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CASE REPORT

Coexistence of Usual Interstitial Pneumonia and Small Cell Lung Cancer: A Case Report

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ABSTRACT

Introduction: The coexistence of usual interstitial pneumonia (UIP) and small cell lung cancer (SCLC) is uncommon, especially in patients with underlying connective tissue diseases such as scleroderma.

Methods: We report a case of a 42-year-old female with scleroderma presenting with persistent cough and dyspnea. Radiological imaging and histopathological investigations were performed.

Results: High-resolution computed tomography of the chest revealed features suggestive of UIP with a right lower lobe mass. Fine-needle aspiration cytology confirmed a diagnosis of small cell carcinoma.

Discussion: This case underscores the importance of high clinical suspicion for lung malignancy in patients with interstitial lung disease (ILD), particularly when symptoms change or worsen. Such rare overlap conditions require multidisciplinary management for optimal patient outcomes.

KEYWORDS

• Usual interstitial pneumonia • Small cell lung cancer • Interstitial lung disease • Systemic sclerosis

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INTRODUCTION

Interstitial lung disease (ILD) encompasses a diverse group of pulmonary disorders characterized by varying degrees of inflammation and fibrosis of the lung interstitium. Among these, usual interstitial pneumonia (UIP) is a specific histopathological pattern marked by progressive lung scarring and a poor prognosis. The median survival of patients with UIP, especially when idiopathic (as in idiopathic pulmonary fibrosis), ranges from 3 to 5 years.[1]

UIP can occur in association with autoimmune connective tissue diseases, such as scleroderma, rheumatoid arthritis, and Sjögren's syndrome. These systemic conditions may predispose patients to both interstitial fibrosis and malignancy.[3,4] Lung cancer is increasingly recognized as a significant comorbidity in patients with ILD, with studies suggesting that up to 20% of ILD patients may develop lung cancer.[5]

While adenocarcinoma and squamous cell carcinoma are more commonly reported in this population, small cell lung cancer (SCLC) remains exceedingly rare in association with UIP.[6,7] This clinical overlap presents diagnostic and therapeutic challenges due to the aggressive nature of SCLC and the limited pulmonary reserve in ILD patients.

Despite increasing awareness of lung cancer risk in ILD, there is a paucity of literature describing the coexistence of UIP and SCLC, particularly in patients with autoimmune diseases like scleroderma. This case report aims to highlight this rare but clinically significant association and contribute to the existing evidence base for early recognition and management strategies.[8]

This study is a single-patient case report describing the rare clinical coexistence of usual interstitial pneumonia (UIP) and small cell lung cancer (SCLC) in a 42-year-old female with a history of systemic sclerosis. The patient underwent radiological imaging, including high-resolution computed tomography (HRCT), followed by CT-guided fine-needle aspiration cytology (FNAC) to confirm the diagnosis. The case highlights diagnostic challenges and the importance of a multidisciplinary approach in managing such overlapping pulmonary and oncologic conditions.

CASE REPORT

A 42-year-old female presented to the pulmonary medicine outpatient department with a 9-month history of cough that was initially productive with white expectoration. Over the past two months, the cough became dry, accompanied by progressive shortness of breath for one month, which was exacerbated by exertion and relieved with rest. She denied hemoptysis, fever, or chest pain.

Figure 1: Chest X-ray PA view

She had a known history of systemic sclerosis for 14 years and was under regular treatment. She reported associated symptoms including Raynaud's phenomenon, joint pain, skin rashes, oral ulcers, skin tightening, and dryness of mouth.

On examination, digital clubbing was noted. There were no signs of lymphadenopathy or elevated jugular venous pressure. Auscultation revealed decreased breath sounds over the right infrascapular area and bilateral crepitations.

Laboratory investigations showed elevated total leukocyte count. Renal and liver function tests were within normal limits. Serology was positive for anti-CCP, ANA, Scl-70, and Rib-P protein antibodies, while rheumatoid factor was negative.

