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Case Report

BRUCELLOSIS: THE GREAT MIMICKER PRESENTING AS ACUTE MYOCARDITIS AND PYREXIA OF UNKNOWN ORIGIN IN DHAKA, BANGLADESH

Muhib MM[1], Faruk AA[2], Sunny SS[3], Ahmad Z[4]

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Abstract:

Background: *Brucellosis is a pervasive zoonotic disease transmissible from vertebrate animals to humans. Despite dietary habits that typically contain unpasteurized milk, close contact with cattle during religious festivals and urban farming facilitates aerosolised transmission. The diagnosis is also challenging as it usually remains silent, and often patients come up with complications. This infectious disease has major public health implications and imposes considerable economic strain, especially in areas with insufficient food safety, hygiene and vet care.*

Case Presentation: *A 38-year-old diabetic male presented with a four-month history of undulating fever, cough, and fatigue. He was previously misdiagnosed with seasonal flu. Clinical examination revealed hypotension (85/60 mmHg) and mild anaemia, but no organomegaly. While blood cultures were negative, a Triple Antigen Test showed significantly elevated titers for* B. abortus *(1:640) and* B. melitensis *(1:320). During hospitalisation, the patient developed chest pain; subsequent ECG changes (T-inversion in V1) and elevated Troponin-I (0.640 ng/ml), suggesting probable brucellosis-associated myocarditis. He was successfully treated with oral doxycycline and intravenous gentamicin.*

Conclusion: *This case underscores the emergence of human brucellosis in urban Bangladesh. Its non-specific, undulating symptoms make diagnosis challenging, posing a significant public health concern.*

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Introduction

Zoonoses are infections that are transmitted from animals, mainly cattle, to humans. Human brucellosis, a zoonotic infection caused by the Gram-negative coccobacillus genus *Brucella*, remains one of the most widespread zoonoses worldwide. [1] While four species, *B. melitensis*, *B. abortus*, *B. suis*, and *B. canis,* are known to infect humans, *B. melitensis* and *B. abortus* are the most frequently implicated in clinical disease. [2] In Bangladesh, bovine brucellosis is recognised as an emerging veterinary concern across multiple districts, while human cases have historically been underreported due to a lack of clinical suspicion and diagnostic facilities. [3]

The transmission of *Brucella* typically occurs through the consumption of unpasteurized dairy or direct contact with infected animal tissues. However, in the Bangladeshi context, where milk is usually boiled, aerosolised transmission during religious festivals (such as *Eid-ul-Adha*) and proximity to urban cattle farming are becoming significant risk factors. [4] Brucellosis is often termed a "diagnostic dilemma" because it presents as an undulating fever with non-specific symptoms, frequently leading to its misidentification as seasonal flu or other common febrile illnesses. If left untreated, it can lead to severe focal complications, particularly in the cardiovascular system.

Case Presentation:

A 38-year-old male was admitted to the hospital with intermittent fever, productive cough, and headache for the last 4 days. He had a history of recurrent fever over the last 4 months. His medical history was notable for DM (Diabetes Mellitus), Dyslipidemia, Anal fissure

1. Dr. Mushtaq Mutashid Muhib, Honorary Research Assistant, East West Medical College, Dhaka, Bangladesh.
2. Dr. Abdullah Al Faruk, Proffesor & Head, Department of Medicine, East-West Medical College, Dhaka.
3. Dr. Saidur Rahman Sunny, Medical Officer, Department of Medicine, East-West Medical College, Dhaka.
4. Dr. Zubaer Ahmad, Registrar, Department of Medicine, East-West Medical College, Dhaka.

Address of Correspondence: Dr. Mushtaq Mutashid Muhib, Honorary Research Assistant, East West Medical College and Hospital, Dhaka, Bangladesh. Phone: 01911963286, Email: muhib1996@yahoo.com

& history of traumatic spinal cord injury. He denied any history of night sweats, recent weight loss, myalgia, or arthralgia. His vitals were BP (blood pressure) 100/60mmHg, pulse 115 bpm, temperature 103°F, RR (respiratory rate) 16 breaths/minute, SpO2 94% on air. Physical examination findings were as follows: mild conjunctival pallor, mild dehydration was noted, precordium auscultation (S1+S2) with no added heart sounds, breath sound was clear bilaterally, jaundice & edema were absent, abdominal examination revealed a soft & nontender abdomen with no organomegaly. He was admitted to the hospital for further evaluation of his current condition.

