

## Original Research Article

**Clinical, epidemiological and diagnostic profile of patients with carcinoma lung - A clinical study**Dr. KC George MD<sup>1</sup>, Dr Anoop T.M MD DM DNB<sup>2</sup>, Dr Rakul K Nambiar MD DNB<sup>3</sup><sup>1</sup>Associate professor, Department of Medicine, Government Medical College, Kottayam, Kerala, South India<sup>2</sup>Assistant Professor, Department of Medical oncology Regional cancer center, Thiruvananthapuram, Kerala, South India<sup>3</sup>Senior Resident, Department of Medical oncology Regional cancer center, Thiruvananthapuram, India**\*Corresponding author**

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**Abstract:** The study included all cytologically proved cases as carcinoma lung admitted in Medical wards at a Medical College in southern India. Information obtained from each of these patients was entered in a proforma designed to include all the relevant information. Histological diagnosis was made by sputum cytology, pleural fluid cytology, direct FNAC from lymph node, CT guided FNAC or biopsy either from lymph node or through bronchoscopy or USG guided fine needle aspiration cytology. In the 81 cases of lung cancer, the mean age at diagnosis was 65.25 years with a male to female ratio of 8:1. Cough was the most common presenting symptoms (72%) and the most common clinical signs was clubbing (62%). Sputum cytology showed malignant cells in one case only. The most common radiological presentation was mass lesion (63%) and upper zone mass was seen in 41.97%. Adenocarcinoma (73.5%) and large cell carcinoma (100%) were seen peripherally and small cell carcinoma (85.7%) and squamous cell carcinoma (64.2%) were seen centrally. Evidence of metastases was present in 48.14% cases at presentation. Histopathological study confirmed adenocarcinoma in 34 (42%) squamous carcinoma in 14 (17%), small cell carcinoma in 14 (17%), large cell carcinoma in 6 (7%) and undifferentiated carcinoma in 13 (16%) cases. The clinicopathological profile of lung cancer has changed over the last few years. The global trend of rise in adenocarcinoma is seen in the Indian subcontinent.

**Keywords:** carcinoma, FNAC, Adenocarcinoma**INTRODUCTION**

Lung cancer represents a true epidemic of 20<sup>th</sup> century [1]. The majority of lung cancer cases are convincingly proved to be associated with smoking habits. The varying rates of survival are related to the stage of disease, histological type, and the overall condition of the patient. Early diagnosis and changes in environmental conditions and life style habits are the major factors that will enhance survival in lung cancer patients.

**Aims**

To analyze the clinical, epidemiological and diagnostic profile of patients with primary bronchogenic carcinoma admitted in a tertiary care center in south India.

**MATERIALS AND METHODS**

The study included all cytologically proven cases (81 patients) of primary bronchogenic carcinoma admitted

at a tertiary care teaching hospital, in Southern India. After admission a detailed history was obtained from each patient. This is followed by a thorough physical examination. Routine blood examination (hemoglobin, total leucocyte count, differential count, and erythrocyte sedimentation rate), urine examination and serum electrolytes were done. Sputum cytology, chest X-ray, ultrasound abdomen, pleural fluid analysis and computerized tomography (CT) were performed. The histological diagnosis was made by sputum cytology, pleural fluid cytology, lymph node aspiration cytology, CT guided aspiration cytology, bronchoscopic biopsy or lymph node biopsy.

**RESULTS**

The total number of patients was 81 with an age range of 14 - 76 years. The mean age at diagnosis was 65.25 with a male to female ratio of 8:1. The peak incidence was seen in the age group between 50 - 59 years. The highest incidence was seen among manual

laborers (25.92%) followed by farmers (23.45%). In the study population, 70 patients were smokers (86.41) and all had more than 40 pack years of smoking. Eleven patients were nonsmokers. Twelve cases had history of chronic obstructive pulmonary disease and 10 cases had been treated for pulmonary tuberculosis in the past. The commonest symptom was productive cough (72%), followed by breathlessness (54.32%), hemoptysis (32%), and chest pain (27.16%). Four patients were diagnosed with superior venacaval obstruction. Two patients presented with chest swelling secondary to metastatic rib deposits. In the present study, 45 patients presented with symptoms less than 3 months duration. The baseline characteristics of study population are shown in table 1.

Clubbing, lymphadenopathy and pallor were present in 62, 43% and 42% cases respectively. Three patients had vertebral metastases at presentation and among them, two patients presented with paraplegia. Six patients had features of Horner's syndrome. Hepatomegaly was present in 25% cases. Among 17 patients with neural manifestations, 5 patients had altered sensorium, 4 patients presented with hemiparesis, 2 patients with paraplegia due to secondary deposits in spine, one had cauda equina syndrome and carcinomatous meningitis and one patient had proximal muscle weakness and secondaries in mandible, one patient presented with right upper limb monoplegia and 3 patients presented with seizure. The clinical, radiological, and histological profiles of the study population are shown in table 2.

