

other is a small clinical and epidemiologic study of hospitalized children <2 years of age in Santiago de Compostela (8). Data from both studies are consistent with our results. Rotavirus gastroenteritis is a common cause of hospitalization and produces a heavy load on the health-care system in our region. After years of research, vaccines that effectively prevent rotavirus infections in humans have been developed (9,10). These data should be considered in evaluating the potential benefits of introducing rotavirus vaccine in our region and monitoring its effectiveness.

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Israeli Spotted Fever Rickettsia (*Rickettsia conorii* Complex) Associated with Human Disease in Portugal

To the Editor: Mediterranean spotted fever is endemic in Portugal, where it is a reportable disease with approximately 1,000 new cases per year (1). *Rickettsia conorii* has been thought to be the only pathogenic rickettsia of the spotted fever group in Portugal (2), as well as in the Western Mediterranean area. Another rickettsia in this group, the Israeli spotted fever rickettsia, which belongs to the *R. conorii* complex (3-5), was isolated in 1974 from ticks and humans; however, its distribution appeared to be restricted to Israel (6). We report three cases of rickettsiosis in Portugal caused by Israeli spotted fever rickettsia.

Case 1. A 71-year-old woman was hospitalized with a history of fever (39°C) for 6 days, headache, and icterus. The influenzalike syndrome was treated with an antipyretic. In the next 4 days, the patient had myalgias, malaise, and mental confusion. Ten hours after being transferred to an intensive care unit, she died with septic shock and multiorgan failure, despite intravenous administration of doxycycline and other antibiotics.

Case 2. A 79-year-old woman, who was previously healthy except for high blood pressure, was hospitalized with a 4-day history of gastrointestinal disorders, nausea, and vomiting, which were attributed to food poisoning; high fever (40°C) developed, and 3 days later a cutaneous rash, which spread to the palms and soles. The diagnosis of Mediterranean spotted fever was made by indirect immunofluorescent assay against *R. conorii* (immunoglobulin [Ig] M 1:40; IgG 1:512). The patient was treated with doxycycline and was discharged from the hospital 20 days after admission.

Case 3. A 65-year-old woman was hospitalized with a 6-day history of fever (39°C), headache, vomiting, and epigastric pain, which had been treated with penicillin. Rash and

icterus developed, and the patient died of shock and multiorgan failure 9 hours after hospitalization, despite treatment with a mixture of antibiotics, which contained doxycycline.

Rickettsiae of the spotted fever group were isolated by the shell vial technique from the blood of the three patients. Sequences of polymerase chain reaction-amplified fragments of 16SrRNA (1440 bp), citrate synthase (382 bp), and *rompA* (590 bp) genes of the isolates show 100% similarity with the homologous sequence of Israeli spotted fever rickettsia (4,7,8).

All three patients lived in semirural areas, along the River Tejo (Setubal District). None had left Portugal during the previous year. Although none had a tache noire, contact with ticks cannot be excluded. The absence of tache noire is typical in Israeli spotted fever (6). These findings indicate that the geographic distribution of Israeli spotted fever is wider than had been thought and includes the Iberian Peninsula. Because initial signs and symptoms of the disease are particularly uncharacteristic and appropriate treatment may be delayed, this rickettsia can cause life-threatening disease.

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Avoiding Misdiagnosis of Malaria: A Novel Automated Method Allows Specific Diagnosis, even in the Absence of Clinical Suspicion

To the Editor: We report three cases of malaria to illustrate a novel method that allows diagnosing the disease, even if clinicians do not suspect it or request malaria smears. Lack of clinical suspicion is a well-known factor for malaria misdiagnosis and may be responsible for almost 40% of deaths from *Plasmodium falciparum* infections in industrialized countries (1-3). A recent study from Canada showed that in 59% of cases malaria was initially misdiagnosed, and in 16% three or more physician contacts occurred before malaria smears were ordered (4).

Early diagnosis of malaria relies crucially on clinical suspicion. A clinician suspecting the disease has to explicitly request malaria smears. This problem has not been solved with the advent of several methods alternative to microscopy, including recently introduced rapid dipstick tests (5). Performing any of these tests blindly without a specific request is impractical. On the other hand, routinely performed laboratory tests in the work-up of febrile patients, e.g., automated full blood counts, have so far detected only nonspecific changes, such as anemia or thrombocytopenia, which are associated with many other conditions (6). These changes on their own are therefore not specific enough to trigger malaria smears without an explicit request.

New automated full blood counts-analyzers incorporate flow-cytometric principles. The Cell-Dyn 3500 (Abbott, Santa Clara, CA) uses scattered laser-light of leukocytes at four different angles to generate a white-blood-cell differential (7). Monocytes and neutrophils may