



## Study of Lung Cancer in a rural Medical College in hilly area of West Bengal

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### Abstract

**Background:** Cancer of Lung is one of the most aggressive and prevalent type of malignancy causing high morbidity and mortality. Tobacco smoking is one important cause of lung cancer worldwide. An increasing incidence of lung cancer has been observed in India. Moreover smoking is very common addiction in Bengal particularly in hilly areas. So, the incidence of lung cancer is also high in this sub Himalayan area.

**Objective:** The aim of this study was to evaluate the clinical, pathological and Radiological profile of the lung cancer in hilly region of West Bengal.

**Materials and Methods:** We performed a retrospective analysis of histopathologically proven cases of bronchogenic carcinoma who attended in our hospital in the department of chest and Radiotherapy from January 2015 to December 2017.

**Results:** Our study included 242 patients with confirmed cases of Primary lung cancer. Male to female ratio was 6.12:1. The common age group being 41-60years (45.45%). Smoking was found to be the main risk factor in 86.36% patients. The most frequent symptom was cough (71.90%). The most common radiological presentation was mass lesion (51.65%). The most common histopathological type was squamous cell carcinoma (SCC) (38.02%) followed by adenocarcinoma (29.75%) and small cell lung carcinoma (SCLC) (16.53%). The majority patients (81.82%) were diagnosed in the later stages of the disease (III B and IV).

**Conclusion:** It is seen that addiction to smoking among both males and females are quite prevalent in this sub Himalayan Hilly area of Bengal. This may be the reason of increased incidence of lung cancer here. Squamous cell Carcinoma is found to be the commonest variety.

**Keywords:** Lung Cancer, smoking, Squamous cell carcinoma.

### Introduction

Lung cancer is believed to be the most common fatal neoplastic disease in the world today. Globally, lung cancer is the largest contributor to new cancer diagnoses (12.4% of total new cancer cases) and to death from cancer (17.6% of total cancer deaths)<sup>1</sup>. Globocan estimate of lung cancer in India indicates that incidence of lung cancer in

India is 70,275 (for all ages and both genders) with an age standardized incidence rate being 6.9 per 100,000 population. But, some studies indicated that actual new cases across India may be 156,736 new cases, more than double of what is estimated by Globocan<sup>2</sup>. In India, lung cancer constitutes 6.9 per cent of all new cancer cases and 9.3 per cent of all cancer related deaths in

both sexes. It is the commonest cancer and cause of cancer related mortality in men<sup>3</sup>. Progressive survival extension and poor awareness of harmful effects of smoking has led to a numerical rise of patients with primary lung cancer in India. Smoking is the main cause for lung carcinoma<sup>3,4</sup>. The proportions of histopathological cell types of lung cancer vary with changes in social and other environmental factor. We undertook this retrospective review of patients diagnosed with lung cancer at North Bengal Medical College, Darjeeling a large tertiary care center of the region, to understand about the epidemiological, pathological and clinical profile of the disease in this hilly area.

### Materials and Methods

This retrospective study was performed using a database with 242 patients of lung cancer who had been diagnosed at our hospital, during January 2015 to December 2017. The clinical records of the patients were noted for demographic data, smoking history, duration of symptoms, symptoms and signs, radiographic findings, histopathology, and clinical staging of lung cancer. Only patients with a confirmed diagnosis and adequate medical records were included for the analysis. For confirmation of diagnosis of lung cancer, majority of patients were subjected to fiber-optic bronchoscopy and/or percutaneous Tru-cut biopsy or fine needle aspiration cytology (FNAC) under imaging guidance.

### Results

The series included 208 male (85.95%) and 34 female (14.02%) patients. Age distribution of these patients is shown in [Table 1]. Maximum patients were found in the age group 41-60 years (45.45%) The breakup of both sexes according to their smoking history is shown in [Table 2]. Male to Female (M:F) ratio is 6.12:1. Cough was the most common symptom found in (71.90%) patients, followed by chest pain (58.68%), and shortness of breath (51.65%) [Table 3]. The various diagnosis modalities, either single or in

combination, used for confirmation of lung cancer are shown in [Table 4]. Imaging guided Trucut Biopsy or Fine needle aspiration cytology (FNAC) was the commonest tool(57.85%) followed by Fibre-optic Bronchoscopic biopsy (FOB)(30.99%). Mass or Space occupying lesion (SOL) (total pts 125;51.65%) was the commonest radiological feature followed by collapse-consolidation (total patients 84;34.71%) [Table 5]. Right lung lesion(55.79%) was more common than left lung lesion(39.26%).[Table6]. The most common histopathological type was Squamous cell cancer(SCC) (38.02%%), followed by adenocarcinoma (29.75%), and Small cell Lung cancer (16.53%) [Table 7]. The majority of patients (81.82%) were diagnosed in the later stages of the disease. The patients presented to their physician, on an average, 90days (range 30-210 days) after the onset of symptoms.