The radiological findings on chest X-ray were mass lesion (78%), pleural effusion (16%), and collapse consolidation (6%). Two cases had pneumothorax and one case had multiple pulmonary nodules. Computed tomography also shows that presentation of mass lesion is the commonest one. Upper zone mass was present in 28 cases, mid zone in 8 cases and lower zone in 2 cases. Consolidation was seen in 7 cases, pleural effusion in 18 cases, pericardial effusion in one case, pneumothorax in 2 cases, and bilateral interstitial infiltrate and bilateral nodular shadows in one case each. With the help of computed tomography, 39 patients (48.14%) had evidence of metastases at presentation. Brain metastases were seen in 11 cases (13.58%), bone metastases in 6 cases (7.40%), adrenal metastases in 5 cases (6.17%) and liver metastases in 5 cases (6.17%). Mediastinal lymph node involvement was evident in 12 cases (14.81%). The bone involved in metastases were ribs (2 cases), clavicle, scapula and lumbar vertebra (1 case) T<sub>8</sub>, T<sub>11</sub>, vertebrae (1 case), T<sub>10</sub> vertebrae (1 case) and mandible (1 case). The major histopathological subtypes included adenocarcinoma (42%), squamous cell carcinoma (17%), small cell carcinoma (17%), undifferentiated carcinoma (16%), and large cell carcinoma (7%). Among the eleven nonsmokers in our study, 7 had adenocarcinoma, 2 had squamous cell carcinoma and one each had small cell carcinoma and poorly differentiated carcinoma. The distribution of radiological and histological findings in the study populations is shown in table 3.

**Table-1: Demographic profile of patients with carcinoma lung**

| Characteristic              | Number (Percentage) (n=81) |
|-----------------------------|----------------------------|
| <b>Gender</b>               |                            |
| Male                        | 72 (88.88%)                |
| Female                      | 9 (11.11%)                 |
| Male: female ratio          | 8:1.                       |
| <b>Occupation</b>           |                            |
| Manual laborers             | 22 (25.92%)                |
| Farmers                     | 19 (23.45%)                |
| House wives                 | 9 (11.1%)                  |
| Business men                | 9 (11.1%)                  |
| Rubber Tapping              | 7 (8.64%)                  |
| Fisher man                  | 4 (4.93%)                  |
| Factory workers             | 2 (2.46%)                  |
| Others                      | 9 (11.1%)                  |
| <b>Habits</b>               |                            |
| Smokers                     | 70 (86.41)                 |
| Non smokers                 | 11 (8.9%)                  |
| Beedi smokers               | 46 (56%)                   |
| Beedi and cigarette smokers | 18 (22%)                   |

|                                  |             |
|----------------------------------|-------------|
| Cigarette smokers                | 6 (13.5%)   |
| <b>Pre-existing lung disease</b> |             |
| TB                               | 10 (8.1%)   |
| COPD                             | 12 (9.72)   |
| <b>Religion</b>                  |             |
| Hindus                           | 40 (49.38%) |
| Muslims                          | 2 (2.26%)   |
| Christians                       | 39 (48.14)  |
| <b>Duration of symptoms</b>      |             |
| < 3 months                       | 45 (55.55%) |
| 3- 6 months                      | 20 (24.69%) |
| 7months - 1 year                 | 13 (16.04%) |
| > 1 year                         | 3 (3.70%)   |

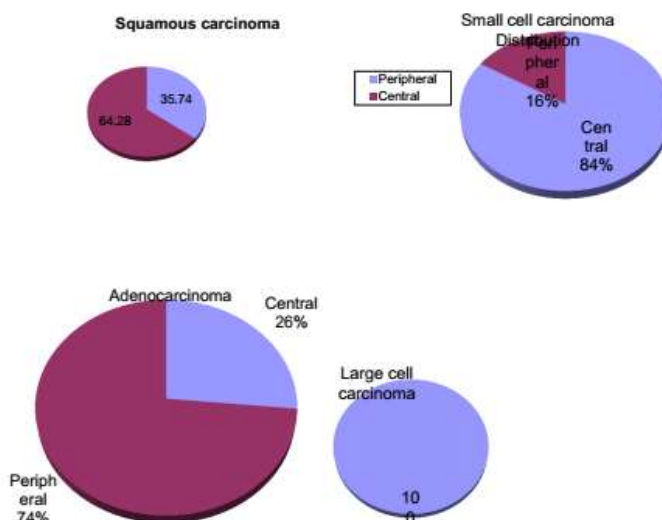
**Table-2: Clinical, radiological, and histological profile of study population**

