



## Case Report on Lung Cancer in Old Tuberculosis with Bio Mass Fuel Exposure

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### Abstract

*Pulmonary tuberculosis (TB) and lung cancer are becoming increasingly prevalent especially in developing countries.*

*The occurrence of lung cancer after 30 years of completed pulmonary TB treatment is rare. We report a rare occurrence of lung carcinoma after 30 years of completed pulmonary TB treatment.*

**Keywords:** *pulmonary tuberculosis, lung carcinoma.*

### Introduction

Lung carcinoma is the leading cause of cancer related death and represents one of the major public health problems worldwide. Tuberculosis is very important cause of morbidity and mortality despite good prevention, diagnosis and effective therapy, especially in the poor and developing countries<sup>(1,2)</sup>. The simultaneous or sequential occurrence of TB and lung cancer in the same patient has been reported. Long term TB process, especially if it takes up larger portions of the lungs leads to metaplasia of the epithelium. The

connection between lung tuberculosis and lung carcinoma certainly exist, as it has been verified by many pathologists and clinical doctors.

### Case Report

A 70 year old female with a history of completed pulmonary TB treatment 30 years ago, presented with fever with productive cough and right sided chest pain over 2 weeks. She is a nonsmoker and her past medical history was otherwise unremarkable and was completely asymptomatic up to this presentation. She was a farmer .she was

thin built but no nutritional deficiency. She has history of biomass exposure for more than 20 years. Upon examination patient was conscious coherent, her pulse rate was 78/min, respiratory rate was 18/min, she has reduced right side chest expansion and upon auscultation reduced air entry on right side.

Upon further examination HPE suggestive of positive for poorly differentiated malignancy, morphology favor for epithelial malignancy.

FDG PET CT SCAN of whole body shows findings consistent with metabolically active right hilar mass lesion, encasing and compressing the hilar structures as described with mediastinal and right hilar lymph nodal and right pulmonary metastases. Middle lobe is collapsed.

Patient was started on chemotherapy and was on follow up



### Discussion

The association between pulmonary TB and lung is important as both disease are becoming increasingly prevalent in developing countries<sup>(3,4)</sup>,

We describe the rare occurrence of a epithelial carcinoma in post TB lung after 30 years of completed pulmonary TB treatment.

Several theories have been proposed to explain the pathogenesis of post TB lung cancer.

Post tb scars may deform blood and lymphatic vessels leading to lymphostasis causing deposit of carcinogen and promoting malignant processes<sup>(3,4)</sup>. Furthermore, chronic inflammation associated with recurrent infections may lead to carcinogenesis due to production of reactive species by activated neutrophils and macrophages causing genetic alterations and malignant transformation. Such mutations in fragile histidine triad gene have been suggested in the pathogenesis of lung cancer following pulmonary TB.

Furthermore increased cellular proliferation during the repair process in chronic inflammation may trigger metaplasia and subsequent neoplastic changes. other postulated mechanisms for coexistence of pulmonary tb and lung cancer include reactivation of TB by carcinoma due to immune suppressions and secondary infection of the carcinoma by TB.<sup>(5)</sup>

The risk of carcinoma was highest in the first five years following the diagnosis of pulmonary TB, however the risk prevailed even up to 20 years following diagnosis of pulmonary TB. Nevertheless the development of lung cancer after more than 30 years of TB treatment is a rare occurrence.

### Conclusion

Patients with cured pulmonary tuberculosis represent a group at risk for developing lung carcinoma. Biomass fuel exposure for many years can also be a risk factor for lung cancer. changes in bronchial and alveolar mucosa which tuberculosis leaves behind in the lungs must be taken as a possible place of later malignant alteration.

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