HOSPITAL PHYSICIAN®

INFECTIOUS DISEASES BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Infectious Diseases Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in infectious diseases. Each manual reviews a topic essential to current practice in the subspecialty of infectious diseases.

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Common Clinical Problems in Returned Travelers

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Common Clinical Problems in Returned Travelers

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INTRODUCTION

The increasing frequency of international travel has led to an increased number of patients presenting with illnesses acquired abroad.[1] It is therefore important that practicing physicians have an understanding of the common problems facing returned travelers. This review will discuss some of the principles that guide evaluation and management of these patients in a format that is based on actual cases from the Mount Sinai School of Medicine Travel Medicine Program.

FEVER

Fever can be an important sign in several life-threatening infections. The question "Could this be malaria?" must always be posed in the setting of the febrile returned traveler because of the high mortality associated with untreated malaria due to *Plasmodium falciparum.* The absence of fever should not discount the possibility of malaria infection, as some patients may present with more subtle symptoms.[1]

When considering the possibility of travel-related illness, one must entertain the possibility that more local causes of infection are in fact the true culprit. A careful history of the patient's itinerary, activities, and exposures as well as the chronicity of the symptoms will often help to differentiate among the various causes of fever without localizing symptoms.[1]

CASE 1

A 43-year-old man from Nigeria returned to his home country for a 6-month stay while working for the United Nations. He had received appropriate pretravel vaccinations but was not taking malaria prophylaxis while there. Most of his daily activities were confined to offices, but he had made several trips to smaller rural villages in which he had spent a large portion of his time outdoors. The night before his return, he developed fever and headache. His symptoms then progressed to include chills, myalgias, and extreme fatigue. By the time he presented to the emergency department, he had also noted a darker color to his urine and a significant icterus (**Figure 1**). His laboratory studies revealed several abnormalities (abnormal results in italics):

- White blood cell count: *11,300/μL* (71% neutrophils, *12% bands)*
- Hemoglobin: *10.8 g/dL*
- Hematocrit: *30%*
- Platelet count: *29,000/μL*
- Sodium: *127 mEq/L*
- Potassium: 4.2 mEq/L
- Chloride: 91 mEq/L
- Carbon dioxide, total: *18 mEq/L*
- Blood urea nitrogen: *84 mg/dL*
- Creatinine: *5.7 mg/dL*
- Lactate dehydrogenase: *1757 U/L*
- Alanine aminotransferase: *59 U/L*
- Aspartate aminotransferase: *131 U/L*
- Bilirubin, total: *10.5 mg/dL*
- Bilirubin, direct: *5.4 mg/dL*
- Haptoglobin: *10 mg/dL*

On peripheral blood smear, there were multiple ring forms with a 20% parasitemia (**Figure 2**).

- **What is the diagnosis? What is the most likely species?**

This clinical presentation is consistent with severe malaria from *Plasmodium falciparum.* On the peripheral blood smear, the infected cells are the same size as the noninfected cells and there is an example of a cell infected by more than 1 *Plasmodium* parasite. These findings together with the clinical picture of a patient with severe malaria allow us to distinguish infection with *P. falciparum* from infection with other species of malaria. On peripheral blood smear, both *P. vivax* and *P. ovale* will infect immature erythrocytes that have not fully developed their cytoskeleton. These infected cells will appear larger than the noninfected adjacent cells. In *P. falciparum,* the schizont phase is rarely seen on