outpatient encounters, laboratory results, and pharmacy data). All of these sources should be evaluated for completeness and accuracy.

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References


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Concurrent Dengue and Malaria

To the Editor: A 37-year-old woman, a logistics director for a non-government organization, returned to France in March 2004 from an 18-day trip to Guinea, Senegal, and Sierra Leone. Fever, chills, and myalgia developed in the woman 3 days before she returned to France, and she treated herself with aspirin and paracetamol (acetaminophen). Malaria prophylaxis was taken neither during nor after the trip.

The day after returning to France, the woman’s condition progressively worsened; diarrhea and extreme weakness that led to the inability to walk developed. Ten days after her return, she was admitted to the local hospital and treated with intravenous quinine and oral doxycycline (2 g per day) after thick and thin blood films showed 3% parasitemia with Plasmodium falciparum. Three days later, she was still febrile and had conjunctival jaundice, vomiting, insomnia, and moderate hemorrhagic manifestations (epistaxis, blood in urine and feces). Three days after initial hospitalization, the patient was transferred to the Infectious Diseases Unit in Marseille; fever (39.5°C) continued, and hepatosplenomegaly developed. Biologic analyses showed disseminated intravascular coagulation with platelet count of 22,000/µL, an elevated prothrombin time (54% higher than the control value), a longer activated clotting time (51 seconds versus a control value of 34 seconds), a fibrinogen level of 0.9 g/dL, exaggerated plasma fibrin formation and degradation, and hepatic cytology with both aspartate aminotransferase and alanine aminotransferase levels of 80 U/L.

Although acute malaria had been diagnosed, viral serologic tests were performed because the patient had returned from a tropical country with a fever. Persons in these circumstances are systematically administered a series of tests to determine the cause of their fever. Serologic tests for dengue performed on the acute-phase serum (collected 13 days after onset of symptoms) and convalescent-phase serum (collected 23 days after onset of symptoms) showed the presence of immunoglobulin (Ig) M (titers 1:800 and 1:3,200, respectively) and IgG (titers 1:400 and 1:3,200, respectively), which suggested that the patient had dengue fever and malaria concurrently. These results were obtained by using the Dengue Duo IgM-capture and IgG-indirect enzyme-linked immunosorbent assay (Biotrin, 1153
ed concurrent infection with dengue virus and a bacterium (Salmonella typhi, Shigella sonnei, Leptospira spp.) (6–8) or with a virus such as Chikungunya virus (9).

To our knowledge, this is the first report of mixed dengue–parasite infection, dengue virus with P. falciparum. The authors previously questioned the accuracy of a serologic test to diagnosis dengue fever in patients experiencing malaria because reactivity was nonspecific on certain rapid serologic assays (10); however, serologic tests used in this study have demonstrated good specificity (10), and molecular tests are not prone to such specificity problems. Classifying this case as dengue hemorrhagic fever is questionable since some of the hemorrhagic signs may have been caused by acute malaria. In cases of concurrent infections involving a dengue virus, questions related to the influence of mixed infection on severity and prognosis are, therefore, impossible to address because of lack of information. Further investigations are required because this situation likely occurs frequently in nature, despite scant available data.

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References

West Nile Virus Detection and Commercial Assays

To the Editor: Roehrig and colleagues described the long-term persistence of immunoglobulin (Ig) M antibody in patients with West Nile virus (WNV) infection, as tested using an in-house Centers for Disease Control and Prevention (CDC) enzyme immunoassay (EIA) (1). This result suggests that interpreting WNV IgM results in subsequent years would be difficult. With the commercial availability and widespread use of US Food and Drug Administration–