

# A case of acute brucellosis associated with HIV infection in Turkey

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## Abstract

Human brucellosis is a common public health problem in Turkey. Human immunodeficiency virus (HIV)-positive patients are vulnerable to co-infections and super-infections due to targeting the immune system. Because opportunistic infections are considered primarily, it is very difficult to detect co-infections, especially *Brucella* spp., in this patient group. In addition, non-specific clinical findings of brucellosis make diagnosis difficult. In this report, an HIV-positive patient with acute brucellosis was described. A 28-year-old male patient receiving antiretroviral therapy was admitted to the hospital with complaints of high fever and myalgia for the last two weeks. Physical examination revealed enlargement of bilateral cervical lymph nodes and enlargement of bilateral inguinal lymph nodes. Primarily, opportunistic infections were investigated in this patient. *Brucella* spp. was detected in blood cultures taken due to high fever. Subsequently, the patient was diagnosed with brucellosis. We presented this case report with the purpose of drawing more attention to the clinical diagnosis of brucellosis. In addition, we recommend that clinicians should be more cautious about fever of unknown origin in HIV-positive patients, especially in regions where brucellosis is endemic. In the presence of newly developing fever and lymphadenopathy in HIV-infected individuals, opportunistic infections as well as other infectious diseases, including brucellosis, should be considered.

HIV AIDS Rev 2024; 23, 4: 361-363  
DOI: <https://doi.org/10.5114/hivar/158011>

**Key words:** HIV, brucellosis, concomitant, co-infection, Turkey.

## Introduction

*Brucella* spp. is a Gram-negative bacillus that can infect both humans and animals, and is one of the most common bacterial zoonotic diseases worldwide [1, 2]. Despite the changing epidemiology, Turkey is still one of the countries where brucellosis is common [3]. Fever, chills, sweating, fatigue, weakness, and muscle and joint pain are the common features in brucellosis. In addition, this disease may be characterized by very different and atypical courses [4, 5].

HIV infection is more susceptible to co-infections, as it targets the immune system. Due to the weakened immune

system, there is an increased susceptibility to new infections, allowing reactivation of dormant pathogens [6, 7].

It is very difficult to detect *Brucella* spp. co-infection in HIV-positive patients because opportunistic infections are primarily investigated in HIV patients. In addition, the non-specificity of brucellosis makes it difficult to consider this disease. Studies have reported that brucellosis is observed at a lower-than-expected rate in HIV patients in endemic regions [8, 9].

In this report, a case of a HIV-positive patient suffering from acute brucellosis was described to draw more attention to the clinical diagnosis of brucellosis. We recommend that

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**Article history:**  
Received: 26.10.2022  
Revised: 19.12.2022  
Accepted: 20.12.2022  
Available online: 30.11.2024



clinicians should be more cautious about fever of unknown origin in HIV patients, especially in brucellosis epidemic regions.

## Case report

A 28-year-old man living with HIV since 2019 was admitted to infectious diseases outpatient clinic in April 2021. The patient was receiving antiretroviral therapy (bictegravir, emtricitabine, tenofovir alafenamide) for one year, and was uneventful in outpatient follow-ups. However, the patient had fever and myalgia complaints for the last two weeks. With these complaints, oral antibiotherapy has been started at a different center, but the patient presented to our center due to an increase in his complaints despite antibiotherapy. The patient was hospitalized for differential diagnosis and treatment arrangement. Physical examination performed at admission detected all vital signs within normal range, splenomegaly, enlargement of bilateral cervical lymph nodes, and enlargement of bilateral inguinal lymph nodes. Other clinical examination was clear. Laboratory parameters revealed as follows: white blood cell (WBC) count of 3.7 K/ $\mu$ l (72% neutrophils) (range, 4-11.0 K/ $\mu$ l), total bilirubin of 1.2 mg/dl (range, 0.3-1.0 mg/dl), alanine aminotransferase (ALT) of 58 U/l (range, 7-45 U/l), aspartate aminotransferase (AST) of 77 U/l (range, 8-33 U/l), alkaline phosphatase (ALP) of 74 U/l (range, 44-147 U/l), and C-reactive protein (CRP) of 1.2 mg/dl (range, 0.3-1.0 mg/dl). His initial viral load was 0 copies/ $\text{mm}^3$  and CD4+ cells count was 552/ $\text{mm}^3$ . No opportunistic infection was observed during physical evaluation. In terms of etiological examination, blood culture was taken from the patient during high fever. *Brucella* spp. was detected in blood cultures of the patient, so rifampicin and doxycycline treatments were started. Serological tests were not applied because *Brucella* spp. was detected in blood culture. No micro-organisms were found in another blood cultures taken during antibiotic therapy. After 72 hours of antibiotic therapy, his fever decreased, and clinical complaints regressed. This treatment continued for 42 days, and favorable outcomes were obtained. No recurrence was detected in 6-month follow-up.

## Discussion

Unfortunately, patients with HIV infection are susceptible to concomitant bacterial infections [6, 7, 10]. For this reason, an assessment for opportunistic infections is performed in HIV-positive patient with fever or infection symptoms. Endemic infectious agents, such as brucellosis, are difficult to consider in this patient group because they are characterized by non-specific symptoms. Studies have reported that brucellosis prevalence in HIV patients in endemic regions is lower than the normal expected rate [8, 9]. In our case, the patient with fever was first given antibiotic therapy at a different center, and since his fever did not decrease, he was first evaluated for opportunistic infections (e.g., fungal

infection) at our center. The diagnosis of brucellosis was made by detecting *Brucella* spp. in blood culture.

Although there are studies in literature examining the serology of *Brucella* spp. in HIV patients, there are rare cases of acute brucellosis co-infection [8]. Fever is seen as a common feature in brucellosis-associated HIV cases reported from various countries [11, 12], which was also seen in our patient.

Enlargement of bilateral cervical and inguinal lymph nodes was reported in the first case of brucellosis co-infection in HIV patient reported from China [12]. This patient with ongoing fever was diagnosed with brucellosis by detecting *Brucella* spp. in blood cultures. A similar pattern was observed in our patient, in whom fever and enlarged lymph nodes were present, and the diagnosis was clarified based on blood cultures.

In studies in literature, a standard 6-week treatment was given for brucellosis [11]. However, in some reports, the duration of treatment was extended to 3 months in order to avoid chronic infection [12]. Similarly, our patient was given 6 weeks treatment for brucellosis, with no recurrence seen during 6-month follow-up.

## Conclusions

HIV-positive patients are susceptible to concomitant bacterial infections, and brucellosis is one of them, especially in endemic areas. This fact should not be overlooked when evaluating patients for the etiology of fever. Especially in HIV patients, in the presence of new-onset fever and lymph node enlargement, brucellosis should definitely be considered and investigated.

## Disclosures

1. Institutional review board statement: Not applicable.
2. Assistance with the article: None.
3. Financial support and sponsorship: None.
4. Conflict of interests: None.

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