



TUBERCULAR PNEUMONITIS MASQUERADING AS ACUTE HYPERSENSITIVITY PNEUMONITIS- A CASE REPORT

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ABSTRACT

This is a case of pulmonary Pneumonitis with tuberculosis with IRIS with sepsis with respiratory failure, An 23 yrs old male patient with nil comorbidities, non-smoker, he is a stone crusher/ brick lifter by occupation with occupational exposure to silica dust for more than 7 years, presented with symptoms of persistent high-grade fever intermittent associated with chills since 2 months, dry cough, chest pain, Shortness of breath GRADE-IV mMRC, decreased appetite in the last 15 days, orthopnoea since 1 week. A High-risk Bronchoscopy was done via NIV, BAL for GENEXPERT was positive, and the patient was started on ATT. Despite starting ATT, the patient continued to have persistent high-grade fever spikes. Contrast CT showed polyserositis. Infective, other causes were ruled out and then the patient was started on corticosteroids because of IRIS. The patient showed rapid clinical response to steroids which were tapered over 6 weeks. The patient showed significant improvement both radiologically and clinically with 9 months of ATT.

KEYWORDS : Pneumonitis, ATT-antitubercular treatment, IRIS-immune reconstitution inflammatory syndrome, respiratory failure.

BACKGROUND

Due to the lack of large prospective cohort studies, there is not much knowledge of disease patterns and outcome of immune reconstitution inflammatory syndrome (IRIS) in patients with Mycobacterium tuberculosis (M. tuberculosis) infection (TB-IRIS) without HIV coinfection. Pulmonary pneumonitis associated with immune reconstitution inflammatory syndrome (IRIS) is a condition that can occur when an HIV-infected patient's immune system recovers after anti-retroviral therapy (ART) and overreacts to pathogens.

Although IRIS can occur in many organs, pulmonary IRIS, associated with opportunistic infections such as Mycobacterium tuberculosis and Pneumocystis jirovecii, is particularly associated with high morbidity and mortality.

INTRODUCTION

Acute tuberculous pneumonia is a rare clinical form of pulmonary tuberculosis and closely resembled bacterial pneumonia; thus, the definitive diagnosis is generally delayed in hospital (1,2)

Particularly, acute tuberculous pneumonia has been frequently reported among patients with acquired immunodeficiency syndrome (AIDS). (3)

PTB is a typical chronic consumptive disease, but it can present as an acute pneumonia Acute tuberculous pneumonia (TP) is similar to typical bacterial pneumonia, and it is one of the causes of childhood illness (4).

Acute TP generally refers to the clinical manifestations of community-acquired pneumonia (CAP), but the pathogen is M. tuberculosis instead of non-tuberculous bacteria or viruses (5).

TP is contagious: coughing, sneezing, laughing, and even talking can produce droplet nuclei containing M. tuberculosis. Transmission occurs when a person inhales the droplet nuclei (6)

Pulmonary Tuberculosis associated with acute distress and respiratory failure is observed in rare cases [8].

Case Report

A 28-year-old male patient with nil comorbidities, negative for systemic disease. the patient who is a stone crusher/ brick lifter by occupation with occupational exposure to silica dust for more than 7 years. The patient was never a smoker. Before admission patient was treated outside as viral pyrexia with thrombocytopenia, later on outside CT S/O B/L PERIHILAR LOWER LOBE CONSOLIDATIONS, GROUND GLASS OPACITIES SEEN EARLY ARDS FEATURES? HYPERSENSITIVITY PNEUMONITIS? INFECTIVE? PAP

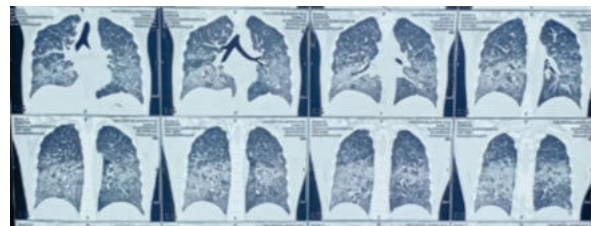


Figure-01: Diffuse pulmonary infiltrates involving all lung fields suggestive of diffuse alveolitis

The patient presented to our hospital with complaints of high-grade fever intermittent associated with chills for 2 months, dry cough, chest pain, Shortness of breath GRADE-IV mMRC, decreased appetite since 15 days, and orthopnoea since 1 week. On examination orthodeoxia, Hypoxic with Spo2-59% with room air, tachypnoeic with respiratory rate 38 breaths per minute, febrile with TEMP: 102°F, on respiratory system examination bilateral crepts (right>left), no pedal edema, no pallor.

The patient was initially diagnosed with ARDS. CAUSE? INFECTIVE?PAP?PCP WITH ACUTE ACCELERATED SILICOSIS WITH RESPIRATORY FAILURE WITH SEPSIS.

Blood investigations: D-DIMER-1552ng/ml, Procalcitonin-3.2, CBC shows HB-10.9, TC-10100, N (90%), L (05%), Platelets (1.48), ESR-30, 6MWT (Baseline-94% to end-88%). ANA(IF), RA-Factor, IgE, BLOOD CULTURE and SENSITIVITY, URINE CULTURE, Viral marker western blot method HIV-I & II were negative. Repeat HRCT THORAX was done.

