

## Case Report

# A Medical Error of Misdiagnosis of Lung Cancer as Pleural Tuberculosis: A Case Report

Jayasri Helen Gali and Harsha Vardhana Varma\*

Department of Pulmonary medicine, Apollo Inst of Medical Sciences & Research, India

\*Corresponding author: Harsha VV, Department of Pulmonary medicine, Apollo Inst of Medical Sciences & Research, India, Tel: +91 8885514444, E-mail: [harsha.varmap@gmail.com](mailto:harsha.varmap@gmail.com)

Received Date: 19 September, 2018; Accepted Date: 25 October, 2018; Published Date: 10 November, 2018

## Abstract

The clinical presentations of lung cancer often mimic that of pulmonary or pleural tuberculosis. Misdiagnosing lung cancer as tuberculosis and treating with antitubercular drugs though common in areas prevalent with disease is not only taxing the patients with multiple medications but is also leading to undue delays in the diagnosis of lung cancer. Careful analysis of history, systematic & detailed clinical evaluation, appropriate investigations, and clinical expertise of the treating physician is crucial in establishing the diagnosis. We report a case of pulmonary adenocarcinoma with left-sided pleural effusion initially misdiagnosed as pleural tuberculosis.

## Keywords

Misdiagnosis; Pulmonary Adenocarcinoma; Pleural Tuberculosis

## Introduction

The common presenting symptoms of lung cancer and pleural or pulmonary tuberculosis often are confusing, misleading, particularly in the middle-low-income group countries, which are still battling to control and eradicate the disease. There is limited data available on the misdiagnosis and mistreatment of such cases from these countries, with available data only representing the tip of the iceberg, as these cases remain either unreported or under-reported [1]. We report a case of Non-Small Cell Lung Cancer (NSCLC) with left-sided pleural effusion, misdiagnosed as pleural tuberculosis.

## Case Report

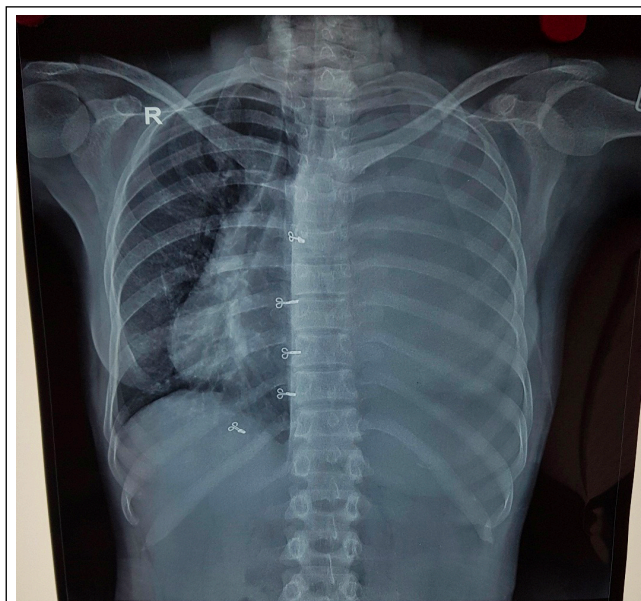
A 32-year lady, homemaker, hailing from Hyderabad, South India was referred from a government hospital for initiation of Cat-

egory -1, Anti-Tubercular Therapy (CAT-1 ATT) to our Directly Observed Treatment Short Course center. She was admitted in government hospital for about 20 days, investigated and diagnosed as left-sided tubercular pleural effusion. She was referred to the pulmonology outpatient department from our DOTs center, as a routine before initiating ATT. She presented with breathlessness, cough, fever, left sided chest pain, loss of appetite and loss of weight since last three months.

Breathlessness was gradual in onset, progressive, grade 4 of modified Medical Research Council (mMRC) grading; there was no wheezing or orthopnea. The patient had a productive cough with minimal expectoration that was white, non-foul smelling, without any hemoptysis. She complained of left-sided dull aching chest pain, without any radiation, no aggravating or relieving factors, there was no history of chest trauma. She had a low-grade fever in the evening, associated with chills & rigors. She had loss of appetite and loss of weight (2-3kg) in the span of 3 months. She did not have any previous history of (h/o) contact with tuberculosis or had been treated for pulmonary tuberculosis, no other family members suffered from the disease. There was no h/o diabetes mellitus, hypertension, smoking or consumption of alcohol.

She consulted a physician in a government hospital; she was admitted and evaluated there. Approximately one-liter, straw-colored pleural fluid was aspirated, analysis of which showed 100% lymphocytes, Adenosine Deaminase (ADA) level was 7 IU/L, cell block was negative for malignant cells; Cartridge-Based Nucleic Acid Amplification Test (CBNAAT) was negative for *Mycobacterium tuberculosis*. Fiberoptic bronchoscopy showed no abnormality, bronchial brushings showed mature lymphocytes and mesothelial cells, but was negative for malignant cells. Culture did not yield any pathogen. She was diagnosed to have left sided tubercular pleural effusion and was referred to our DOTs center for antitubercular therapy.

