

# Bronchogenic Carcinoma Masquerading as Pneumonia: Case Report

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## INTRODUCTION

Lung cancer is the second most common cancer in both men and women, and bronchogenic carcinoma accounts for a significant portion of these cases. Bronchogenic carcinoma, a common form of lung cancer, often presents with non-specific symptoms similar to those of respiratory infections. The American Cancer Society estimates that there will be about 236,740 new cases of lung cancer in the United States in 2023. The 5-year relative survival rate for lung and bronchus cancer has been improving over the years but is still a very dangerous cancer to have with survival rates of 22.6% for cases diagnosed between 2011 and 2017. This case highlights the importance of thorough investigation, including detailed history-taking, in cases where standard treatment for common diagnoses fails, and the critical role of advanced imaging in establishing a definitive diagnosis.

## CASE PRESENTATION

The patient, an 80-year-old female with a history of hypothyroidism, hyperlipidemia, and tobacco abuse who was brought in by her daughter due to a failure to thrive. Over several months, she had experienced generalized weakness, shortness of breath, decreased oral intake, weight loss, and a nonproductive cough. A month earlier, she was diagnosed with pneumonia at an urgent care facility and completed a course of doxycycline, but her condition did not improve.

Upon physical examination, the patient appeared chronically ill and thin, yet vitally stable. Coarse breath sounds were noted on the right side of her chest, but she was not in acute distress and no other significant findings were observed. Laboratory tests revealed leukocytosis, and mild hyponatremia. A chest X-ray showed a wedge-shaped opacity at the right lung base, interpreted as pneumonia, and a hazy right basilar effusion.

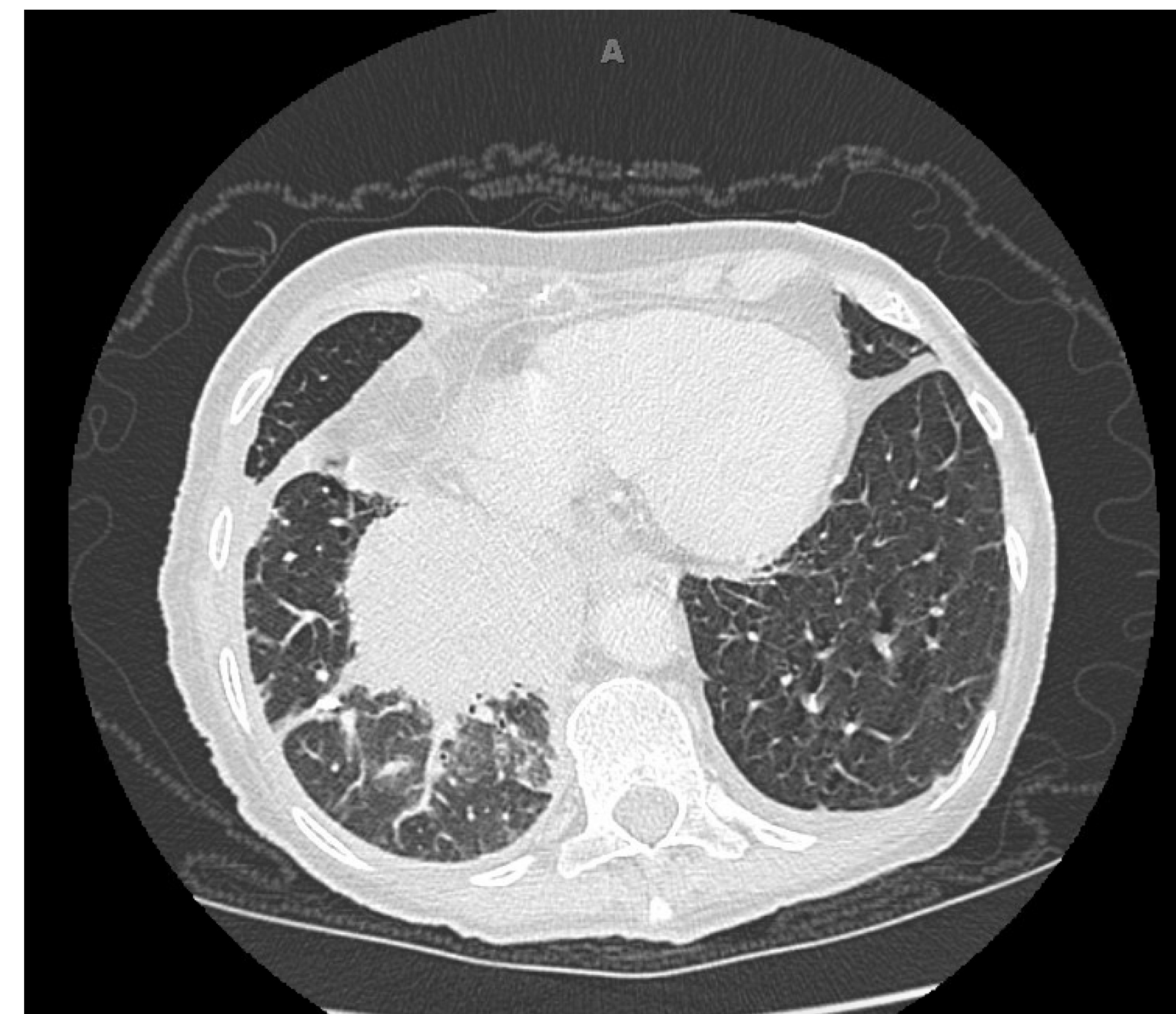
Further history-taking brought to light her extensive smoking history. She smokes 1.5 packs per day for 65 years, which she had quit just a month ago. Her hyponatremia got worse with normal saline. Due to the above findings, CT scan of the chest was ordered as lung cancer was high on the differential. It revealed a large mass in the infrahilar region at the right lung base, measuring approximately 6.9 x 6.9 x 5.1 cm, as well as an 8mm nodule in the left upper lobe, likely indicative of metastatic disease.

