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## Left-sided lung mass mimicking as pleural effusion in a young male

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### Abstract

A 34-year-old male presented with progressive dyspnea, left-sided chest discomfort, and non-productive cough. Initial clinical evaluation and imaging studies suggested pleural effusion. However, further diagnostic workup revealed a left-sided lung mass, leading to a final diagnosis of bronchogenic carcinoma. This case highlights the importance of considering differential diagnoses when evaluating suspected pleural effusions and underscores the necessity for comprehensive diagnostic investigations to avoid misdiagnosis. The patient underwent chemotherapy with notable improvement, emphasizing the need for thorough diagnostic protocols in similar presentations.

**Keywords:** Lung mass, pleural effusion, bronchogenic carcinoma, differential diagnosis, thoracentesis, chemotherapy

### Introduction

#### Case History

A 34-year-old male, an office worker with a smoking history of 15 pack-years, presented to the emergency department with progressive dyspnea, left-sided chest discomfort, and a non-productive cough that had persisted for three weeks. His medical history included well-controlled hypertension. On physical examination, vital signs were within normal limits except for mild tachypnea, and auscultation revealed decreased breath sounds with dullness to percussion over the lower half of the left hemithorax. Initial chest X-ray showed homogeneous opacity in the left lower lung field with blunting of the costophrenic angle, which was initially interpreted as pleural effusion. However, an attempt at thoracentesis yielded no fluid, prompting further diagnostic evaluation.

Subsequent computed tomography (CT) scan revealed a large, heterogeneous mass in the left lower lobe, compressing adjacent structures and mimicking pleural effusion <sup>[1]</sup>. Bronchoscopy was performed, revealing endobronchial obstruction in the left lower lobe bronchus. Biopsy of the lesion confirmed poorly differentiated non-small cell lung carcinoma (NSCLC). The patient was promptly referred to a multidisciplinary team including oncology, pulmonology, and thoracic surgery. He commenced systemic chemotherapy with Cisplatin and Pemetrexed, resulting in significant reduction in tumor size and symptomatic improvement. Regular follow-up imaging was scheduled to monitor response, with plans for potential surgical resection based on continued positive response to chemotherapy. Symptomatic management for dyspnea and chest discomfort was also provided, leading to an overall improvement in the patient's quality of life. The patient responded well to initial cycles of chemotherapy with a significant reduction in tumor size and improvement in symptoms <sup>[2]</sup>. Ongoing evaluation for potential surgical intervention is planned, contingent upon continued favorable response to chemotherapy.

Lung masses can present with clinical and radiological features that mimic pleural effusion, complicating diagnosis and management. A high index of suspicion and thorough diagnostic workup are essential for accurate diagnosis and appropriate treatment planning <sup>[3]</sup>.

### Differential diagnosis of X-ray image

1. Pleural effusion
2. Pulmonary Tuberculosis
3. Pulmonary Embolism



**Fig 1:** X-ray chest PA view showing left radio opacity suggestive of lung mass mimicking as pleural effusion

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#### Conclusion

This case underscores the critical importance of thorough diagnostic evaluation in patients presenting with respiratory symptoms that suggest pleural effusion. The initial misinterpretation of a lung mass as pleural effusion led to a delay in the correct diagnosis of bronchogenic carcinoma. By highlighting this diagnostic pitfall, we emphasize the necessity for clinicians to maintain a high index of suspicion for alternative diagnoses, particularly in patients with relevant risk factors such as a history of smoking. The successful response to chemotherapy not only improved the patient's symptoms but also illustrated the potential for positive outcomes with early and accurate diagnosis. Ongoing monitoring and evaluation remain essential in managing similar cases, as they can significantly influence treatment strategies and improve patient quality of life. This case serves as a reminder of the need for comprehensive diagnostic protocols to guide effective management in respiratory medicine.

**Declaration of Patient Consent:** the authors hereby declare that written informed consent was obtained from the patient in his own vernacular language.

**Conflicts of interest:** None.

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