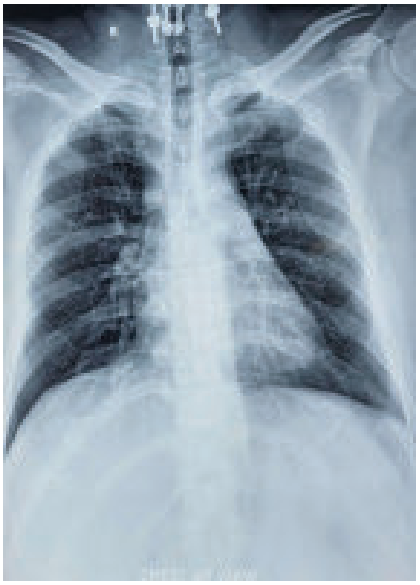

Figure 1: *CXR P/A view showing no focal abnormalities with trachea centrally positioned, clear both fields, mediastinum normal in size and shape.*

In laboratory tests, Hb (haemoglobin) 10.6 g/dl, HCT (hematocrit) 32.3%, MCV (mean corpuscular volume) 75.8 fl, MCH (mean corpuscular haemoglobin) 32.8 pg, ESR 81 mm in 1st hour, Red blood cell count 4.26 X10^3 CMM*10^3, Total WBC count 11610 cells/cumm, Platelet count 158000 cells/cumm. Serum creatinine 1.42 mg/dl, Serum ALT 32 U/L, Serum Sodium (Na+) 138 mmol/L, serum Potassium(K+) 3.3 mmol/L. Serum Total cholesterol 143 mg/dl, Serum HDL cholesterol 12 mg/dl, Serum Triglyceride 537 mg/dl. Urine analysis: straw in color & hazy in appearance, Specific gravity 1.01, pH 5.5, Albumin ++, Reducing substance ++++, Pus cells 6-8/HPF, RBC 4-6/HPF, Epithelial cells 0-2/HPF, Granular cast +, micro albumin 732 mg/L. Triple Antigen Test Titer for Brucella abortus 1:640 & Brucella melitensis 1:320.

Initially, he was managed with regular insulin, Paracetamol, Ciprofibrate, esomeprazole & oral Potassium chloride syrup and tablet Moxifloxacin 400 mg twice daily orally as empirical therapy. After being diagnosed with Brucellosis (as per Triple antigen test), Capsule Doxycycline 100 mg twice daily orally and Injection Gentamycin 80 mg 12 hourly intravenously were given.

On day 2 of hospital admission, he complained of chest pain & his BP fell to 80/50 mmHg & he was given 1 Liter of normal saline over 1 hour. At that time, an ECG was done (T inversion but no ST change) & Troponin -I was 0.640 ng/ml, NT-proBNP 671.34 pg/

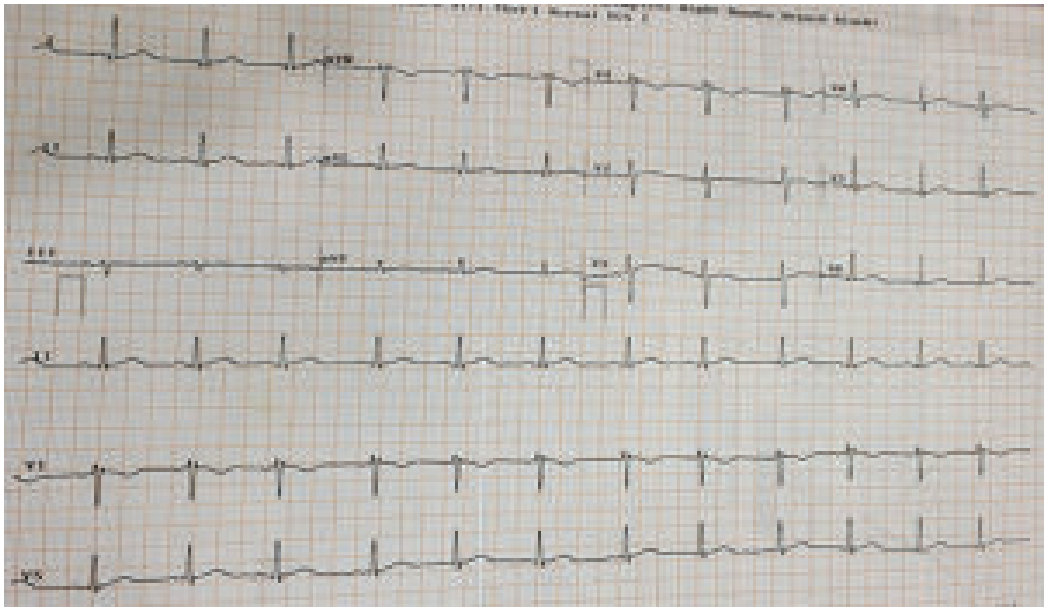

Figure 2: *ECG showing T inversion in lead V1 without ST segment elevation.*

microliter. Echocardiography showed Diastolic dysfunction grade-1, ejection fraction 62%, with no valvular abnormality and no regional wall motion abnormality. He was suspected of a case of myocarditis & was sent to CCU. Acute coronary syndrome was considered less likely due to the absence of ST-segment elevation and the absence of regional wall motion abnormality on echocardiography.