**Table 1:** Demographic profile of cases included in the study (n = 242)

Age group	No. of patients	Percentage
<40	16	6.61
41-60	110	45.45
61-80	102	42.15
>80	14	5.79
Total	242	100

**Table 2:** Smoking status

Gender	No.	percentage
Male	208	85.95
Female	34	14.05
Smoking status		
Smoker	209	86.36
Male	190	91.35% of males
Female	19	55.88% of females
Nonsmoker	33	13.64

**Table 3:** Clinical manifestations (n = 242)

Symptoms	No. of patients	Percentage
Cough	174	71.90
Chest pain	142	58.68
Shortness of breath	125	51.65
Loss of weight	120	49.59
Fever	90	37.19
Hemoptysis	48	19.83
Hoarseness of voice	40	16.53
Superior Venacaval obstruction	25	10.33

**Table 4:** Diagnostic yield of various investigative procedures

Diagnostic procedure	No. of patients	Diagnostic yield (%)
Tru-cut/ FNAC	140	57.85
FOB	75	30.99
Pleural fluid	17	7.02
Lymph node biopsy	5	2.07
Pleural biopsy	4	1.65
Sputum cytology	1	0.41

**Table 5:** Radiological presentation

Radiological picture	No. of Patients	Percentage
Space occupying lesion	125	51.65
Collapse-consolidation	84	34.71
Pleural effusion	12	4.96
Combination and others	21	8.68

**Table 6:** site of disease

Radiological picture	Number	%
Right lung	135	55.79
Left lung	95	39.26
Bilateral	12	4.96

**Table 7:** Histological type of lung cancer

Histology	No. of patients	%
Squamous cell carcinoma (SCC)	92	38.02
Adenocarcinoma	72	29.75
Small cell carcinoma (SLCC)	40	16.53
Non small cell lung cancer (NSCLC)-Not otherwise specified (NOS) and others	38	15.70

## Discussion

Most of our study belonged to the patients of age group between 40-60 years. Similar observation was seen in other studies<sup>4,5,6</sup>. M:F ratio 6.12:1 similar to other study in Bengal<sup>5</sup>. Smoking was the most common predisposing factor (86.36%), which included beedis in majority of cases. Similar observation has been reported by other Indian studies also<sup>4,5,6</sup>. In study by Noronha V et al, smoking tobacco remains the single most important risk factor (80–90%); a smaller proportion (10–20%) is attributed to occupational exposure to various carcinogenic agents<sup>7</sup>. But in some other study at Tata Memorial Hospital, Mumbai (52.1%) had no history of smoking at any time in their life as compared to (47.9%) who had smoked at some point<sup>8</sup>. But, prevalence of smoking is quite common in this sub-Himalayan area.

One important observation made in our study is the delay in presentation of patients to their attending physician. Majority of the cases were misdiagnosed as tuberculosis and treated at various other centers, thereby causing a delay in diagnosis. Moreover, many patients took homeopathic and other alternative treatments for quite a long time.

In our study, the delay in seeking treatment was observed to vary from 3-7 months, which is similar to another study<sup>5,6</sup>. This emphasizes the need for patient counseling as well as more effective methods for early detection of lung cancer cases by general practitioner.

Our data shows that unexplained cough of several weeks is the commonest symptoms along with followed by chest pain, and shortness of breath. This is similar to reports published in the literature from different part of India<sup>4,5,6</sup>.

The pattern of lung cancer has been changing. Lung cancer is being increasingly diagnosed in women and adenocarcinoma has over taken SCC as the most common histological cell type<sup>8</sup>. However, the pattern seen at our hospital was different. SCC was still the commonest cell type seen, followed by adenocarcinoma and SLCC. This is similar to reports from some other part of India and Nepal<sup>4,5,6,9</sup>. This difference in histopathology may be due to the fact that smoking is quite prevalent in this part of Bengal and in many cases, only cytology was performed. Hence only NSCLC was reported and no further sub-classification was possible.

Bronchoscopy is the most useful investigation in the evaluation of the patient suspected of endobronchial lung cancer. CT guided Trucut Biopsy and Fine needle aspiration cytology (FNAC) is the investigation of choice for peripherally situated lesions. In our study, the overall yield with bronchoscopy was 30.99% and with imaging guided Tru-cut or FNAC was 57.85%. Rest of the cases were diagnosed by pleural biopsy, Pleural fluid cytology etc. Similar was seen in other studies<sup>10</sup>.

The commonest radiological finding seen in present study was space occupying lesion followed by collapse consolidation with slight predominance of right lung; similar to reports published in the literature<sup>11,12</sup>.

Most of the patients (81.82%) attended in an advanced stage (IIIB and IV). Metastases to other lung was commonest followed by bone, liver, adrenals and brain. In study by Viswanath Sundarametal<sup>13</sup> early stages (1 or 2) were found in 11.67% and late stages (3 or 4) in 88.33% and common metastases were to liver, bones and adrenals. Moreover, like other studies<sup>14</sup> associated smoking chronic obstructive Pulmonary disease (COPD) and other cardio-vascular causes were present in many cases due to associated smoking. They could not be offered aggressive Radical treatment for these co-morbid disease. Palliative chemotherapy with or without palliative radiotherapy was the commonest modality of treatment (69.15%). 14 patients (5.79%) patients only received Best supportive care.

### Conclusion

This study has shown smoking as the principle risk factor in the causation of lung cancer. Primary lung cancer should always be suspected in a person presenting with unexplained cough of several weeks with other symptoms such as pain chest, shortness of breath, weight loss and fever with non resolving collapse-consolidation on chest radiograph; and further investigations should be carried out to rule lung cancer. Majority of the cases were misdiagnosed as tuberculosis and treated by antitubercular treatment, thereby causing delay in diagnosis. This emphasized the need for more effective methods for early detection of lung cancer cases among general population. Moreover, measures should be taken to reduce use of tobacco in the society to have a meaningful impact on the reduction in the incidence of Lung cancer

### Footnotes

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**Conflict of Interest:** None declared.

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