Regrettably, in this case, the patient declined any further workup or potential treatment and passed away approximately a month after being discharged from the hospital.

## IMAGING



Chest X-ray shows right basilar pneumonia



CT chest showed large mass in the right lung's infrahilar region, measuring approximately 6.9 x 6.9 x 5.1 cm

## DISCUSSION

This case underscores the significance of comprehensive history-taking and the use of advanced imaging in diagnosis, particularly when initial symptoms mimic common conditions like pneumonia. The patient, an elderly woman with a background of hypothyroidism and hyperlipidemia, initially presented with symptoms that were suggestive of pneumonia. An X-ray supported this diagnosis, showing a wedge-shaped opacity in the right lung base. However, her condition did not improve with standard antibiotic treatment, prompting a reevaluation.

Crucially, the patient's extensive smoking history, a known risk factor for lung cancer, was a key factor in the decision to conduct further investigations. Despite the initial X-ray indicating pneumonia, a subsequent CT scan revealed a much more serious condition: a large mass in the right lung's infrahilar region, measuring approximately 6.9 x 6.9 x 5.1 cm, which was not visible at all on the initial X-ray. This finding pointed towards a diagnosis of bronchogenic carcinoma.

The case highlights the limitations of X-ray imaging in detecting certain conditions, especially large masses, and the necessity of employing more advanced diagnostic tools like CT scans in complex cases. It also illustrates the challenges of diagnosing serious conditions in elderly patients, where symptoms may overlap with those of more benign illnesses. The situation emphasizes the importance of a broad differential diagnosis and the critical role of imaging technology in modern medicine. Additionally, it reflects the complexities of patient care, where respecting the patient's autonomy and decisions about their treatment is paramount.

## LAB WORK

Day 1	
Lab	Result
Sodium	133 mmol/L
Potassium	4.0 mmol/L
CO2	24 mmol/L
Chloride	101 mmol/L
BUN	14 mg/dL
Creatinine	1.2 mg/dL
Glucose	90 mg/dL
Calcium	8.2 mg/dL
ALP	70 U/L
ALT	25 U/L
AST	20 U/L
Bilirubin (T)	1.2 mg/dL
Albumin	3.2 g/dL

Day 2	
Lab	Result
Sodium	128 mmol/L
Potassium	3.9 mmol/L
CO2	22 mmol/L
Chloride	105 mmol/L
BUN	13 mg/dL
Creatinine	1.0 mg/dL
Glucose	105 mg/dL
Calcium	8.3 mg/dL
ALP	72 U/L
ALT	24 U/L
AST	20 U/L
Bilirubin (T)	1.1 mg/dL
Albumin	3.2 g/dL

Day 3	
Lab	Result
Sodium	131 mmol/L
Potassium	4.0 mmol/L
CO2	24 mmol/L
Chloride	104 mmol/L
BUN	13 mg/dL
Creatinine	0.85 mg/dL
Glucose	87 mg/dL
Calcium	8.2 mg/dL
ALP	72 U/L
ALT	25 U/L
AST	21 U/L
Bilirubin (T)	1.2 mg/dL
Albumin	3.2 g/dL

## REFERENCES

1. "What Is Lung Cancer? | Types of Lung Cancer." *American Cancer Society*, 12 January 2023, <https://www.cancer.org/cancer/lung-cancer/about/what-is.html>. Accessed 12 November 2023.
2. "Lung and Bronchus Cancer — Cancer Stat Facts." *SEER Cancer*, <https://seer.cancer.gov/statfacts/html/lungb.html>. Accessed 12 November 2023.