Table-I

Hospital stay with Dengue and Brucella profile

Hospital stay	Day 0
Dengue NS1	negative
Dengue IgM	negative
Brucella abortus (titer)	1:640
Brucella melitensis (titer)	1:320

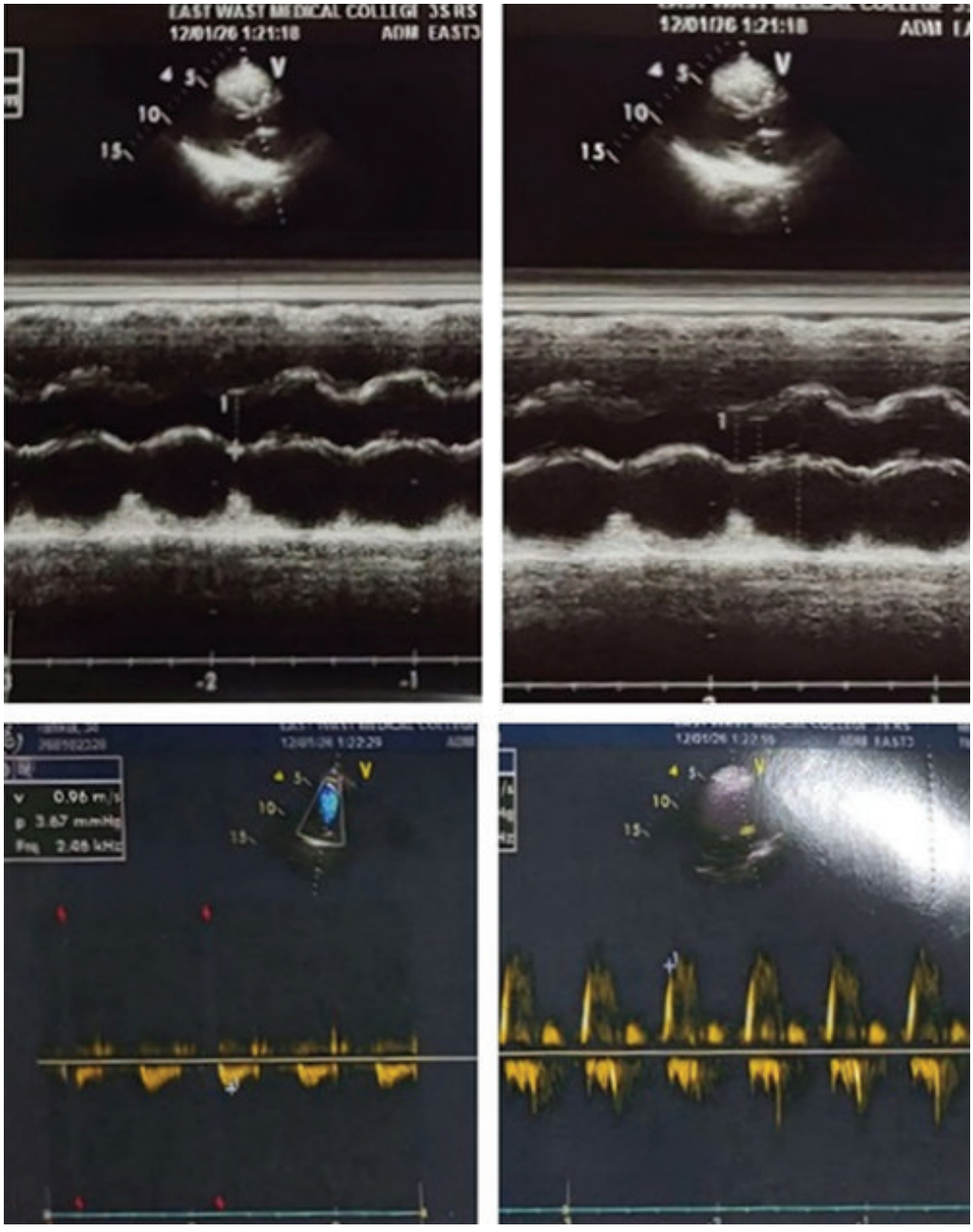

Figure 3: *Echocardiography showing grade-1 diastolic dysfunction, ejection fraction 62%, with no valvular abnormality and no regional wall motion abnormality*

