



## Case report

Sarcomatoid Carcinoma of the Lung Presenting as Localized Bronchiectasis: A Case Report and Review of Literature<sup>☆</sup>Kartikaya Rajdev<sup>a,\*</sup>, Abdul Hasan Siddiqui<sup>b</sup>, Uroosa Ibrahim<sup>c</sup>, Shivika Agarwal<sup>d</sup>, Juan Ding<sup>e</sup>, Michel Chalhoub<sup>b</sup><sup>a</sup> Department of Medicine, Northwell Health Staten Island University Hospital, 475 Seaview Avenue, Staten Island, NY 10305, USA<sup>b</sup> Department of Pulmonary/Critical Care, Northwell Health Staten Island University Hospital, 475 Seaview Avenue, Staten Island, NY 10305, USA<sup>c</sup> Department of Hematology/Oncology, Northwell Health Staten Island University Hospital, 475 Seaview Avenue, Staten Island, NY 10305, USA<sup>d</sup> Department of Medicine, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, State Highway 16A, Rohtak, Haryana, 124514, India<sup>e</sup> Department of Pathology, Northwell Health Staten Island University Hospital, 475 Seaview Avenue, Staten Island, NY 10305, USA

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## ABSTRACT

Sarcomatoid carcinoma (SC) of the lung is a rare and aggressive biphasic lung tumor with a 5-year survival of 20%. Early detection and treatment is the only way to improve outcomes in patients with SC of the lung. We present a case of primary SC identified early based on high suspicion. A 56-year-old female with a history of chronic obstructive pulmonary disease (COPD) presented with hemoptysis and exertional dyspnea. Chest X-ray revealed right upper lobe (RUL) opacity and patient was started on antibiotics for pneumonia. Due to the persistence of hemoptysis, a computed tomography scan was performed which showed RUL bronchiectasis with scattered nodular opacities suggestive of an infectious process. The patient underwent bronchoscopy which revealed a pedunculated mass in the RUL biopsy of which was consistent with poorly differentiated SC. Positron-emission tomography scan revealed Fluorodeoxyglucose-avid right peri-hilar mass and another nodule in the RUL. The patient was not a surgical candidate because of severe COPD and was started on chemoradiation therapy. SC of the lung can have various presentations and is usually detected at a later stage and hence, difficult to treat. Our case highlights the importance of critical thinking and prompt diagnostic evaluation in high-risk patients with localized bronchiectasis even without an obvious lung mass on imaging.

## 1. Introduction

Sarcomatoid carcinoma (SC) of the lung is a very uncommon biphasic lung tumor comprising of around 1% of all lung malignancies. It is known to be an aggressive tumor with a 5-year survival of only 20% and usually detected at later stages which make treatment options very limited especially when there are limited guidelines available for this rare malignancy. We present a case of SC of the lung confirmed by light microscopy and immunohistochemistry and diagnosed early in the course of disease based on a high index of suspicion. Smoking cessation, regular screening, early detection and treatment play a very crucial role in improving its morbidity and mortality. SC can have various presentations and pulmonologists need to be aware of this rare form of lung cancer and its presentations

## 1.1. Case

A 56-year-old female with a history of heavy smoking presented to the emergency room with complaints of cough, fatigue, and hemoptysis for few days prior to presentation. She reported productive cough with blood mixed in sputum, along with shortness of breath and pleuritic chest pain. Her other notable medical history included severe chronic obstructive pulmonary disease (COPD), depression and family history of lung cancer in her mother. Upon physical examination, she appeared cachectic and had bilateral wheezing. Chest X-ray (CXR) revealed a right upper lobe consolidation. The patient was admitted to the hospital and started on antibiotics in the setting of COPD exacerbation and community-acquired pneumonia. After a few days of treatment, she had improvement in her dyspnea and chest pain. However, due to the persistence of hemoptysis, she underwent a computed tomography (CT)

<sup>☆</sup> The work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to biomedical journals.

