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Two cases of imported malaria in Western Romania, 2010-2011

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ABSTRACT

Malaria is a major problem for European travelers to endemic regions. In Romania during 1980-2007 approximately 20 imported cases were detected annually. The aim of our short communication is to present 2 interesting cases of imported malaria detected in Western Romania. The first patient was a 20-year female who traveled to India and acquired an infection with *Plasmodium vivax* (*P. vivax*). The second patient, a 60-year female, contracted an infection with *Plasmodium falciparum* (*P. falciparum*) during a trip to Ghana; the evolution of the disease was severe with many complications and the patient finally died. The cases presented revealed the difficulties in establishing a correct diagnosis of malaria in a non-endemic country, consequences of an incomplete taken anamnesis. Travel history should always represent a mandatory part of a well conducted investigation. At the same time, we must underline the importance of a correct and complete prophylaxis prior to every departure to tropical countries.

1. Introduction

Malaria is a major problem for European travelers to endemic regions: between 10 and 15 million travelers visit annually these areas and between 12 000 and 15 000 cases are introduced in Europe especially from African countries[1]. In Romania, malaria was eradicated in 1963[2] and during 1980-2007 approximately 20 imported cases were detected annually[3]. The aim of our short communication is to present 2 interesting cases of imported malaria detected in Timisoara City (Western Romania).

Hospital medical records of 2 malaria patients admitted to the Municipal Hospital and Infectious Diseases (ID) Hospital in Timisoara, Romania, between March 2010-March 2011, were retrospectively investigated. Epidemiological, clinical, therapeutic data and laboratory test results were extracted and processed.

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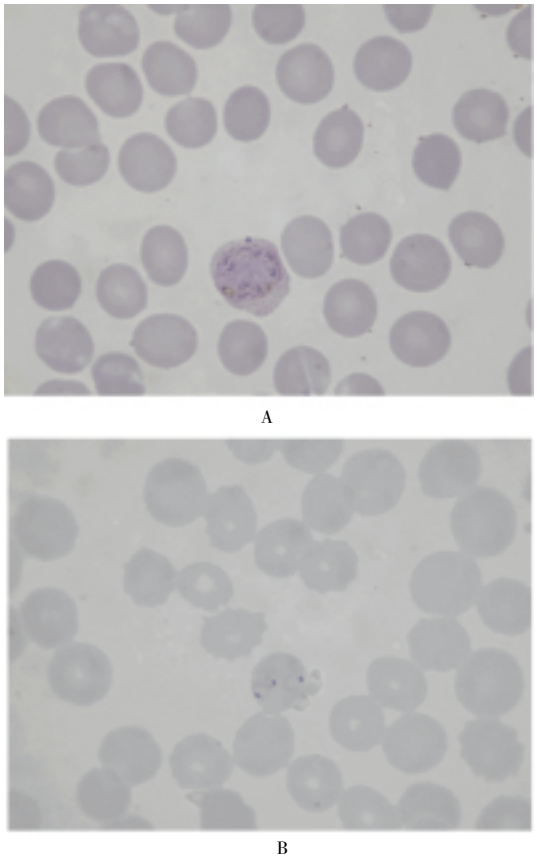
2. Case reports

2.1. Case 1

A 20-year female student made a leisure trip to India during the summer (August) of 2009. Patient did not follow any chemoprophylaxis prior or during her travel. The onset of the disease was seven months after she returned from India, with fever paroxysms. Prior to addressing the hospital, severe thrombocytopenia and grade 4 neutropenia were ambulatory detected. After 4 days, the patient was admitted to the Municipal Hospital. Her complete clinical picture at hospital admission included fever (39.7 ℃) with shivers, sweating, headache, myalgias, pain in the left hypochondrium, nausea, vomiting, cutaneous and mucosal pallor, hepatomegaly, splenomegaly and facial pruriginous eruption. The relevant laboratory tests at admission indicated the following results: erythrocyte count -4410000 cells/μL, leukocyte count -2310 cells/μL with neutrophils of 17.8%, thrombocyte count -44000 cells/μL, hemoglobin -13.2 g/dL, erythrocyte sedimentation rate -15 mm/hour, alanine aminotransferase -68 U/L, aspartate aminotransferase -62 U/L. During the course of the disease,

further laboratory tests revealed a C-reactive protein of 29 mg/L and the presence of anti-nuclear and anti-thrombocyte antibodies. Her medical history revealed that she has been known with thrombocytopenia since 2003, but no investigation were undertaken to establish its etiology. Three days after her admission, the bone marrow aspirate revealed the presence of *Plasmodium* parasites in her red blood cells. Examinations of thin and thick blood smears (Giemsa staining) evidenced parasitized erythrocytes typical for an infection with *Plasmodium vivax (P. vivax)* species (mature schizonts, micro and macrogametocytes) with well evidenced Schuffner's dots (Figure 1A). Once the infectious etiology was established, the patient was transferred to the ID Hospital with the diagnosis: mild anemia with hemolytic component, grade 4 neutropenia, severe form of idiopathic thrombocytopenic purpura (ITP), parasitic infection with *P. vivax* and a possible collagen disorder. In the ID hospital, the patient was hospitalized for 19 days, and received specific therapy with the following available drugs: quinine sulfate (3 × 600 mg per day; the first 2 days) hydroxychloroquine (Plaquenil) (4 × 200 mg per day -in the 3rd day and 2 ×200 mg per day -during days 4 and 5) and primaquine (2 × 7.5 mg per day -during days 4-17). The outcome was favorable and the patient was discharged with the following recommendations: reexamination after 3 months and ambulatory supervision for a 3-year period.



