



## Case Report

# Adeno-carcinoma lung with systemic lupus erythematosus – A rare case combination

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## Abstract

Though connective tissue disorders are known to be associated with a higher risk of lung malignancies, the occurrence of Systemic Lupus Erythematosus (SLE) with adeno-carcinoma lung is rare and restricted to only a few case reports. The understanding of the association between the two diseases is still in infancy. The association of malignancy with SLE has been attributed to factors such as the setting of chronic inflammation, use of immunosuppressive drugs and shared gene pathways. There is also overlap between some clinical and biochemical features of SLE and lung carcinoma which may affect diagnosis. However, there is no adverse effect of SLE on the prognosis of patients with adenocarcinoma lung and they benefit from timely intervention based on careful surveillance. We describe a case where a patient of SLE was incidentally detected to have a lung lesion during routine screening, which was found to be adenocarcinoma on investigation and managed successfully with lobectomy.

**Keywords:** Adenocarcinoma, Systemic lupus erythematosus, Lung neoplasms, Connective tissue diseases

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## 1. Introduction

Adeno-carcinoma is rarely reported in these patients and mostly restricted to few case reports. The mechanisms suggested to be behind the association of SLE with development of malignancy include inappropriate responses by Toll-like receptors (TLRs) leading to chronic inflammation and the proliferation of abnormal cells due to the immunosuppressive effects of drugs used in the management of SLE.<sup>3</sup>

We describe the case of a patient in his mid-thirties who was on long-term medication for SLE and was incidentally detected to have adeno-carcinoma of the right lung.

## 2. Case Report

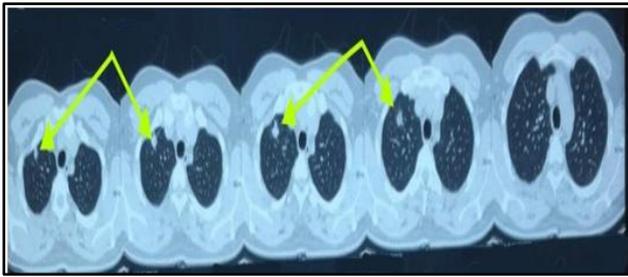
Our patient, a gentleman in his mid-thirties a non – smoker with no history of occupational exposure to carcinogens such as silica and asbestos, had been detected to have SLE 18 months previously. He was initially started on

cyclophosphamide during intensive therapy phase for first six months and subsequently continued on azathioprine and prednisolone as maintenance therapy since the last twelve months.

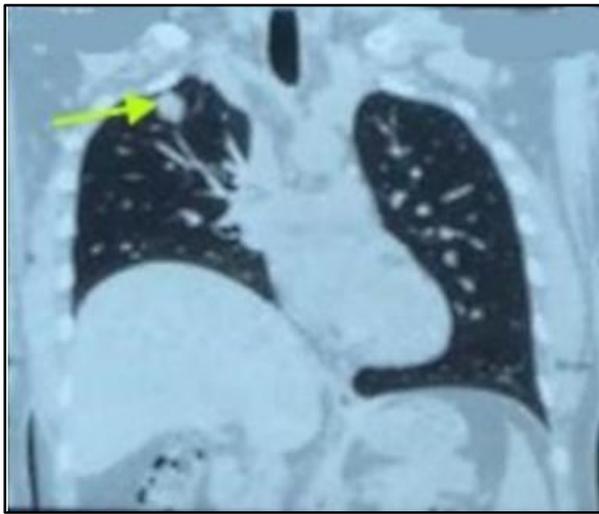
He had no other comorbidities and reported no symptoms (weight loss, chronic cough, haemoptysis or dyspnea) suggestive of lung malignancy.

A lesion was incidentally noted in the upper lobe of his right lung on a chest x-ray done as part of his routine follow-up. Subsequently, contrast enhanced CT revealed the lesion to be spiculated and poorly enhancing with dimensions of 15mm x18mm x16mm (**Figure 1, Figure 2**). Biopsy was suggestive of adenocarcinoma with positive expression of Napsin-A and cytokeratin (CK).<sup>7</sup>

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**Figure 1:** Lesion as visualised on CT chest



**Figure 2:** Lesion as visualised on CT chest



**Figure 3:** Excised tumour

He underwent open right upper lobectomy – histopathological examination of the specimen confirmed acinar adenocarcinoma with involvement of visceral pleura (**Figure 3**). The tumour margins were clear and there was no lymph nodal involvement. The staging given was pT2N0Mx.

### 3. Discussion

Although lung cancer is a leading cause of cancer related morbidity globally, incidence of this malignancy in India is fairly low compared to most other countries. Though adenocarcinoma is the commonest histological subtype in most countries, squamous cell carcinoma is the most common histology in smokers and adenocarcinoma is most common among non-smokers in India.<sup>1</sup>

Lung cancer associated with SLE is uncommon and mostly of small cell variety.

Systemic lupus erythematosus has been associated with increased risk of carcinoma in both males and females – including lymphomas, multiple myeloma, cervical, renal, bladder, oesophageal, hepato-biliary, lung and thyroid cancers. Presence of lung carcinoma among SLE patient is uncommon.

A cohort study including 76,948 patient-years across 23 centres found that patients of SLE had a Standardised Incidence Ratio of 1.37 of lung cancer.<sup>2</sup> The most common histological type was squamous cell carcinoma, and incidence of adenocarcinoma variety was further rare.<sup>3</sup> It has been postulated that the association of SLE with carcinomas could be due to production of tumour associated antigens and sustained inflammation, particularly involving Toll-like receptors and interferon- $\alpha$ .<sup>4</sup>

Gene set analysis has revealed a pathway currently marked as specific to systemic lupus erythematosus (KEGG pathway hsa05322) as being significantly implicated in lung cancer – this pathway is associated with the gene region 6p21-22.<sup>5</sup>

It has also been reported that the clinical and laboratory profiles of some patients of adenocarcinoma lung meet the criteria for diagnosis of SLE.<sup>6</sup>

Aluoch and colleagues have reported a case where a lady with lung adenocarcinoma associated hypertrophic osteoarthropathy had a clinical and biochemical presentation mimicking SLE.<sup>7</sup>

The case reported by us is rare as adenocarcinoma of lung was detected in young male (35 years) only after one & half years after diagnosis and initiation of therapy for SLE. Analysis of data from 15,980 SLE patients across twenty-eight centres suggested that the average age of SLE patients at diagnosis of lung cancer was 60 years with average time since diagnosis of SLE being 13 years. Furthermore, adenocarcinoma of the lung is a rare lesion in SLE and our case is among very few similar ones which have been reported.

#### 4. Source of Funding

None.

#### 5. Conflict of Interest

None.

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