Table-II

Day wise Hematological profile

Hospital stay	RBC CMM* 10^3	Hb g/l	HCT	MCV fL	WBC cells/cumm	Neutrophil	Lymphocytes	Eosinophils	Platelet Cells/cumm	ESR
Day 0	4.52	11.1	34.5	76.3	6440	78	15	01	152000	16
Day 1	4.26	10.6	32.3	75.8	11610	84	11	01	158000	81
Day 2	4.30	10.6	32.3	75.1	7040	70	25	01	130000	96

Table-III

Day wise Hematological profile

Hospital stay	Day 0	Day 1	Day 2	Day 3
Serum Creatinine(mg/dl)	1.42			1.13
ALT		32		
Serum cholesterol(mg/dl)		143		
Serum LDL(mg/dl)		142		
Serum triglyceride(mg/dl)		537		
Na+(mmol/l)		138	142	141
K+(mmol/l)		3.3	3.81	4.42
Cl-(mmol/l)		105	110	108
HbA1C				
Troponin-I(ng/ml)		0.640	0.378	
NT-proBNP(pg/µL)		671.34	262.13	

Table-IV

Hospital admission and follow up profle

4 months back	Recurrent undulating fever
Day 0	Hospital admission
Day 1	Chest pain and troponin-I elevation
Day 2	Clinical stabilization
Day 6	Discharge from the hospital with medication and advice
Follow up after 2 weeks	Afebrile and asymptomatic
Follow up after 4 weeks	Afebrile and asymptomatic
Follow up after 6 weeks	Afebrile and asymptomatic

Though at CCU, he was started on a single dose of Aspirin 300mg, Clopidogrel 300mg, Rosuvastatin 40mg & Injection Pethidine 75mg intramuscularly to control pain. He was kept under close monitoring, and the treatment regimen was continued with consultation of the cardiology department. Aspirin 75mg daily orally was continued. Concurrently, his treatment for brucellosis, Diabetes mellitus, hypertension, and dyslipidemia continued as previously at CCU. On day 4 of hospital stay, he denied chest pain & vitals had been stable; BP 130/80 mmHg, Pulse 84 BPM, Temperature 99.1°F, SpO2 98% on air & was shifted to the ward. On day 6, he was discharged from the hospital on Capsule Doxycycline 100 mg twice daily orally, Tab Rifampicin 600mg once daily orally for 6 weeks, along with his antidiabetic & antihypertensive medications.

On follow-up after 2 weeks, 4 weeks, and 6 weeks, the patient was afebrile and asymptomatic, and his CBC and ECG were in normal range.

Discussion

This case highlights a rare but critical presentation of human brucellosis in an urban businessman in Bangladesh. The patient's four-month history of undulating fever, previously misdiagnosed as seasonal

flu, exemplifies the classic "undulant fever" pattern of the disease. Though the patient didn't give any direct exposure history, he had an indirect exposure to the livestock environment as he is an urban businessman. Brucellosis should be considered a primary differential for Pyrexia of Unknown Origin (PUO) in endemic regions, where it has been found to account for a significant percentage of long-term fever cases. [2,5]

Differential diagnoses considered included tuberculosis, infective endocarditis, enteric fever, dengue fever, viral myocarditis, leptospirosis, and connective tissue disease. Dengue NS1 antigen and IgM antibody were negative. Blood cultures remained negative, and echocardiography did not demonstrate valvular vegetations. Chest radiography showed no evidence of pulmonary tuberculosis, and MT was also negative. In endemic settings, Brucella agglutination titers e"1:160 are generally considered diagnostic in clinically compatible cases. In our patient, titers of B. abortus 1:640 and B. melitensis 1:320 were considered strongly positive according to institutional laboratory standards. The absence of focal infective findings, together with strongly positive Brucella serology and a favorable response to anti-brucella therapy, supported the diagnosis.