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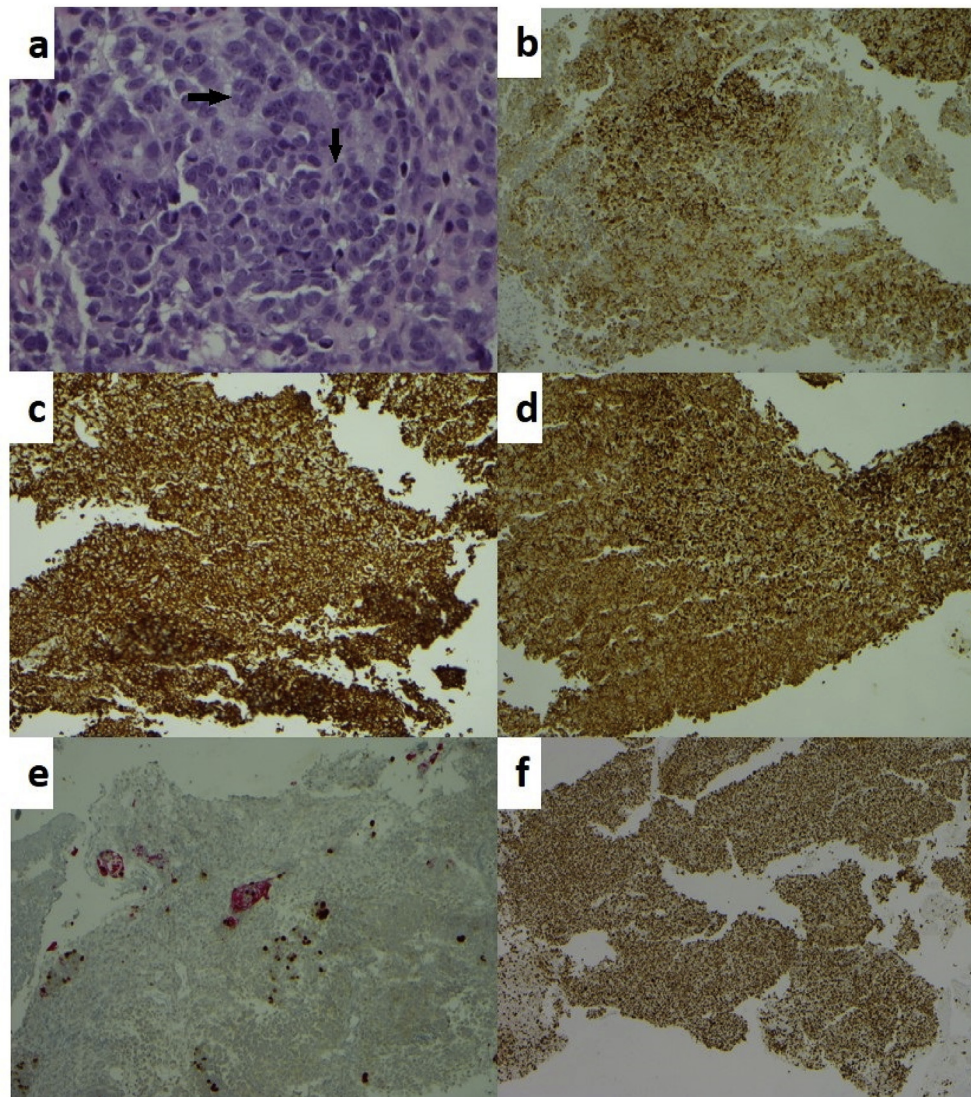
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**Abbreviations**

CEA	Carcinoembryonic Antigen
CK	Cytokeratin
COPD	Chronic Obstructive Pulmonary Disease
CT	Computed Tomography
CXR	Chest X-Ray
EMA	Epithelial Membrane Antigen
FDG	Fluorodeoxyglucose
GCDFP	Gross Cystic Disease Fluid Protein
H & E	Hematoxylin and Eosin

IHI	Immunohistochemical
MRI	Magnetic Resonance Imaging
NSCLC	Non-Small Cell Lung Carcinoma
PET	Positron Emission Tomography
PDL	Programmed Death Ligand
SC	Sarcomatoid Carcinoma
RUL	Right Upper Lobe
SMA	Smooth Muscle Actin
WHO	World Health Organization
WT	Wilms Tumor



- a- Tumor cells are large in size, have vesicular nuclei and permanent nucleoli with plumpy cytoplasm. Brisk mitotic figures were also seen.  
 b- Malignant cells are cytokeratin CAM 5.2 focally positive  
 c- IHC staining showing immunoreactivity for Vimentin  
 d- IHC staining showing immunoreactivity for WT-1  
 e- IHC staining focally positive for P63 and CK5/6  
 f- Tumor cells showing high Ki-67 index

**Fig. 1.** a- Tumor cells are large in size, have vesicular nuclei and permanent nucleoli with plumpy cytoplasm. Brisk mitotic figures were also seen. b- Malignant cells are cytokeratin CAM 5.2 focally positive. c- IHC staining showing immunoreactivity for Vimentin. d- IHC staining showing immunoreactivity for WT-1. e- IHC staining focally positive for P63 and CK5/6. f- Tumor cells showing high Ki-67 index.

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