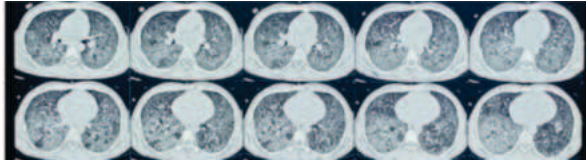


Figure-2: diffuse pulmonary infiltrates predominantly in mid & lower zones showing slight resolution in the left lower zone.

"Fighting for Breath"--

During the hospital stay patient was treated with oxygen support, BIPAP (to decrease the work of breathing), intravenous meropenem, doxycycline. Oral co-trimoxazole was started as prophylaxis for pneumocystis pneumonia.

High-risk Bronchoscopy was done via NIV on day 05 of admission to exclude infective, and other causes as the patient continued to have persistent high-grade fever spikes with worsening breathlessness. On day-05 of admission, BAL for CBNAAT was positive other BAL reports were inconclusive. hence the patient was started on ATT (isoniazid-5mg/kg, rifampicin-10mg/kg, pyrazinamide-25mg/kg, ethambutol-15mg/kg).

The patient continued to have persistent high-grade fever spikes up to 103°F despite starting ATT, Physician opinion was taken. The physician advised for Aerobic & anaerobic blood culture sensitivity, Malarial parasite-V & F, Dengue IgM, CUE & Urine Culture and sensitivity, LFT, PT-INR, and aPTT were normal. Corticosteroids were initiated along with ATT in view of IRIS [5]. Repeat HRCT THORAX was done.

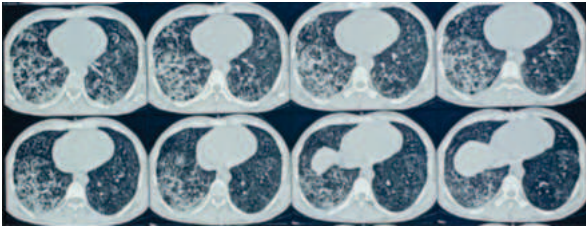


Figure:3 significant resolution of infiltrates in all lung fields (especially in Left Lung)

2DECHO was suggestive of MVP with mild MR, BAL for Cell cytology (-ve for malignant cells, mostly suggestive of inflammatory smears), cell type and cell count suggestive of (1500cells/cumm, Lymphocytes-70%, Polymorphs-30% Reactive mesothelial cells and few atypical cells seen, CELL BLOCK (section shows fibrin-haemorrhagic material with some scattered neutrophils, lymphocytes seen no abnormal cells identified), Gram Stain, Pneumonia Panel, Fungal Culture, KOH were normal.

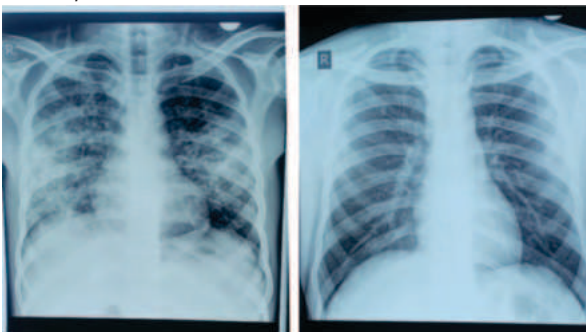


Figure-4 Comparison of CXRPA view of day 01 of admission

and after finishing 9 months of ATT shows complete resolution of pulmonary infiltrates.

From day 12 patient's breathlessness improved with SpO₂-96% at room air, patient continued to have fever spikes till day 15 of admission. On day-19,20 the patient had no fever. Six-minute Walk test was repeated (baseline Spo₂-98% to end Spo₂-96%). Hence patient was discharged in a hemodynamically stable condition. After discharge patient was advised to continue ATT, tapering the dose of corticosteroids in view of IRIS [7].

Important Findings

Initial HRCT thorax -picture of hypersensitivity pneumonitis with centrilobular nodular opacities and ground glass opacities of different densities.

Follow up CT – decreased centrilobular nodules and ground glass opacities

BAL GENE XPERT – MTB DETECTED. NO RIFAMPICIN RESISTANCE

Final Chest Radiograph: Grossly normal

DISCUSSION

- TUBERCULAR PNEUMONITIS WITH RESPIRATORY FAILURE – Role of bronchoscopy is invaluable in diagnosing tricky cases
- Diffuse tubercular pneumonitis is an uncommon entity in an immunocompetent adult
- Bronchoscopy is life saving
- Serial HRCT CHEST is important to predict response to therapy
- Bronchoscopy should be performed with NIV support with scope compatible NIV mask in cases with severe hypoxia prior to the procedure.
- High index of clinical suspicion for tuberculosis can be lifesaving even if patient presents with symptoms in favour of ARDS, hypersensitivity pneumonitis.
- Uncommonly tuberculosis can present with breathlessness and hypoxia.
- IRIS should be suspected when a confirmed case of tuberculosis presents with high grade fever and radiology suggestive of polyserositis.

CONCLUSION

Pulmonary Tuberculosis is commonly known to present with cough, sputum, high grade fever, evening rise of temperature, loss of appetite, and loss of weight. However, it is NOT uncommon for pulmonary tuberculosis to present with breathlessness, especially in high TB burden countries. Historically there are case reports of pulmonary tuberculosis presenting as ARDS [9], pulmonary tuberculosis as Community Acquired Pneumonia [8], pulmonary tuberculosis presenting with acute respiratory failure [9], pulmonary Tuberculosis presenting with wheezing or as asthma [10].

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