

## Case Report

# DOUBLE TROUBLE – UNUSUAL ASSOCIATION OF TUBERCULAR AND BACTERIAL INFECTION

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## ABSTRACT

Co-infection of Lung abscess with tuberculosis (TB) has been reported very rarely. In our case report, the patient was a Diabetic *i.e.*, an immune suppressed status presented with coinfection of sputum positive pulmonary tuberculosis and lung abscess due to *Klebsiella pneumoniae*, *E. coli* and Gram positive cocci (*Staphylococcus aureus*). This case illustrates a coexisting bacterial infection in a sputum-positive tuberculosis, where the clinical presentation was one of severe Lung abscess. So Clinicians should be aware of co-infection in the same patient, this will aid in early detection of co-infection and complete cure.

**Keywords:** Lung Abscess, Tubercular and Bacterial Co-Infection

## INTRODUCTION

Pulmonary abscess is a cavitary, suppurative infection that is larger than 2 cm, which progresses with the necrosis of pulmonary parenchyma due to various reasons (Bircan, 2007). Lung abscess is a localized infection with central necrosis and supuration of the lung parenchyma, surrounded by a thick wall of infected and inflammatory tissue.

This process may establish communication with an airway and cause partial expectoration of the purulent content and a resultant air fluid level. Primary lung abscess occurs predominantly on the right side and if aspiration is the cause then the upper lobes of either side are commonly involved (Mishra *et al.*, 2009).

Pulmonary tuberculosis (TB) remains an important public health problem with an estimated 9.6 million new cases worldwide in 2014 (Donald and Helden, 2009). According to the current treatment guidelines, isolation of *Mycobacterium tuberculosis* from a sputum culture is still recommended to confirm the diagnosis of pulmonary TB (Blumberg *et al.*, 2003).

Tuberculosis has been with us from the beginning of civilization and it likely will be with us until the end. It is defined as a disease caused by bacteria belonging to *Mycobacterium tuberculosis* complex. It can affect any organ of the body but in two third of the cases it involves the lung parenchyma. This form of tuberculosis is called pulmonary tuberculosis.

Pulmonary tuberculosis may be primary or post primary (secondary) depending upon prior exposure.

Co-infection of Lung abscess with tuberculosis (TB) has been reported very rarely. The occurrence of both lung abscess with sputum positive tuberculosis leads to delayed diagnosis (Khattak *et al.*, 2010).

## CASES

A 56 yr old male admitted to our hospital for the complaints of cough with expectoration, extreme fatigability, loss of appetite and fever for 15 days. He was a chronic alcoholic & smoker > 30 yrs and abstained consuming alcohol for 15 days. Type 2 Diabetes Mellitus detected 1 year ago but he was not on treatment.

On examination patient looks toxic, febrile, emaciated. BP 130/70 mmhg PR-100/min, Temp 100.4, RR-22/min, Cardio vascular system-S1 S2 and respiratory system showed minimal crepitation over, Left Upper Zone. Abdomen soft, non tender. Central nervous system examination revealed no Focal

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neurological deficit. Initially patient was suspected to have alcoholic liver disease, septicemia due to respiratory tract infection and to rule out pulmonary tuberculosis.

Investigations revealed Complete blood count- Hb-13g, TC-15000, Platelet- 2.6, DC-N-69, L-28, E-03. RBS -236 mg. Urea -46mg, Creatinine- 1.2, Liver function test done twice was found to be normal. Serum Electrolytes was normal, HIV- neg, Chest -X ray PA view and left lateral view revealed thick walled cavity with air fluid level suggestive of lung abscess with adjacent streaky opacities (Figure 1 & 2). HRCT chest also revealed the same finding as mentioned above. Patient was started on intravenous antibiotics and later on sputum for Gram stain and culture revealed polymicrobial infections with *E.coli*, *Staphylococcus aureus* and *Klebsiella pneumoniae*. Initially Acid fast bacilli was found to be negative and later showed Positive in Ziehl Neelson stain.



Figure 1: X ray chest P.A view



Figure 2: Left lateral view

Patient remained afebrile for 4 days after initiation of appropriate culture sensitive antibiotics along with insulin to control glycemic level and supportive treatment. Temperature started to peak from 13<sup>th</sup>-17<sup>th</sup> day of admission and patient continued to be sick. Since the patient is a diabetic, alcoholic and smoker, possibility of pulmonary tuberculosis due to his immune suppressed status was still considered and frantically tried to locate co- infection & patient was found to be sputum positive for AFB. Chest physician opinion & Ophthalmologist opinion sought prior to ATT. Patient was started on ATT, stabilized and discharged home.

### DISCUSSION

Pulmonary cavitation is a well documented feature of pulmonary tuberculosis. Hence in our study, features of lung abscess with Pulmonary tuberculosis are seen in the patient which is showed in the (figure 1 & 2) *Staphylococcus aureus* and *Klebsiella pneumoniae* organisms were cultured and identified in sputum before the detection of Mycobacterium in Ziehl Neelson stain. An earlier communication demonstrated that the changing pattern of adult pulmonary tuberculosis that has been reported in the developed countries by various authors also applied to the rural population of developing countries where the disease remains endemic (Makanjuola, 1982; Khan *et al.*, 1977).

Schleicher and Feldman (2003) (Kindo *et al.*, 2001) reported Tubercular and bacterial co infection is uncommon in patients with preserved immunity, but has been described in immune deficient hosts such as those with HIV-AIDS. There are a few reports about the co-occurrence of TB with organisms- *Streptococcus pneumoniae*, *Salmonella typhi* (Kindo *et al.*, 2001) and *Streptococcus milleri* (Brook *et al.*, 1988). However tubercular co-infection in otherwise immune competent patients, with organisms that are usually implicated in nosocomial infections has not been reported in literature (Sarin *et al.*, 2005).

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Hence in our case report the patient being a Diabetic i.e an immune suppressed status presented with co-infection of sputum positive pulmonary tuberculosis and lung abscess due to *klebsiella pneumoniae*, *E.coli* and Gram positive cocci (*Staphylococcus aureus*). This case illustrates a coexisting bacterial infection in a sputum-positive tuberculosis, where the clinical presentation was one of severe Lung abscess.

Bacterial pneumonia is the most widely recognized infection in patients with ethanol abuse. However, dual infections are not very common. *Klebsiella pneumoniae* infection has been diagnosed in TB suspects, but coexistent diagnosis of both infections has not been reported yet. Whether the occurrence of one predisposes the other, is a matter for further scientific consideration.

Our study correlates with Cohen *et al.*, (1978) findings, in which they have demonstrated the fluid levels in the TB cavities but the presence of bacterial co infections are different from each of us. The cause of the fluid levels in tuberculous cavities might be secondary infections (Hadlock *et al.*, 1980).

## Conclusion

A strong index of suspicion and additional diagnostic testing may be required for diagnosis and treatment of the co-infection. We report here the unusual case of Tubercular and bacterial infection.

So Clinicians should exercise particular caution of co-infection in the patient that may be involved in its pathogenesis. Our case is a rare appearance of a community acquired disease.

"Never trouble trouble till trouble troubles you /You only double trouble and trouble others too" is a proverb. Wherever we suspect a double trouble in a patient we should try to locate the second trouble and fix it as soon as possible, so that the patient will be relieved of both the troubles.

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