500,000 parasites/mm³ or more than 5-10% parasitemia), elevated aminotransferase levels (more than 3 times the upper limit of the normal range), elevated bilirubin level (serum bilirubin more than 50 mmol/l) and disseminated intravascular coagulation [8]. In *P. falciparum* seizures are characterized by chills, tremors, high fever and sweating and they repeat every 48 hours. In

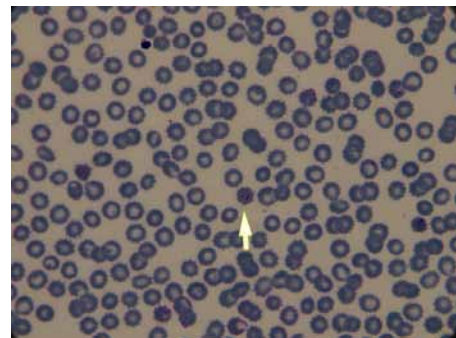


Figure 1: Peripheral smear consistent with malaria.

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our case, fever and other symptoms were persistent. Our case did not have anemia, but he was unconscious and he had thrombocytopenia, bilirubin and transaminase increase. At diagnosis, thick and thin drop of blood smear preparations which were stained with Giemsa is the gold standard. It also allows identification of type and quantity [9]. The presence of more than one parasite in erythrocyte, and the banana-shaped gametocytes seen are pathognomonic [9]. Malaria caused by *P. falciparum* does not usually change the size of erythrocytes. *P. falciparum* infected erythrocytes produces, microvascular obstruction which can lead to a syndrome of cerebral malaria [10]. In the process of treatment, these types of syndromes should be considered. In *P. falciparum*, drug resistance is high. In the treatment of *P. falciparum*, Artemisinin based combination therapy (Acts) is recommended [11]. Due to resistance to chloroquine, artesunate and lumefantrin was initiated with response to treatment in our case. When used correctly, chemoprophylaxis appears to be highly effective in preventing malaria [12].

Conclusion

Incidence of malaria has decreased due to chemoprophylaxis and effective treatments, but it still has not been fully eradicated. For this reason, in the differential diagnosis of fever, travelling to endemic regions must be questioned and malaria should always be kept in mind in the emergency department.

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