We examined and evaluated her thoroughly; she was of thin built, poorly nourished, there were no significant findings on general examination. Her vital signs were normal, with SpO<sub>2</sub> 88% on room air. She had bilaterally symmetrical chest, with previous thoracentesis mark on the left infra-scapular area. Examination revealed Trailes sign on the right side, reduced movement of left hemithorax. Her total chest circumference was 68 cms, total chest expansion was 3cms. On palpation, tracheal shift to the right side was confirmed, and there was a decreased chest expansion of the left hemithorax, intercostal tenderness on the left 4<sup>th</sup> to 6<sup>th</sup> Intercostal Space (ICS) mid-axillary line (MAL), decreased tactile vocal fremitus on the left hemithorax. A stony dull note was heard on percussion on the left hemithorax without shifting dullness, suggestive of the left massive pleural effusion. Breath sounds were absent on the left side with reduced vocal resonance, no added sounds, no succussion splash, and normal vesicular breath sound on the right side. Pleural fluid analysis at our hospital confirmed our suspicion of malignancy (Table 1).



**Figure 1:** Chest X-ray showing massive left pleural effusion with mediastinal shift to right.

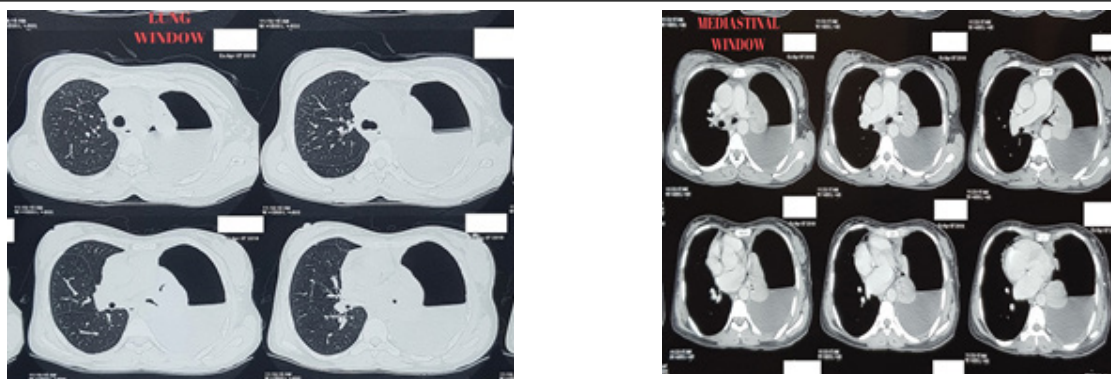
We decided to hold ATT and re-evaluate her; though she was only 32 year young lady as there was a rapid, refilling of the left hemithorax seen on chest X-ray (Figure 1) taken after aspirating one liter of pleural fluid at the government hospital; besides her erythrocyte sedimentation rate was low, and her pleural fluid analysis showed low ADA levels, which were against the diagnosis of tuberculosis. We did thoracentesis and aspirated around one liter of straw color fluid (Table 1).

As pleural fluid cytology was positive for malignant cells, suggestive of metastatic deposits of adenocarcinoma, we searched for the primary. As there was rapid refilling, we placed a chest tube in the pleural cavity and observed for any underlying lung lesions by taking a Computed Tomography (CT) scan of the chest after the placement of chest tube. CT scan chest showed left hydropneumothorax, a collapsed left lung, with a doubtful mass lesion within the collapsed lung, without any mediastinal lymphadenopathy (Figure 2,3).

We considered going ahead with flexible Fiber optic bronchoscopy but did not do it as the patient deferred the procedure since it was already done before. The pleural fluid cell block was sent for immunohistochemistry (IHC) for six markers to identify the primary focus of malignancy. Immunohistochemistry was positive for TTF and CK7, negative for pax-8, ck-20, Calretinin and GATA-3, which was in favor of metastasis from pulmonary adenocarcinoma. A final diagnosis of left pulmonary adenocarcinoma (NSCLC) with left-sided pleural effusion with stage T<sub>x</sub> N<sub>0</sub> M<sub>1a</sub>- STAGE 4A was made, with an estimation of 5-year survival of 10%. We discharged from the hospital with a chest tube and referred to a cancer Institute for further management, where palliative chemotherapy was given.

Investigations	Observation
<b>Blood</b>	
Hemoglobin	10.9 g/dl
Total Leukocyte Count	4,690 cells/mm <sup>3</sup>
Platelets	3,51,000
Neutrophils	61%
Lymphocytes	31%
Eosinophils	3%
Monocytes	6%
Erythrocyte Sedimentation rate	15mm/1 <sup>st</sup> Hr
HIV, HbsAg, HCV	Non-Reactive
Blood urea	28mg/dl
Liver function tests	normal
Serum creatinine	0.8
<b>Pleural fluid aspirate</b>	
Cytology, cell count	Lymphocytes-48%
	Neutrophils-10%
	Mesothelial cells-6%
	Atypical cells- 36%
Sugar	16mg/dl
Proteins	16mg/dl
ADA	20.72 u/l
Pleural fluid cytology	Positive for malignant cells
	Metastatic deposits of adenocarcinoma

**Table1:** Investigations



**Figure 2, 3:** CT scan chest showing left sided hydropneumothorax with collapsed left lung and doubtful mass within the collapsed lung (Lung window and mediastinal window).

