



Answer to Photo Quiz: *Brucella melitensis*

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Biochemical differentiation by Vitek 2 and *Brucella*-specific multiplex PCR (1) identified the pathogen as *Brucella melitensis*. Low levels of anti-*Brucella* IgM and IgG were detected by enzyme-linked immunosorbent assay (ELISA), and *Brucella* DNA was also amplified by real-time-PCR from sputum samples (2). Blood cultures (BacT/Alert FA/FN bottles; bioMérieux) taken on days 0, 2, and 3 after the start of antibiotic therapy with cefuroxime remained sterile after 7 days of incubation.

Brucellosis is a zoonotic infection that occurs worldwide. Areas of endemicity include Central and South America, Africa, Asia, and the Mediterranean. A high seroprevalence in Kazakhstan has been reported (3). Farm animals are the primary hosts of *Brucella* species; thus, people with direct contact with such animals or their products are at increased risk for infection. Our patient denied animal contact and consumption of dairy products. Therefore, inhalation of aerosolized bacteria is the most likely route of infection.

In Gram stains, *Brucella* species appear as Gram-negative coccobacilli and, except for *Francisella tularensis* organisms, are the smallest organisms to be seen under the microscope (diameter, 0.5 to 1 μ m). *Brucella* species grow on most standard media, and colonies are first visible after 2 to 3 days of incubation. Antibiotic susceptibility testing is not recommended, due to the fact that resistance is rare (4).

Brucellosis has a variable clinical course, but symptomatic patients usually have fever and constitutional symptoms (e.g., weight loss). The most common complication is osteoarticular disease (e.g., arthritis). Lung disease is present in about 15% of patients and can present as interstitial or lobar pneumonia (5). Pulmonary nodules, as in our patient, are a common finding (6). Detection of *Brucella melitensis* from sputum confirmed pulmonary involvement in our patient.

Cutaneous disease occurs in 1 to 13% of brucellosis patients, most often as papulonodular lesions on the lower extremities. The histologic findings are an inflammatory infiltrate of the lymphocytes and histiocytes, with a focally granulomatous appearance. Cutaneous abscesses, as in our patient, are rare (7, 8).

In the end, the patient was successfully treated with rifampin, doxycycline, and gentamicin for 3 weeks, followed by rifampin and doxycycline maintenance therapy for another 8 weeks to avoid early relapse.

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