Brucella Exposure from Unpasteurized Queso Fresco

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Introduction

The incidence of brucellosis in the U.S. is markedly low due to lack of exposures as well as food and safety regulations. With poorly defined symptomology and rare occurrence, the infection can present challenges with diagnosis and management.

Clinical Presentation

A 71-year-old Guatemalan woman with a history of diabetes and hypertension presented to the emergency department with acute abdominal pain, diarrhea, jaundice, and decreased oral intake beginning one week prior to presentation during a trip to Guatemala. On presentation, she was hypotensive, febrile, and had laboratory studies significant for hyponatremia, elevated total bilirubin, elevated alkaline phosphatase, transaminitis and thrombocytopenia. CT abdomen/pelvis demonstrated cholelithiasis with wall thickening and early morphologic features consistent with cirrhosis (Figure 1). HIDA scan was not suggestive of cholecystitis. She was admitted to the hospital and empirically started on vancomycin and meropenem.

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

Initially, the patient showed little response to triple antibiotic therapy and blood cultures remained positive for one week. During this time, the care team searched for possible focal signs of infection. An abscess of the left buttock was discovered. This buttock abscess was drained and sent for culture, which returned positive for *Escherichia coli*. CT imaging of the chest, abdomen, and pelvis, MRI of the spine (Figure 2), and whole body tagged WBC scan (Figure 3) were negative for any other sites of infection. Daily blood cultures were positive for 14 consecutive days. Blood cultures eventually resulted negative. Gentamicin was discontinued and the patient was discharged to finish a 6 week course of doxycycline and rifampin.

Learning Objectives

- Length of time to recover from systemic brucellosis may take as long as 14 days.
- Triple antibiotic therapy with doxycycline, gentamicin, and rifampin is effective in treating systemic brucellosis.

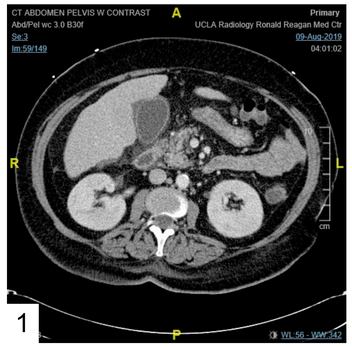

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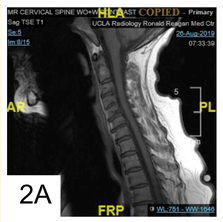
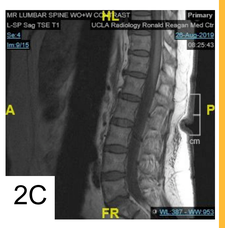
Figure 1.
Patient's abdominal CT indicating pericholecystic fluid.



2A

2B



2C

Figures 2A, B, & C.
MRI indicating no infection in the spine.

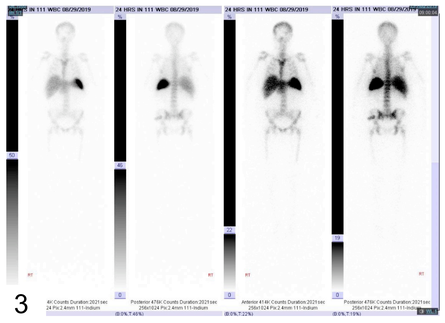


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Figure 3.
Whole body tagged WBC scan indicating no discernable source of infection.

Discussion

According to Chomel et al., in California, human brucellosis evolved between 1973 and 1992 from an occupational (mainly in slaughterhouses) to a foodborne illness with a higher incidence in Hispanics. Our case demonstrates that the illness persists and makes a case for the screening of foodborne infections in patients with fever of unknown origin and epidemiological risk factors.

Preferred therapy for brucellosis is usually dual therapy with doxycycline along with either an aminoglycoside or rifampin. Triple antibiotic therapy is typically reserved for Brucella endocarditis (using doxycycline, gentamicin, and rifampin) -- however, given this patient's presentation and the rarity of the case, 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. Feiz et al. demonstrated that in a minority of patients, Brucella cultures may remain positive for up to 3 weeks after beginning antibiotic therapy. Our case reaffirms that clearance -- indicated by negative blood cultures -- may only occur after multiple weeks of antibiotic treatment.

Due to negative imaging studies and the persistence of positive blood cultures, Brucella was likely localized to the bone marrow of this patient. This conclusion is supported by multiple studies associating pancytopenia with this infectious process. Confirmation of bone marrow infection would require bone marrow biopsy, however this was deferred in this patient.

Overall, this 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 various unrevealing diagnostic studies. By incorporating better prevention, screening, and treatment, Brucella infections can be deciphered more clearly and managed more efficiently.

References

- Chomel BB, Debess EE, Mangiamele DM, et al. Changing Trends In The Epidemiology Of Human Brucellosis In California From 1973 To 1992: A Shift Toward Foodborne Transmission. *J Infect Dis*. 1994;170(5):1216-1223.
- Fosgate GT, Carpenter TE, Chomel BB, Case JT, DeBess EE, Reilly KF. Time-space clustering of human brucellosis, California, 1973-1992. *Emerging Infect Dis*. 2002;8(7):672-678.
- Pappas G, Akritidis N, Bosilkovski M, Tsianos E. Brucellosis. *N Engl J Med*. 2005;352(22):2325-2336.