International Journal of Research in Medical Sciences
Satheebai PR et al. Int J Res Med Sci. 2025 Jun;13(6):2651-2653
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20251664

Case Report

Pulmonary Brucellosis: a shrewd imposter

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Received: 19 April 2025
Revised: 14 May 2025
Accepted: 21 May 2025

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ABSTRACT

Brucellosis is a zoonotic bacterial infection with a broad clinical spectrum, often mimicking other infectious and non-infectious diseases. Due to its nonspecific presentation, delayed diagnosis is common, leading to potential complications. We report a case of young female presented with fever, associated with constitutional symptoms, cervical lymphadenopathy and lower respiratory tract infection features. Her Tuberculosis workup, tropical fever and other viral infection workup, lymphoma evaluation and vasculitis work up were negative. She had persistent symptoms and later Brucella serology sent as she came from area where Brucellosis is endemic. The report came as positive for Brucellosis. The patient managed in intensive care unit with respiratory support, antibiotic and other supportive care. Later she became symptomatically better and had radiological clearance.

Keywords: Brucellosis, Pleural effusion, Pulmonary embolism, DNA, PCR

INTRODUCTION

Brucellosis is a systemic infection caused by gram-negative organisms Brucella species.[1] The disease is transmitting via inhalation or direct entry through skin wounds or mucous membranes and commonly seen in high-risk populations, such as workers in slaughterhouses or meatpacking facilities and veterinarians.[2] In humans, Brucella species can cause a variety of symptoms ranging from non-specific symptoms such as malaise, arthralgia to systemic manifestations. Pulmonary involvement of brucellosis rarely occurs due to inhalation of infected aerosol. Cough, mucopurulent sputum and flu-like symptoms are the most relevant symptoms in pulmonary involvement of brucellosis.[3]

CASE REPORT

A 32-year-old female k/c/o hypothyroidism on treatment came to our hospital with complaints of fever, which was associated with myalgia, arthralgia, fatigue, and cough of 2 weeks duration, shortness of breath for 5 days. She was initially treated in nearby hospital with IV antibiotics and later referred to our hospital in view of worsening symptoms. On examination, she was febrile and had tachycardia, tachypnoea, multiple cervical lymphadenopathies, chest signs suggestive of left lower lobe consolidation. ABG analysis showed hypoxia. She had started on oxygen support and later to HFNC in view of increased work of breathing. Chest X-ray showed left lower zone consolidation with sypneumonic effusion. Provisional diagnosis was community acquired pneumonia and started on empirical antibiotics. Other differential diagnosis was tuberculosis/lymphoma.

Work up for TB including sputum CBNAAT was negative. Sputum bio fire was also negative. She continued on IV Antibiotics. During the course in the hospital, she had left calf pain, D dimer was very high and lower limb venous Doppler taken showed left lower limb deep vein

thrombosis. She was started on Low molecular weight heparin. As she had hypoxia and features of DVT, CTPA was done and showed partial filling defect in the segmental branches of right pulmonary artery. CT abdomen was done to look for any features of lymphoma and showed hepatosplenomegaly.

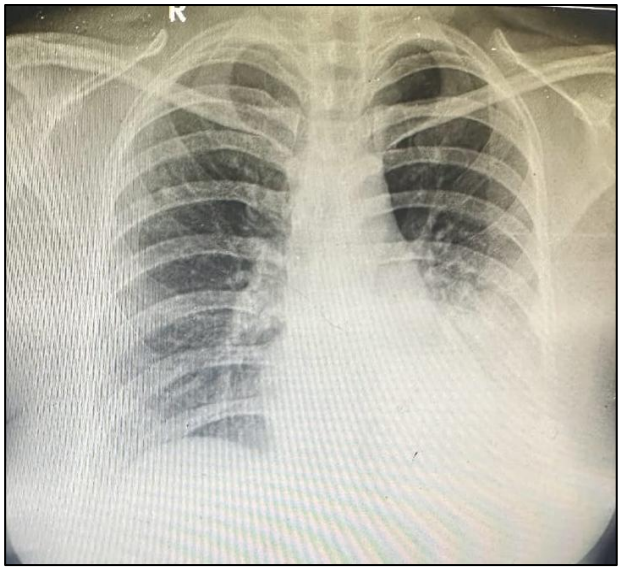

Figure 1: Chest X-ray showing left lung consolidation with effusion.

