Case Series

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Can it be tuberculosis? A case series of atypical presentation of pulmonary tuberculosis

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ABSTRACT

Tuberculosis (TB) is a major health concern. It is a contagious disease caused by *Mycobacterium tuberculosis*. The disease can present in almost all sites-pulmonary and extrapulmonary. We always consider TB in our differentials. The commoner presentations are picked up early and treatment started promptly. However, when the presentation is atypical, diagnostic delays influence outcomes. We report six cases of pulmonary TB with varied radiological presentations. The findings include interstitial lung disease (ILD), malignancy, pulmonary infarction, tracheal thickening. All cases were diagnosed as TB after thorough invasive investigations, and successfully treated with antitubercular medication. Clinicians should be aware of atypical presentations of TB to ensure timely diagnosis and treatment.

Keywords: Tuberculosis, Pulmonary, Inflammation, Anti-coagulant

INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease that poses a significant threat to global health, particularly in developing countries. Despite efforts to control the disease, world health organization's annual global TB report reveals a concerning upward trend in incidence and mortality rates. 2

While TB primarily targets the lungs, it can also manifest in extrapulmonary sites like lymph nodes, the abdomen, the brain, and the genitourinary areas. Although common presentations of TB are picked up early and treated promptly, some patients may exhibit atypical, unusual, or complex features. Atypical presentation of TB may cause diagnostic delay and adversely influence outcome.

This case series highlights cases of pulmonary TB with varied radiological presentations, underscoring the

importance of considering TB in differential diagnoses, especially in our country where TB is so endemic.

CASE SERIES

Case 1

A 64-year-old female tobacco chewer presented with fever and cough with expectoration, along with bilateral lymphadenopathy (BLN) for the past 15 days. On examination, clubbing and fine crepitations were noted in the bilateral infra-scapular region. A contrast-enhanced computed tomography (CECT) of the thorax (Figure 1) revealed features consistent with ILD.

Bronchoscopy with bronchoalveolar lavage (BAL) and transbronchial lung biopsy (TBLB) were performed for further evaluation. BAL from the upper lobes revealed acid-fast bacilli (AFB), and TBLB from the right and

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middle lobes showed chronic necrotizing granulomatous inflammation.

BAL gene expert revealed *Mycobacterium tuberculosis* sensitive to rifampicin. Consequently, a diagnosis of TB was established, and the patient was started on antitubercular treatment (ATT).



Figure 1: CT image suggesting bilateral dense consolidation and ground glassing, involving the basal regions more.

Case 2

A 40-year-old male, a non-smoker and policeman by profession, presented with left-sided chest pain, cough with expectoration, and hemoptysis for the past 10 days. A chest X-ray in the posteroanterior (PA) view revealed a wedge-shaped opacity in the left lower zone, suggestive of a pulmonary infarct. A CECT of the thorax (Figure 2) confirmed a wedge-shaped pleural-based opacity.

The D-dimer test was positive. He was suspected to have pulmonary embolism with pulmonary infarction. Hence computed tomogram of pulmonary artery was done.

The patient was initially started on anticoagulant therapy; however, due to a lack of relief, a CT-guided fine needle aspiration cytology (FNAC) and biopsy were performed. FNACs and endobronchial biopsies were sent for cytology, histopathology, Gene Xpert, AFB smear and AFB culture. The reports were suggestive of chronic necrotizing granulomatous inflammation consistent with TB. Microbiological tests were also inconclusive. The patient was then started on ATT and responded well to the treatment.

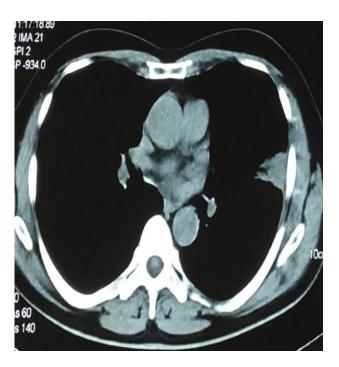


Figure 2: CT image suggesting wedge-shaped opacity in the left lower lobe.

Case 3

A 72-year-old male ex-smoker presented with BLN and cough persisting for one year. A CECT of the thorax (Figure 3) revealed features of ILD being present unilaterally on right side. To rule out this unusual finding, bronchoscopy with TBLB was performed. The BAL revealed tubercular bacilli and biopsy was also suggestive of TB. Patient was started on treatment and he improved with complete resolution of interstitial pattern.



Figure 3: HRCT thorax suggestive of right sided interstitial thickening and fibrosis and honey combing.

Case 4

A 60-year-old female presented with a history of cough persisting for one year. Chest X-ray (Figure 4) was normal, and the patient was initially managed for cough variant asthma, but showed no improvement. CECT was done which was also normal. However tracheal lining was not smooth. Subsequently, bronchoscopy revealed multiple endobronchial lesions and anthracotic patches (Figure 5), which indicated chronic granulomatous inflammation on histopathological examination, suggestive of TB. BAL gene expert revealed *Mycobacterium tuberculosis* which was sensitive to Rifampicin. The patient was then started on anti-tubercular medication and she responded well to it.



Figure 4: Chest Xray image suggesting increased broncho-vascular markings with near normal lung parenchyma.

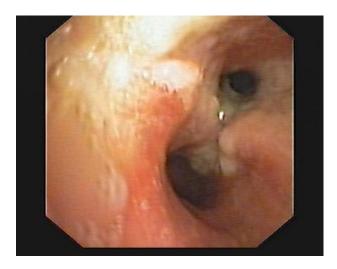


Figure 5: Bronchoscopy images showing nodular lesions on the carina.