Despite being dormant for a long time. In this case, the probable development of acute myocarditis, evidenced by chest pain, hypotension (85/60 mmHg), ECG changes (T-wave inversion), and a significantly elevated Troponin I (0.640 ng/ml), is the most striking feature. Unfortunately, cardiac MRI and viral myocarditis workup were not available at our center. While cardiovascular complications occur in less than 2% of brucellosis cases, the majority of the brucellosis-related mortality is due to cardiovascular complications [6,1]. Interestingly, most cardiac involvement typically presents as endocarditis, primarily affecting the aortic or mitral valves. Isolated myocarditis without endocarditis, as seen in our patient, is exceedingly rare. [1,6] Direct bacterial invasion of the myocardium or a secondary immune response to the infection is the key pathogenesis.

Even though diagnostically, blood cultures are the gold standard, they often yield negative results with a sensitivity of 15%-70%, in chronic or subacute phases, as seen in this patient. The Triple Antigen Test, showing high titers for *B. abortus* (1:640) and *B. melitensis* (1:320), was instrumental in confirming the early diagnosis. [7] This high titer, combined with the patient's mild anaemia, likely due to bone marrow suppression, suggests a high bacterial load.

According to WHO recommendations, a combination of doxycycline and gentamicin was administered to ensure successful recovery, prevent relapse, and manage focal complications. [8] For clinicians in Bangladesh, this case serves as a vital reminder to maintain a high index of clinical suspicion for brucellosis in patients with prolonged fever, even in urban populations without a clear history of raw dairy consumption.

Conclusion

This case highlights the growing, yet often overlooked, burden of human brucellosis in urban Bangladesh. The patient's presentation, initially misdiagnosed as a common viral illness, highlights the 'chameleon' nature of *Brucella* and its ability to cause life-threatening focal complications like acute myocarditis. While brucellosis is traditionally associated with rural settings and raw dairy consumption, the urban residential proximity to cattle and aerosolised transmission during festivals must be recognised as modern risk factors.

Clinicians should maintain a high index of suspicion for brucellosis in any patient presenting with prolonged or undulating fever, particularly when accompanied by cardiac symptoms or hypotension. Early diagnosis using serological markers like the Triple Antigen Test and prompt initiation of combination antibiotic therapy are essential to prevent the high mortality associated with cardiovascular brucellosis. Ultimately, this case calls for improved zoonotic surveillance and increased clinical awareness to tackle this emerging public health threat in Bangladesh.

Patient Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical data/images.

Conflict of interest:

None to declare.

References:

01. Šaèiæ D, Petroviæ O, Ivanoviæ B (2024) Two rare cases of Brucella-induced endocarditis and myopericarditis: challenges in diagnosis. J Infect Dev Ctries 18:1782–1786. doi: 10.3855/jidc.19517

2. Rahman AA, Berkvens D, Saegerman C, Fretin D, Muhammad N, Hossain A, Abatih E (2016) Seroprevalence of brucellosis

in patients with prolonged fever in Bangladesh. J Infect Dev Ctries 10:939–946. doi: 10.3855/jidc.6844

3. Rahman, M. Z., Bose, P., Ahamed, T., Sultana, P., zaman, M. M., Sobur, K. A., … Islam, M. A. (2024). Exploring bovine brucellosis in Bangladesh: Current scenario and future outlook. *Journal of Advanced Veterinary and Animal Research*, *11*(4), 888–913. Retrieved from https://banglajol.info/index.php/JAVAR/article/view/81078
4. Qureshi, K. A., Parvez, A., Fahmy, N. A., Abdel Hady, B. H., Kumar, S., Ganguly, A., … Aspatwar, A. (2023). Brucellosis: epidemiology, pathogenesis, diagnosis and treatment–a comprehensive review. *Annals of Medicine*, *55*(2). https://doi.org/10.1080/07853890.2023.2295398
5. Kadri SM, Rukhsana A, Laharwal MA, Tanvir M. Seroprevalence of brucellosis in Kashmir (India) among patients with pyrexia of unknown origin. *J Indian Med Assoc*. 2000;98(4):170-171.
6. Khorasani AA, Farrokhnia M. A Case of Myopericarditis: Very Rare Complication of Brucellosis. Archives of Clinical Infectious Diseases. 2014 Jun 25;9(3).
7. Alfakeeh S, Reema Fahad Alghanem, Obaid SB, Alya Alsuwayhib, Ghaida Al Kawabah, Reem Abanamy, et al. Clinical Characteristics and Outcome of Brucella Endocarditis: A Case Series. Infection and Drug Resistance [Internet]. 2024 Oct 1;Volume 17:4733–40. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11531289/
8. World Health Organization. Brucellosis [Internet]. www.who.int. 2020. Available from: https://www.who.int/news-room/fact-sheets/detail/brucellosis

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