CLINICAL VIGNETTE

Brucella Exposure from Unpasteurized Queso Fresco

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Introduction

There are 500,000 annual cases of brucellosis reported worldwide. The disease is endemic to the Mediterranean basin, Central Asia, China, sub-Saharan Africa, and parts of Mexico and Central and South America.[1] As Brucella species are considered zoonotic bacteria, person-to-person infections are rare and clustering of cases may represent a more widespread problem in domesticated animal infections.[2] In the United States, 100-200 cases of human brucellosis are reported annually.

Brucellosis is associated with chronic debilitating infections in humans.[1] An infected individual's signs and symptoms consist of an influenza-like illness with an insidious onset. Because of the nonspecific clinical presentation, less than 10% of human cases of brucellosis are recognized and reported.[3] Historically, lack of standardized therapy in the acute phase has resulted in the spread of this bacterial infection to various tissues, leading to subacute or chronic disease with serious implications.[3]

We present a case of human brucellosis following ingestion of unpasteurized "queso fresco," fresh cheese made from raw cow and/or goat milk. This case highlights the prolonged length of time required to recover from systemic brucellosis and available antibiotic treatment options.

Case Presentation

A 71-year-old Guatemalan woman presented to the emergency department with one week of fever, abdominal pain, diarrhea, vomiting, jaundice, and decreased oral intake. Her symptoms began during a trip to Guatemala. She had diabetes and hypertension and presented with T 38.0 C, BP 80/42, HR 76/min. She was ill-appearing and her exam was remarkable for scleral icteris. Her abdomen was nondistended with normal bowel sounds, and no localized tenderness or hepatosplenomegaly. Murphy's sign was absent and there was no significant lymphadenopathy. Laboratory studies were significant for hyponatremia (123 mmol/L), elevated total bilirubin (3.6 mg/dL), elevated alkaline phosphatase (532 U/L), transaminitis (AST 107 U/L, ALT 47 U/L), decreased hemoglobin (10.5 g/dL), and thrombocytopenia (20 g/dL). CT abdomen and pelvis demonstrated cholelithiasis with wall thickening and early morphologic features consistent with cirrhosis. HIDA scan was not suggestive of cholecystitis. She was admitted and empirically treated with intravenous vancomycin and meropenem.

Six days after admission, initial blood cultures grew Brucella species. When asked about exposures to animals or unpasteurized dairy products, the patient reported consuming unpasteurized "queso fresco" regularly in Guatemala. The patient was treated with triple antibiotic therapy with gentamicin, doxycycline, and rifampin. Subsequent transthoracic and transesophageal echocardiograms showed no evidence of endocarditis.

Despite triple antibiotics, the patient continued with intermittent fevers and blood cultures remained positive for one week. Search for alternate infections identified a buttocks abscess which was drained with culture positive for Eschericia coli, however E. coli was never isolated from blood cultures and CT imaging and whole body tagged WBC scan remained negative for other sites of infection. Daily blood cultures remained positive for Brucellosis for 14 consecutive days. Blood cultures eventually turned negative and the patient was discharged on a 6-week course of doxycycline and rifampin. The patient developed nausea and stopped the antibiotics after 4 weeks, and remained afebrile with subsequent negative blood cultures.

Discussion

According to Chomel and colleagues., in California, human brucellosis evolved between 1973 and 1992 from an occupational slaughterhouse illness to a foodborne illness affecting Hispanic populations.[4] Our case demonstrates that the illness persists to present day and makes a case for the screening patients with fever of unknown origin and epidemiological risk factors for foodborne infections, including Brucellosis.

Preferred treatment for brucellosis is usually dual therapy with doxycycline along with either an aminoglycoside or rifampin.[5] Triple antibiotic therapy is typically reserved for Brucella endocarditis with doxycycline, gentamicin, and rifampin. However, given the patient's presentation and severity and persistent symptoms, this more aggressive regimen was warranted.

This case also provides perspective on the length of treatment needed to eradicate signs of infection, particularly clearance of

blood cultures.[5,6] Feiz et al., reported that in a minority of patients, Brucella cultures may remain positive for up to 3 weeks after the initiation of antibiotic therapy.[7,8] Our case reaffirms that biologic clearance -- indicated by negative blood cultures -- may only occur only after multiple weeks of antibiotic treatment.

Due to negative imaging studies, persistently positive blood cultures, and cytopenias, Brucella may have possibly been harboring in this patient's bone marrow.[9] The patient's anemia and thrombocytopenia represent findings that are still being studied in relation to brucellosis. These two findings are the most common hematologic abnormalities reported in studies assessing Brucella infections with bone marrow cytophagocytosis.[10] This case is another example of multiple studies associating pancytopenia with this infectious process. Confirmation of bone marrow infection would require bone marrow biopsy demonstrating hypercellularity.[10] Because of risk of complications, this was not pursued.

Our case provides epidemiological and clinical perspective on an infectious disease that appears infrequently but can be extremely difficult to identify and treat. Given the array of symptoms on admission, the patient's course included numerous, ultimately unrevealing diagnostic studies to identify the etiology of her illness. By incorporating better prevention, screening, and treatment regimens, Brucella infections can be identified more clearly and managed more efficiently.

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