Figure 2: CT chest showing left lower lobe consolidation.

In order to narrow down the differentials FNAC of posterior cervical lymph node taken showed reactive changes only. She had daily evening fever spike and required supplemental oxygen. Later she gave history of training in gym center with air conditioner, and she came from area where brucellosis was endemic, IgM Brucella sent and came as positive. For confirmation, Brucella DNA PCR (Real time PCR, melting curve analysis) done was positive. Hence, came to diagnosis of Brucellosis. She was started on Inj Doxycycline and T Rifampicin. Her symptoms gradually improved & weaned off from HFNC. Inj low molecular weight heparin continued in therapeutic dose. Later changed to Rivaroxaban. She continued to take antibiotics for 6 weeks. She became symptomatically better and radiological clearance obtained.

Table 1: Routine blood investigations and work up to rule out differentials.

Routine blood investigations	
Complete blood count	Hb-10.2 g/dl Tc-9420/µl Platelet 2.03×10^5/µl
ESR	76
CRP	228.6
Blood urea nitrogen	27mg/dl
Serum creatinine	0.8mg/dl
Total bilirubin/direct bilirubin	0.6/ 0.1 mg/dl
ALT/AST	34/39 units/l
ALP	80 units/l
INR	0.96
Serum albumin	3.8 g/dl
Globulin	3.1 g/dl
D Dimer	18
CMV, EBV, HSV serology	Negative
ANA profile	Negative
IgM dengue, IgM leptospirosis & IgM scrub	Negative

Table 2: Sputum results.

Sputum results	
Sputum AFB	Negative
Sputum CBNAAT	Negative
Paul bunnel test	Negative
Mantoux test	Negative
Sputum biofire	Negative

DISCUSSION

Brucellosis is a systemic disease that can involve any organ system of the body. While the disease commonly affects the reticuloendothelial system, pulmonary involvement can occur, but is infrequent. Its clinical presentation varies from an asymptomatic presentation to a multi-organ involvement and can mimic any disease, making the diagnosis difficult.[2] The most common symptoms are fever (in 99% of the cases.[4] Lymphadenopathies are found in only 10%–20% of the cases of brucellosis, cervical lymph nodes being the most common site of involvement.[1] Pulmonary complications are reported in 0.3–1% of patients with brucellosis. Pneumonia and pleural effusion frequently observed.[5] Usually symptoms of brucella infection tend to be non-

specific and include flu-like symptoms of headache and muscles aches, along with relapsing fever, night sweats, polyarthralgias, weight loss and even depression.[5] Clinical examination may reveal hepatosplenomegaly, and basic laboratory studies may reveal anaemia, leucocytosis, thrombocytopenia and hepatic enzyme elevation.[8,9] The diagnosis can be made by serological tests, Culture from blood, sputum or pleural fluid and PCR.[6] The treatment with Doxycycline combined with an Aminoglycoside or Rifampin for three to six weeks is an acceptable approach and lesser relapse of infection compared to a monotherapy regimen.[10] For severe complicated cases, addition of aminoglycoside (streptomycin/gentamycin) can be done. In our case, the patient presented with pneumonia and cervical lymphadenopathy and had features of thrombosis, a detailed medical history and evaluation for differentials made the diagnosis possible.

CONCLUSION

Pulmonary brucellosis with lymphadenopathy is a rare manifestation of Brucella infection, often mimicking conditions such as tuberculosis. The diagnostic challenge of brucellosis seen when patients present with nonspecific symptoms. It should be considered in the differential diagnosis of febrile illness, particularly when patient came from endemic area. Accurate diagnosis hinges on a high index of clinical suspicion, detailed history and confirmatory laboratory tests such as serology for Brucella. Early detection and appropriate antibiotic therapy are crucial to prevent complications and ensure complete recovery. The awareness among clinicians remains crucial for prompt recognition and management.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Satheebai PR, Asokan AK, Somasekharan H, Surendran AK, Sreehari S, Nair AR, et al. Pulmonary Brucellosis: a shrewd imposter. Int J Res Med Sci 2025;13:2651-3.