



Mycobacterium Tuberculosis (MDR-TB) in The Setting of Interstitial Lung Disease: A Case Report

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Conflicts of Interest: Nil

Abstract

Introduction: Mycobacterium tuberculosis (MTB) infection is the leading cause of death worldwide, with many individuals with undiagnosed active or latent disease. The presence of parenchymal lung disease, such as interstitial lung disease (ILD), has been suggested to increase the risk of pulmonary tuberculosis (TB). In the clinical setting of ILD, the diagnosis of an underlying MTB infection may be challenging due to the interstitial process and underlying fibrosis, which may mask the infection. An atypical presentation and misleading radiological patterns may delay the diagnosis of the underlying MTB infection.

Case Presentation: 20 years old female (Medical student) came in general medicine / Rheumatology OPD for the complaint of Fleeting joint pain for 1 years, Fever intermittent for 2 months ,Cough with scanty

sputum for 1½ months, Weight loss (nonsignificant weight loss), Hairfall. Routine investigation done and the positive finding is ANA is positive with 1:80 titre Homogenous pattern and anti histone and SCL-70 positive. HRCT done show bilateral mild interlobular interstitial thickening, honeycombing and in homogenous alveolar haziness in subpleural distribution and lower lung. Enlarged lymph node with amorphous calcification in Pre tracheal, subcarinal and right hilar lymph node. BAL done for alveolar haziness have CBNAAT for MTB positive and RIF indeterminate. Patient want a second advice so she visited private hospital where she was adviced EBUS TBNA FOR RIGHT HILAR AND SUBCARINAL LYMPH NODE and results came was CBNAAT FOR MTB DETECTED AND RIF RESISTANCE. LPA showed ISONIAZID

RESISTANCE after than longer oral BDQ regimes was started.

Discussion: The present case is aimed to highlight the association between tuberculosis and other connective tissue related diseases.

Keywords: Mycobacterium tuberculosis, ILD, Abnormalities, HRCT scans

Introduction

Mycobacterium tuberculosis (MTB) infection is the leading cause of death worldwide, with many individuals with undiagnosed active or latent disease. The presence of parenchymal lung disease, such as interstitial lung disease (ILD), has been suggested to increase the risk of pulmonary tuberculosis (TB)¹. In the clinical setting of ILD, the diagnosis of an underlying MTB infection may be challenging due to the interstitial process and underlying fibrosis, which may mask the infection. An atypical presentation and misleading radiological patterns may delay the diagnosis of the underlying MTB infection. ILD patients face an increased risk of pulmonary infections, lung cancer, pulmonary hypertension, cardiovascular disease, systemic diseases, osteoporosis, exacerbations of their lung condition, and psychosocial issues². Interstitial Lung Abnormalities (ILA) are identified through subtle and often incidental imaging findings on HRCT scans. These findings suggest early or nonspecific interstitial changes but do not, in themselves, constitute a diagnosis of a specific ILD³.

Case presentation

20 years old female medical student by profession came in Rheumatology OPD for the complaint of Fleeting joint pain for 1 years, Fever intermittent for 2 months Cough with scanty sputum for 1½ months ,Weight loss (non significant weight loss) , Hairfall. Auto immune

symptoms include **Joint pain** with No dermatological abnormalities, no dryness of eyes and mouth, no photo sensitivity rash, Raynauds phenomenon etc. No history of pet bird and pet animal exposure.

Examination finding

Gen examination : Pallor (+)(microcytic hypochromic anemia) ,Right side axillary swelling(central) (Lymphadenopathy) ,Icterus (-),Clubbing (-),Cyanosis (-),Edema (-). BMI= 18.5. Systemic examination: chest: bilateral crepts present (basal), no rhonchi. CNS /CVS /DERMATOLOGICAL / CNS: WNL

Routine investigation is as follows:

Table 1:

Investigation	Level
Hemoglobin	10.8
TLC with DLC	8590 with normal DLC
PLT	3.05
ESR/CRP	58/17
SGPT/SGOT	41/72
RF	NEG
ANTI CCP	NEG
ANA BY IF TECHNIQUE	1:80 3+ With Homogenous Pattern
ENA	Anti histone and anti SCL-70++
Serum C3 and C4	Normal
Routine urine and culture	Normal
Spirometry	Restrictive ventilatory defect

On the above investigation Rheumatologist make diagnosis of Seronegative Rheumatoid Arthritis and started Etoricoxib, hydroxychloroquine, calcium and the

patients Referred the patient to Pulmonary Medicine Patna medical college and Hospital.

HRCT Done: High resolution CT of the thorax was performed using 1 x 128mm acquisition on Philips ingenuity CT. The scans were viewed on supine and prone positions. Thyroid is defined. Subcentimeter sized axillary lymph nodes are seen. Trachea and tracheal bifurcation appear normal. Subcentimeter sized prevascular lymph nodes are seen. Enlarged lymph nodes with amorphous calcification are noted in the pre-paratracheal, precarinal, subcarinal and right hilar region. Mediastinal tubular structures appear normal. Bilateral interlobular septal thickening is noted. Few tiny cystic lucencies, which coalesce and give a honeycomb appearance are noted in both lungs, predominantly in subpleural distribution. The changes are more marked in the lower lobes. Areas of inhomogeneous alveolar haze are also associated with these lesions in the subpleural regions. There is mild prominence of the bronchi bilaterally. No pleural effusion or thickening noted on either side. Screening of the upper abdominal viscera and vertebral bodies is unremarkable.(Fig 1,2,3,4,5)



Figure 1:

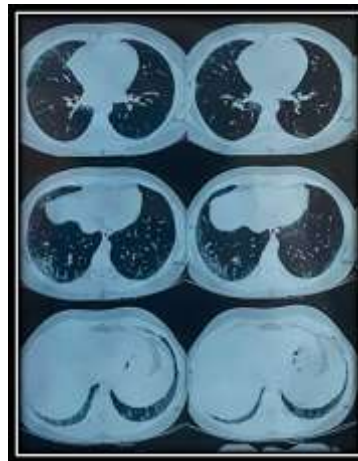


Figure 2:

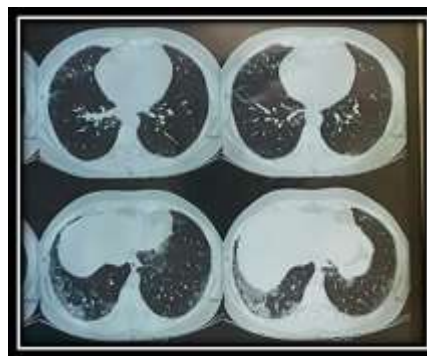


Figure 3:



Figure 4:

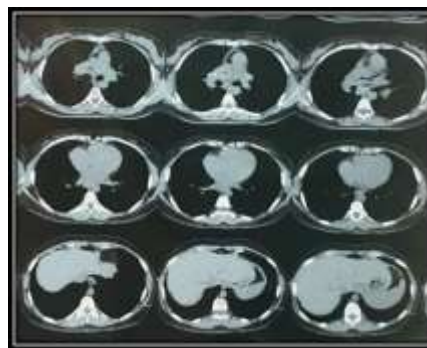


Figure 5:

Based on above HRCT chest report further investigation done (Mantoux test, flexible bronchoscopy etc), report is as follows:

Table 2:

Investigation	level
Serum calcium	9.94
Serum ACE	31.96
Mantoux test	14mm (positive)
Flexible bronchoscopy done	
AFB	2+
CBNAAT	MTB detected with Rifampicin indeterminate
Malignant Cells	Negative

The patient is understandably anxious about her diagnoses of connective tissue disease-associated interstitial lung disease (CTD-ILD) and tuberculosis. Seeking a second opinion, she visited a private hospital for her concerns. There, she was advised to undergo bronchoscopy with bronchoalveolar lavage (BAL) and endobronchial ultrasound-guided transbronchial needle aspiration (EBUS TBNA) to investigate the mediastinal lymphadenopathy. Specimens were sent for tests, including AFB (Acid-Fast Bacilli), fungal cultures, CBNAAT (Cartridge-Based Nucleic Acid Amplification Test), and LPA (Line Probe Assay).

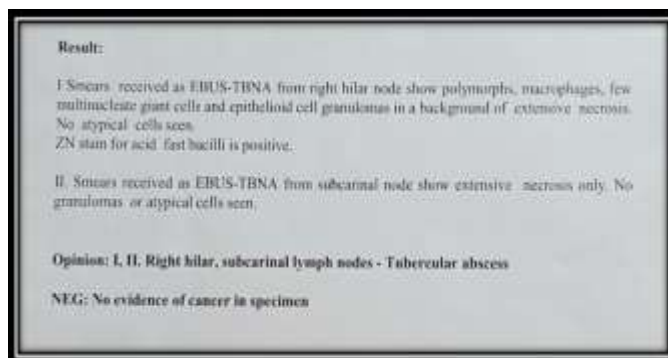


Figure 6: EBUS FNAC report showed Tubercular Abscess.

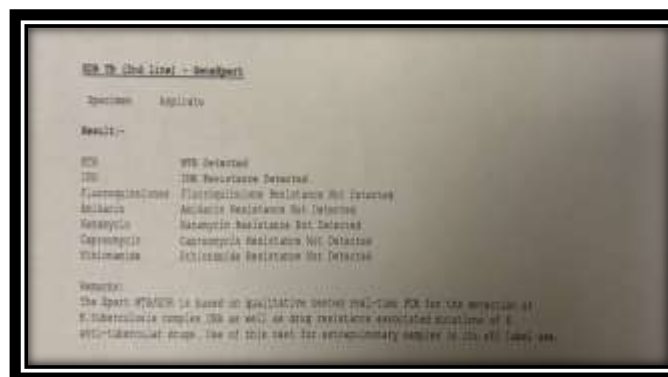
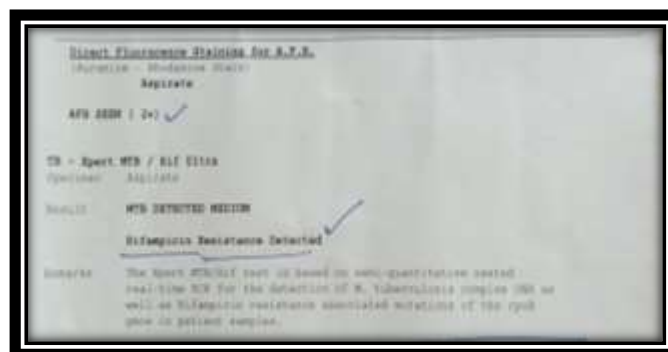


Figure 7: CBNAAT of EBUS TBNA aspirate showed AFB positive via AURAMINE RHODAMINE and CBNAAT AND LPA showed MTB detected and Rif Resistance and isoniazid resistance.

So final diagnosis was CTD -ILD with MDR-TB and was started a longer oral bedaquilline regime for 18 months

Conclusion

The present case is aimed to highlight the association between tuberculosis and other connective tissue related diseases⁴. Physicians should be aware of such conditions

to facilitate early diagnosis and treatment. However, further research is required to understand the mechanism behind association of increased risk of TB in patients of immune mediated disorders and vice versa. Early bronchoscopy should be done to exclude infection and malignancy⁵.

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