Case 5

A 51-year-old nonsmoking female presented with persistent cough for six months, with occasional episodes

of expectoration. On examination, no significant abnormalities were detected. A chest X-ray (Figure 6) showed features of mediastinal widening. A CECT of the thorax suggested bilaterally enlarged paratracheal, subcarinal, and hilar lymph nodes. For further evaluation, bronchoscopy with BAL, endobronchial biopsy, and endobronchial ultrasound (EBUS)-guided transbronchial needle aspiration (TBNA) were performed. Bronchoscopy revealed a cauliflower-like growth at the carina extending to the right bronchus (Figure 7), and a biopsy of the lesion showed dense chronic inflammatory infiltrates. BAL-Tru NAAT was tested positive for Mycobacterium tuberculosis, while TBNA was negative for malignancy. Biopsy was also sent for gene expert which also came positive. Consequently, the patient was diagnosed with TB and initiated on ATT.

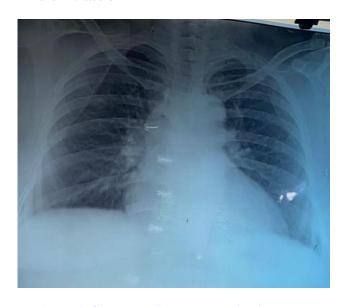


Figure 6: Chest Xray image suggesting increased broncho-vascular markings with mediastinal widening. Cardiomegaly can also be appreciated.



Figure 7: Bronchoscopy image showing cauliflower like growth present over the carina.

Case 6

A 38 years old female presented with complaints of fever and hemoptysis for past 15 days. On examination, no significant abnormalities were detected. A chest X-ray was done which showed right lower zone haziness following which a CECT of thorax was performed (Figure 8) which suggested soft tissue lesion in right lower lobe with paratracheal lymphadenopathy. For further evaluation, CT guided FNAC was performed. FNAC suggested chronic granulomatous inflammation, following which the patient was started on ATT. On follow up, size of the soft tissue lesion regressed, therefore patient was diagnosed as a case of TB.



Figure 8: CECT thorax image showing soft tissue lesion in right lower lobe.

DISCUSSION

TB remains a global health challenge due to its diverse clinical manifestations, diagnostic complexities, and potential for atypical presentations. In this case series, we have presented five cases that underscore the need for vigilance and a comprehensive diagnostic approach when confronted with clinical scenarios that may not readily suggest TB. These cases demonstrate that TB can mimic other respiratory conditions, making early diagnosis crucial for both individual patient care and public health efforts.

The first case was initially presented as a suspected case of ILD. However, bronchoscopy and BAL yielded surprising results, with AFB positive for *Mycoplasma tuberculosis*. This case highlights the diagnostic challenges posed by TB, as it can masquerade as other pulmonary conditions. The importance of obtaining a BAL fluid sample for AFB testing in patients with ILD-like presentations cannot be overstated. In the second case, a wedged-shaped opacity on chest X-ray raised concerns of pulmonary infarction.

However, FNAC from the same lesion revealed features suggestive of Mycobacterium tuberculosis infection. This emphasizes the value of tissue sampling in cases where TB is not the primary consideration based on clinical and radiological findings alone. Case three presented with unilateral ILD-like features, but transbronchial biopsy unexpectedly revealed TB-related changes. This case illustrates the need for thorough diagnostic investigations when clinical presentations deviate from the classical TB symptoms, especially in regions with a high TB burden. The fourth case posed as an exacerbation of bronchial asthma, yet bronchoscopy revealed anthracotic patches and multiple endobronchial lesions. Biopsy results from these lesions strongly indicated TB.6 This case reiterates the importance of considering TB in patients with chronic respiratory symptoms, even when asthma or other conditions are suspected. The fifth case, characterized by chronic cough and an endobronchial growth near the carina, initially raised concerns of malignancy. However, biopsy results ruled out malignancy and BAL fluid confirmed Mycobacterium tuberculosis. As well as the sixth case, presenting with hemoptysis and lung nodule, directional towards the diagnosis of malignancy but FNAC suggested features favoring TB. Both these cases serve as a reminder that TB can mimic malignant lesions and underscores the need for a comprehensive evaluation.^{7,8}

These six cases demonstrate the diverse and deceptive nature of atypical TB presentations. Clinicians must maintain a high index of suspicion for TB, even in cases where the initial clinical and radiological findings suggest alternative diagnoses. Early diagnosis and appropriate treatment are essential not only for individual patient care, but also for curbing TB transmission in communities. These cases also emphasize the significance of utilizing various diagnostic modalities, including bronchoscopy, BAL, FNAC, and biopsy, to establish a definitive diagnosis when TB is suspected. Continued research into the mechanisms underlying atypical TB presentations is vital to refine diagnostic strategies and improve patient outcomes. The findings from this case series underscore the need for healthcare providers to remain vigilant and adaptable in their approach to TB diagnosis, particularly in regions with a high TB burden, where atypical presentations may be more common than previously recognized. Further investigation and awareness-raising efforts are warranted to enhance our understanding of these atypical TB presentations and inform clinical practice.

CONCLUSION

TB can present with a wide range of atypical radiological features, which can lead to diagnostic delay and negatively impact patient outcomes. In the reported cases, patients presented with varied symptoms. The diagnosis was confirmed through various diagnostic tests, including BAL, TBLB, and FNAC. Treatment with anti-tubercular medication was initiated, and patients responded well to therapy. These cases highlight the importance of

considering TB as a possible diagnosis, even in the presence of atypical symptoms and radiological features. Early recognition and timely initiation of appropriate treatment are crucial for the successful management of TB.

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