A

B

Figure 1 Giemsa stained thin blood smear showing (A) a mature schizont of *P. vivax* species and Schuffner's dots in the infected erythrocyte (case 1), and (B) 3 ring forms of *P. falciparum* species in the same infected erythrocyte (case 2).

2.2. Case 2

A 60-year female patient, professionally retired, known to suffer for 2 years of rheumatoid polyarthritis and treated during this period with methotrexate was admitted to the ID Hospital in Timisoara for a febrile syndrome accompanied by shivers and digestive symptoms. The onset of the disease was 3 days prior hospitalization. From her medical history we depicted that she returned 2 weeks before admission from a trip to Republic of Ghana (February 2011), where she stayed for 2 weeks. The patient followed an incomplete chemoprophylaxis (hydroxychloroquine, 400 mg once, one week prior her departure). Physical examination performed at admission revealed that patient was afebrile but in a bad general condition. The clinical picture consisted of fever (39.5 ℃) accompanied by shivers, sweating, nausea, vomiting, diarrhea, loss of appetite, cold and cyanotic limbs, tachycardia alternating with bradycardia, hypotension, hepatomegaly, oligoanuria, icterus, altered mental status and nystagmus. At admission, the erythrocyte count was 4 680 000 cells/μL, leukocyte count -2 480 cells/μL with neutrophils -86.3%, thrombocyte count -38 000 cells/μL, hemoglobin -15.5 g/dL, erythrocyte sedimentation rate -45 mm/hour, alanine aminotransferase -89 U/L, aspartate aminotransferase -210 U/L, total bilirubin -1.04 mg/dL, conjugated bilirubin -0.85 mg/dL, urea -98.9 mg/dL, serum creatinine -3.76 mg/dL, uric acid -8.9 mg/dL and pH of 7.11. Further, the *Plasmodium* lactate dehydrogenase (pLDH) test was positive. Examinations of thin and thick blood smears (Giemsa staining) revealed the presence of ring forms typical for an infection with *Plasmodium vivax* (*P. falciparum*) (Figure 1B). Her course continued to be unfavorable with a diuresis of only 150 mL per 24 hours. During the 3rd-day of hospitalization she received symptomatic and pathogenic treatment associated with a specific therapy with the following available drugs: hydroxychloroquine (4 × 200 mg on the first day), halofantrine hydrochloride (Halfan) (3 × 500 mg on the second day), artesunate (150 mg on the third day) and doxycycline (2 × 100 mg on the first day and 100 mg per day during the next 2 days). Because patient condition worsened progressively (renal, digestive and cardiovascular severe disturbances) and the oxygen saturation decreased, on the 3rd day of hospitalization patient was first transferred to hospital's intensive care unit and afterwards to the County Emergency Hospital for performing dialysis. Patient died 3 hours later at the County Emergency Hospital. The ID Hospital discharge diagnoses were severe malaria with *P. falciparum*, acute respiratory failure, acute renal failure, metabolic acidosis, severe thrombocytopenia, leucopenia, steatohepatitis and rheumatoid polyarthritis.

3. Discussion

P. falciparum is the most prevalent species in Africa[4,5] and during 1980–2007, 67.7% of the Romanian travelers acquired an infection with this species[3]. Moreover, recently 2 other fatal imported malaria cases were diagnosed in this region[6]. As regards the infections with *P. vivax*, this species was identified in 7.14% of cases diagnosed in a Western Romanian study[6]. As shown by Schmid *et al.*[7], travels to India are associated with health risks including malaria.

Of the 2 cases presented in this report, patient infected with *P. falciparum* had an evolution with numerous complications.

None of our patients was aware about the importance of considering the chemoprophylaxis. As previously shown in a 2-year national surveillance study of imported cases[8], 92% of the 25 confirmed malaria cases, did not follow complete or incomplete chemoprophylaxis. Nevertheless, no fatalities were detected as unfortunately was the case for one of our patients. Other investigators, have also reported that 89.1%[9], 83.8%[10], 75%[11] and 70.8%[12] of the travelers diagnosed with imported malaria did not follow prophylaxis. In Romania, voyagers to tropical countries may freely benefit of medical pre-travel advice and prophylaxis[8]. The most recommended drug for travelers to malaria endemic regions is Doxycycline; this drug is considered a good option for areas with chloroquine or multidrug-resistant *P. falciparum*[13].

The cases presented in this report revealed the difficulties in establishing a correct diagnosis of malaria in a non-endemic country, consequences of an incomplete taken anamnesis. Travel history should always represent a mandatory part of a well conducted investigation. Lack of considering such an issue may lead to significant diagnostic delays, as it happened especially in our first case herein described: the patient was not guided properly from the beginning to an ID-target hospital. At the same time, we must underline the importance of a correct and complete prophylaxis prior to every departure to tropical countries. On contrary, cases related to imported exotic pathology will occur more frequently in the near future.

Conflict of interest statement

We declare that we have no conflict of interest.

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