## Discussion

Early diagnosis is crucial in the management of lung cancers. It is observed that physician related delay is more obvious in patients with lung cancers. Since this subcontinent is still struggling with tuberculosis, most of the physicians, are unsuspecting of cancer in these patients and prescribe anti-tubercular agents. A study has shown that patients, who were diagnosed with lung cancer, consulted at least two physicians prior to the final diagnosis made. Lung cancer was unsuspected in many; wrong diagnosis (18%) was made and 88.6% of these patients received anti-tubercular agents. This study also indicated that general physicians unsuspected lung cancer and often misdiagnosed; pulmonary specialists diagnosed lung cancers in these patients [2]. Hence, referral to pulmonologists is suggested as one of the significant pre-requisites [3]. It was proved true in this case also. With common presenting symptoms, it is often difficult to diagnose pulmonary tuberculosis and lung cancer clinically. Pulmonary tuberculosis is known to mimic lung cancers thus one of the reasons for the shift of physician's focus leading to unsuspection. There are very few case reports of lung cancers mimicking tuberculosis; detailed history and investigations lead to the correct diagnosis. But with limited resources and focus on the infection, one can expect the misdiagnosis by the physicians [4]. Increasing the awareness among the physicians & general practitioners to suspect malignancy in these patients will immensely reduce the delay in diagnosis. This patient was referred to DOTs center for ATT though there was no test confirming the diagnosis (just based on pleural fluid lymphocytes) after one-month evaluation in another hospital. Though the patient was of young, we investigated her thoroughly; radiological investigations, cytology of the pleural fluid aspirate helped in diagnosis with IHC clinching the diagnosis further. Both lung cancer and tuberculosis can present with common symptoms like cough with sputum or hemoptysis, low grade fever in the evening in tuberculosis and is nonspecific in lung cancer, loss of weight which is usually sudden in lung cancer and chronic in tuberculosis. Chest pain and symptoms of mediastinal compression like hoarseness of voice, bovine cough, dysphagia, and symptoms of superior vena caval obstruction are more common in lung cancer. Smoking is the most important cause of lung cancer whereas tuberculosis is a chronic infectious

disease. H/o contact, past h/o tuberculosis and immune-compromised status are important pointers for the diagnosis of tuberculosis. Also, lung cancer is the disease of elderly and more common in males whereas tuberculosis is a disease of adults of productive age group with a slight predilection towards men. With lung cancer occurring in much younger age group, one has to be highly suspicious and consider it as the diagnosis to minimize the delay. A meticulously taken history, careful evaluation and laboratory appropriate investigation is required. Referring the patient to a pulmonologist early in the course of the disease will help in reducing the delay.

## Conclusion

In this era of early diagnosis, we are still battling with issues of misdiagnosis of lung cancers even in far advanced stages of lung cancer. Timely diagnosis of lung cancers in early stages increases the 5-year survival rate, with a possibility of curative surgery and chemo-radiotherapy. Often, anti-TB treatment is started for the lung cancer, without confirming the diagnosis. This worsens the situation, as the patient is not evaluated further till the completion of ATT, which can be considered as a "Misdiagnosis-murder" as in our case.

To avoid the misdiagnosis of lung cancer with tuberculosis especially in underdeveloped and developing countries battling with an epidemic of the physicians must practice a detailed clinical evaluation of the patient supported by reasonable diagnostic modalities to confirm the diagnosis and reserve the empirical treatment for tuberculosis only after complete clinical and diagnostic workup. It is also prudent to seek the opinion of a pulmonologist whenever necessary for establishing a proper, early diagnosis and treatment.

## Acknowledgment

We thank Dr M S. Latha for editing this case report.

## Conflict of Interest

None to declare.

## References

1. Hannan A (2016) Misdiagnosis of Cancer as Tuberculosis in Low-to Middle-Income Countries: A Tip of the Iceberg! *J Glob Oncol* 2: 244-245.
2. Ramachandran K, Thankaganam B, Karuppusami R, Christopher DJ (2016) Physician Related Delays in the Diagnosis of Lung Cancer in India. *J Clin Diagn Res* 11: OC05 - OC08.
3. Rawat J, Sindhwani G, Gaur D, Dua R, Saini S (2009) Clinico-pathological profile of lung cancer in Uttarakhand. *Lung India* 26: 1-3.
4. Masamba LPL, Jere Y, Brown ERS, Gorman DR (2016) Tuberculosis Diagnosis Delaying Treatment of Cancer: Experience from a New Oncology Unit in Blantyre, Malawi. *J Glob Oncol* 2: 26-29.



**NORCAL**  
OPEN ACCESS PUBLICATIONS

submit your manuscripts at  
[www.norcaloa.com](http://www.norcaloa.com)