Original Research Paper

Volume - 15 | Issue - 11 | November - 2025 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

General Medicine

A RARE PRESENTATION OF BRUCELLA MYOCARDITIS IN A YOUNG TRAVELLER: A CASE REPORT

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ABSTRACT Brucellosis is a zoonotic infection with variable presentations, rarely involving the heart. Cardiac complications mostly manifest as endocarditis, myocarditis without associated endocarditis remains a rare entity. We present a case of a 27-year-old male traveller to Bali who developed fever, severe chest pain, and elevated cardiac biomarkers, later diagnosed with Brucella myocarditis. Initial investigations excluded other common tropical infections. Combination therapy with doxycycline and streptomycin resulted in complete recovery. This case highlights the importance of considering Brucella myocarditis in febrile patients with cardiac symptoms from endemic areas, and reviews current evidence on diagnosis and management.

KEYWORDS : Brucella Myocarditis, Zoonotic Diseases, Case Report

INTRODUCTION

Brucellosis is a systemic zoonotic disease with significant endemicity in Mediterranean countries, the Middle East, and India[1]. Transmission occurs mainly via ingestion of contaminated animal products or contact with infected animals. It is classified by the CDC as a category B pathogen with potential use as a bioweapon. While there are effective vaccines for animals, no approved vaccine exists for preventing human brucellosis. [2]. Clinical manifestations range widely from undulating fever and malaise to focal organ involvement[3]. Brucellosis is a multisystem infection that can involve various organs such as the liver, heart, lungs, nervous system, and bones, leading to a wide range of clinical symptoms and complications.[4]

Cardiac involvement is uncommon, seen in less than 2% of cases, predominantly presenting as endocarditis. Myocardial involvement is exceptionally rare with few cases reported worldwide[5]. Recognition of brucellosis as a cause of myocarditis is crucial given the risk of severe cardiac morbidity and the need for prompt targeted therapy with dual antibiotics[6].

CASE REPORT:

A 27-year-old male presented with high-grade fever, chills, joint pain, and severe chest pain on the second day of a trip to Bali. Initial evaluation in India showed stable vitals with unremarkable systemic examination. Laboratory tests revealed hemoglobin 11.2 g/dL, WBC 4300/mm³ with neutrophil predominance, and platelets 1.71 lakhs. ESR was mildly elevated at 33 mm/hr. Renal and liver functions were normal. Infectious screening was negative for malaria, dengue, and chikungunya. Weil Felix test for rickettsial infection showed agglutination only for OX-K at a titre of 1:160. However, Brucella IgM came positive. Troponin I was markedly elevated (1843 pg/mL). ECG showed sinus tachycardia with diffuse non-specific ST segment and T was abnormalities, consistent with typical presentation of myocarditis. Echocardiogram revealed preserved Left ventricular systolic function with ejection fraction of 60 % and mild mitral and tricuspid regurgitations, with small pericardial effusion. Coronary angiography excluded obstructive coronary disease. Blood cultures subsequently grew Brucella. The patient was initiated on oral doxycycline 100 mg twice daily and intramuscular streptomycin 1 g daily. At one-week follow-up, repeat ECG and troponin levels were done and was normal. The patient had significant symptomatic improvement without complications.

DISCUSSION:

This case exemplifies the rare presentation of myocarditis secondary to Brucella infection. Brucella myocarditis is infrequent but has been described in endemic regions with clinical features such as fever, chest pain, elevated cardiac enzymes, and ECG changes[5,7]

Consumption of unpasteurized dairy products and contact with infected animals are frequent brucellosis risk factors, as reflected in Kaya et al.'s report where raw milk use predominated among patients with brucellar pericarditis.[7]

While Kaya and colleagues described isolated pericarditis with symptoms subsiding within a week of antibiotic treatment, our patient's presentation included myocarditis with mild pericardial effusion but no tamponade or endocardial involvement, illustrating the spectrum of cardiac manifestations.[7]

Brucellosis can present in acute or chronic forms, with the acute phase characterized by high fever, chills, sweating, and malaise, often resembling a flu-like illness lasting days to weeks, while the chronic phase involves low-grade recurrent fever and symptoms persisting beyond three months such as joint pain and weight loss. For instance, Bhatty et al. described a 30-year-old male presenting with fever lasting three months and significant weight loss, illustrating the chronic manifestation of brucellosis.[8]

Our diagnosis was confirmed by positive serology and blood cultures supporting previous studies that emphasize the importance of laboratory confirmation due to nonspecific clinical sign[5,9]

Cardiovascular magnetic resonance imaging (CMR) serves as a vital, non-invasive diagnostic tool for suspected myocarditis due to its advanced ability to characterize myocardial tissue changes, although it has limitations including availability and variable sensitivity based on timing and presentation.[5]

Systematic reviews indicate that false positive results in brucellosis serology as seen in our case are mainly due to cross-reactivity with antigens from other Gram-negative organisms, especially Yersinia and Proteus, leading to diagnostic uncertainty with tests like Weil-Felix and agglutination assays for Brucella.[10]

Guidelines recommend dual therapy with Doxycycline and Rifampin or doxycycline combined with an aminoglycoside such as Streptomycin for effective treatment of brucellosis[6]. Our patient received Doxycycline plus Streptomycin, reflecting regimens demonstrated to be efficacious in cardiac brucellosis.[11]. In the absence of cardiac tamponade, pericardiocentesis is not essential in case of Brucella pericardial effusion.[12]

Alfakeeh et al. reviewed nine patients with Brucella endocarditis, where nearly all had underlying valvular abnormalities contributing to disease severity, and two-thirds required surgical valve replacement due to extensive valvular destruction and complications such as septic shock, stroke, and heart failure[13]. The mortality rate in their cohort was about 33%, primarily among patients deemed unfit for surgery because of comorbidities and advanced illness. In contrast, our patient had Brucella myocarditis without any pre-existing valvular disease or endocardial involvement, which is a much rarer and clinically distinct manifestation and responded rapidly and completely to antibiotic therapy alone without surgical intervention.[13]

Jubber AS et al. presented a case of Brucella myocarditis complicated by acute pulmonary edema and interstitial pneumonitis, showing

severe cardiac and pulmonary involvement, whereas our patient experienced Brucella myocarditis without such complications, indicating that while Brucella myocarditis can lead to serious issues like pulmonary edema and lung inflammation, milder courses without complications are also possible.[14]

Early recognition and prolonged antibiotic therapy are crucial to preventing complications such as heart failure or arrhythmias. This case reinforces the need for high suspicion of Brucella myocarditis in patients with febrile illness and cardiac symptoms in endemic settings, particularly when coronary artery disease is excluded.

CONCLUSION

Brucella myocarditis, though rare, should be considered in a febrile patient presenting with acute chest pain and elevated cardiac biomarkers in endemic regions. Comprehensive infectious and cardiac evaluation should be performed. Combination antibiotic therapy with doxycycline and streptomycin can lead to complete recovery. Further case reporting will enhance understanding of this unusual but treatable manifestation.

Declaration:
Funding: NONE
Conflict of Interest: NONE
Ethical Approval: NOT REQUIRED

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