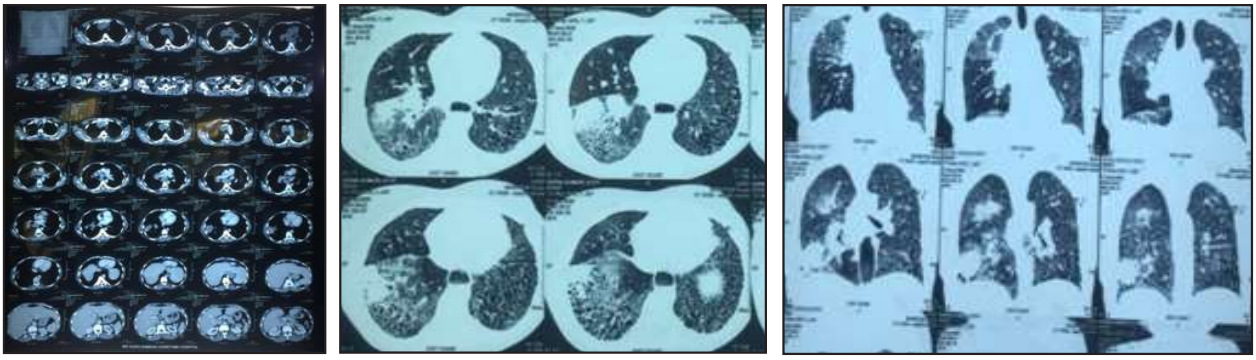

Figure 2: CECT Chest

Chest X-ray showed bilateral reticulonodular opacities with an ill-defined mass in the right lower zone. High-resolution computed tomography (HRCT) demonstrated a heterogeneously enhancing mass in the right lower lobe and features of UIP such as basal honeycombing and minimal traction bronchiectasis.[1,2]

Patients with systemic sclerosis are known to have an increased risk of developing ILD and lung malignancy due to chronic inflammation and fibrotic remodeling.[3,4]

CT-guided fine-needle aspiration cytology (FNAC) of the right lower lobe mass confirmed the diagnosis of SCLC. The coexistence of SCLC with fibrotic ILDs is rare and poses significant management challenges.[5–10]

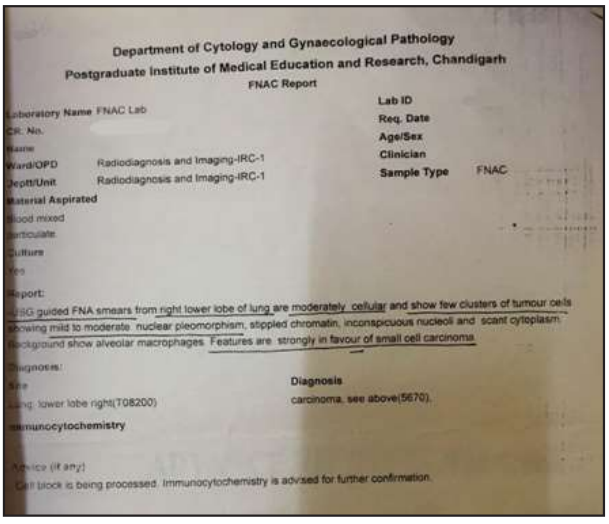
Department of Cytology and Gynaecological Pathology
Postgraduate Institute of Medical Education and Research, Chandigarh
FNAC Report
Laboratory Name FNAC Lab
Lab ID
Req. Date
Age/Sex
Clinician
Ward/OPD Radiodiagnosis and Imaging-IRC-1
Deptt/Unit Radiodiagnosis and Imaging-IRC-1
Sample Type FNAC
Material Aspirated
Culture
Report:
USG guided FNA smears from right lower lobe of lung are moderately cellular and show few clusters of tumour cells showing mild to moderate nuclear pleomorphism, stippled chromatin, inconspicuous nucleoli and scant cytoplasm. Background show alveolar macrophages. Features are strongly in favour of small cell carcinoma.
Diagnosis
Lung: lower lobe right(T08200)
carcinoma, see above(5670).
Immunocytochemistry
Cell block is being processed. Immunocytochemistry is advised for further confirmation.

Figure 3: FNAC from RLL of Lung–Small cell Ca Lung

There is a significant gap in the current literature regarding the coexistence of UIP and SCLC, particularly in the context of autoimmune diseases like scleroderma. Most available studies and reports focus on adenocarcinoma or squamous cell carcinoma in ILD patients, with very limited data on SCLC. This lack of comprehensive evidence hinders the development of tailored diagnostic and treatment protocols for this rare overlap, underlining the need for further research and reporting of such cases to inform clinical practice.

DISCUSSION

This case highlights the rare coexistence of UIP and SCLC in a patient with systemic sclerosis. The diagnosis was confirmed through high-resolution imaging and cytological evaluation.

Patients with UIP have a significantly elevated risk of developing lung cancer, with some studies reporting a prevalence as high as 48.2% compared to 9.1% in the general population ($P < 0.001$).[2] The chronic fibrotic process in UIP may predispose to malignant transformation due to repeated epithelial injury and aberrant repair mechanisms.[1,3]

Radiographically, tumors can be obscured by fibrotic changes. Any new or enlarging lesion in a patient with ILD should raise suspicion of malignancy. In this case, FNAC provided a definitive diagnosis of SCLC.[5]

The management of SCLC in patients with UIP is complicated by limited treatment tolerance and higher complication rates. This report underscores the importance of multidisciplinary care and vigilant follow-up for ILD patients.[6–8]

CONCLUSION

The coexistence of usual interstitial pneumonia and small cell lung cancer is rare but clinically significant, especially in patients with autoimmune conditions like scleroderma. This case highlights the need for heightened

clinical suspicion and early investigation in ILD patients presenting with new or worsening symptoms. Prompt diagnosis and individualized care are essential to improving outcomes.[1–8]

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