

## Case Report

# Human brucellosis in a non-susceptible host: a case report

Yoganathan Chidambaram\*, Murali Alagesan, Clement Jenil Dhas

Department of Medicine, PSG Institute of Medical Sciences and Research, Coimbatore, Chennai, Tamil Nadu, India

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### \*Correspondence:

Dr. Yoganathan Chidambaram,  
E-mail: [yoganathancc@gmail.com](mailto:yoganathancc@gmail.com)

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### ABSTRACT

Clinical human brucellosis is quite rare in India, that too in a non-susceptible host. This report describes a case of clinical human brucellosis in India. This case involved a 36 years old male, a professor in an Engineering college. He presented with complaints of fever for 4 months with myalgia, generalized tiredness, loss of weight and loss of appetite. On evaluation, total counts and ESR was elevated and all other investigations were normal. Based on history, common causes like occult tuberculosis or autoimmune diseases were considered. But, blood cultures grew *Brucella melitensis* in all 2 samples and a diagnosis of brucellosis was made. He was treated with Rifampicin and Doxycycline. Suspicion of brucellosis in this patient is low because the patient has no history of contact with animals, consumption of unpasteurized milk or occupational exposure. So, the health care practitioners should be aware of this possibility of this zoonotic infection as a differential diagnosis in patients with nonspecific symptoms and unexplained prolonged fever.

**Keywords:** Brucellosis, Non-susceptible host, Prolonged fever

## INTRODUCTION

Brucellosis is a multisystem disease with a broad spectrum of nonspecific symptoms that usually occurs within 2 weeks but up to 3 months after inoculation. It is usually due to consumption of unpasteurized contaminated goat's milk or soft cheese that had been infected with *Brucella melitensis*.<sup>1</sup> They are small non-motile, nonsporing, non-capsulated gram-negative coccobacilli that usually infects goats and sheep.<sup>2</sup> The principal organism causing worldwide brucellosis is *Brucella melitensis*. It is the most pathogenic and invasive one, followed by *Brucella suis*, *Brucella abortus*, *Brucella canis*, *Brucella pinnipediae* and *Brucella cetaceae*.<sup>3</sup>

Human brucellosis is commonly found in countries with rural communities that live with close association with animals and its prevalence in a region depends on factors

such as methods of processing milk and milk products, food habits, social economic status, hygiene and climate.<sup>4</sup> Both human and animal brucellosis are still endemic in some parts of the world such as Pakistan, China and Sri Lanka.<sup>5-7</sup>

The clinical features of brucellosis are nonspecific and depends upon the stage of the disease and the organs and systems involved. The most commonly reported symptoms are undulating fever, fatigue, malaise, chills, sweats which may be characterized by a peculiar odour at night, insomnia, headache, myalgia, arthralgia, anorexia, weight loss, hepatomegaly and splenomegaly. Brucellosis can also manifest as a localized disease affecting the central and peripheral nervous system, gastrointestinal tract, genitourinary tract and heart.<sup>8</sup>

Without the critical epidemiological clue to exposure to animals or consumption of unpasteurized dairy products,

this disease can pose a great diagnostic challenge to the clinician. Authors report a case of human brucellosis in a non-susceptible host.

## CASE REPORT

36 years old male presented with complaints of fever for 4 months, which was associated with myalgia, generalized tiredness, loss of weight and loss of appetite. There was no history of contact with animals, consumption of unpasteurized milk or occupational exposure. General examination was unremarkable. Abdominal palpation revealed hepatosplenomegaly. His hemoglobin and platelet levels were within normal limits, while total counts showed leucopenia with monocytosis. Erythrocyte sedimentation rate was also elevated. Other basic biochemical tests were within normal limits, except for mild transaminitis.

At this moment, either occult tuberculosis or autoimmune diseases were suspected based on the history, clinical and laboratory findings. However, blood cultures were taken, and broad-spectrum antibiotics were started. CECT chest and CECT abdomen were not suggestive of occult TB infection. Autoimmune workup was negative. As a part of workup for fever of longer duration, Brucella agglutination test and scrub IgM serology were sent. Brucella agglutination test turned out to be positive. Simultaneously, blood culture grew *Brucella melitensis* in all 2 samples.

Based on his serological test and blood cultures, a diagnosis of brucellosis was made. He was eventually prescribed Rifampicin once daily and Doxycycline BD for 6 consecutive weeks.

## DISCUSSION

In this case, the patient did not have any history of living in close association with animals or consumption of unpasteurized milk. He also did not have any occupational risk of exposure to brucella. Nevertheless, human brucellosis is quite rare in South India, making the suspicion level among clinicians to be quite low.

There was a long interval between onset of symptoms and diagnosis in our patient. A lot of health care practitioners do not consider the possibility of brucellosis, especially in patients with prolonged fever. Delay or misdiagnosis can lead to treatment failure, relapses, focal complications and high case fatality rate.<sup>9</sup>

This patient showed many of the symptoms of brucellosis which included undulating fever, myalgia and other clinical features such as hepatomegaly and splenomegaly.<sup>10</sup>

Infective endocarditis is a rare devastating complication from systemic brucellosis and could require surgical intervention. Splenic, hepatic or pulmonary abscess can

also develop. Other rare complications include deep vein thrombosis, arthritis, spondylitis, meningitis and nephritis. Ocular manifestations include optic neuritis and uveitis.<sup>11</sup> Common hematological manifestations include leucopenia, anemia and thrombocytopenia.<sup>12</sup>

The standard treatment for human brucellosis is doxycycline, 100mg BD and rifampicin 600-900mg once a day for 6 consecutive weeks. A combination of doxycycline and gentamycin is also preferred. However, the standard treatment varies depending on the patients' age, pregnancy status, CNS involvement and cardiovascular involvement.<sup>13</sup> For children less than 8 years of age, a combination of TMP-SMX and aminoglycoside or a combination of rifampicin and TMP-SMX for 45 days is needed.<sup>14,15</sup>

## CONCLUSION

Diagnosis of brucellosis is generally not considered in a non-endemic country. Health care practitioners should be aware of this possibility of this zoonotic infection as a differential diagnosis in patients with nonspecific symptoms and unexplained prolonged fever.

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