| Variables                               | Number | Percent |
|-----------------------------------------|--------|---------|
| <b>Symptoms</b>                         |        |         |
| Cough                                   | 58     | 72      |
| Breathlessness                          | 44     | 54      |
| Hemoptysis                              | 26     | 32      |
| Chest pain                              | 22     | 27      |
| Loss of weight                          | 20     | 25      |
| Hoarseness of voice                     | 20     | 25      |
| Seizure                                 | 6      | 7       |
| Puffiness of face                       | 5      | 6       |
| Head ache and vomiting                  | 4      | 5       |
| Pain shoulder                           | 3      | 4       |
| Dysphagia                               | 2      | 2       |
| Swelling chest                          | 2      | 2       |
| Hemiplegia                              | 2      | 2       |
| Paraplegia                              | 2      | 2       |
| Proximal muscle weakness                | 1      | 1       |
| <b>Clinical findings</b>                |        |         |
| Clubbing                                | 50     | 62      |
| Lymphnode enlargement                   | 35     | 43      |
| Pallor                                  | 34     | 42      |
| Hepatomegaly                            | 20     | 25      |
| CNS manifestations                      | 17     | 21      |
| Pleural effusion                        | 13     | 16      |
| Horners syndrome                        | 5      | 6       |
| Superior venacaval compression          | 4      | 5       |
| Swelling on chest                       | 2      | 2       |
| Icthyosis                               | 2      | 2       |
| Pneumothorax                            | 2      | 2       |
| Acanthosis                              | 2      | 2       |
| Hypertrophic pulmonary osteoarthropathy | 1      | 1       |
| Hyper pigmentation                      | 1      | 1       |

|                                   |    |    |
|-----------------------------------|----|----|
| <b>Radiological presentations</b> |    |    |
| Mass                              | 63 | 77 |
| Pleural effusion                  | 13 | 16 |
| Collapse consolidation            | 5  | 6  |
| Rib destruction                   | 2  | 2  |
| Pneumothorax                      | 2  | 1  |
| Lung abscess                      | 1  | 1  |
| Cavitation                        | 1  | 1  |
| Elevated hemi diaphragm           | 1  | 1  |
| Multiple pulmonary nodule         | 1  | 1  |
| Lymphangitis carcinomatosa        | 1  | 1  |
| Fibrosis                          | 1  | 1  |
| <b>Histological types</b>         |    |    |
| Adenocarcinoma                    | 34 | 42 |
| Squamous carcinoma                | 14 | 17 |
| Small cell carcinoma              | 14 | 17 |
| Undifferentiated                  | 13 | 16 |
| Large cell carcinoma              | 6  | 7  |

**Table: 3 – Distribution of radiological and histological findings in the study populations**

| Involvement          | Number | %     |
|----------------------|--------|-------|
| Adenocarcinoma       |        |       |
| Peripheral mass      | 25     | 73.52 |
| Central mass         | 9      | 26.47 |
| Squamous carcinoma   |        |       |
| Central              | 9      | 64.28 |
| Peripheral           | 4      | 28.57 |
| Abscess              | 1      | 1.23  |
| Small Cell carcinoma |        |       |
| Central              | 12     | 85.71 |
| Peripheral           | 2      | 14.28 |
| Large cell carcinoma |        |       |
| Central              | -      | -     |
| Peripheral           | 6      | 100   |



## DISCUSSION

Lung cancer, the most common malignancy diagnosed worldwide accounts for the highest mortality among cancers. Several epidemiological studies published from India have confirmed the significant burden of lung cancer in the Indian population. We analyzed the clinical, epidemiological and diagnostic profile of patients with primary bronchogenic carcinoma admitted in a tertiary care teaching hospital in South India. The mean age at diagnosis was 65.25 with a male to female ratio of 8:1. This is similar to other Indian studies which showed the most common affected population was adult males [1-3].

In the study population, 86.41% were smokers. In spite of anti-tobacco measures taken by the Indian Government, the prevalence of smokers among lung cancer continues to be high, even in recent studies [4]. Cough is the commonest presenting complaint in Indian studies [5]. Fifty five patients presented with symptoms less than 3 months duration. This is similar to Indian studies reported previously where the mean duration of symptoms was less than 6 months.

Lymphadenopathy, pallor and clubbing were present in 43%, 42% and 23% cases respectively. Studies have documented the prevalence of pallor to be around 45% among Indian patients with lung cancer [6]. The incidence of paraplegia at presentation in lung cancer has reduced (2.5% in our study) [7].

The commonest radiological findings on chest X-ray was mass lesion (78%) and this is concurrence with other Indian studies [8]. The major histopathological subtype was adenocarcinoma (42%). This trend of rise in adenocarcinoma in the Indian population appears to match the global trend [9].

## REFERENCES

1. Rawat J, Sindhwani G, Gaur D, Dua R, Saini S. Clinico-pathological profile of lung cancer in Uttarakhand. *Lung India*. 2009;26(3):74-6.
2. Khan NA, Afroz F, Lone MM, Teli MA, Muzaffar M, Jan N. Profile of lung cancer in Kashmir, India: A five-year study. *Indian J Chest Dis Allied Sci*. 2006;48(3):187-90.
3. Behera D, Balamugesh T. Lung cancer in India. *Indian J Chest Dis Allied Sci*. 2004;46(4):269-81.
4. Rai DK, Kumar A, Kumar A, Kumar A, Thakur S. A clinico-radiological and pathological profile of patients of lung cancer presenting to All India Institute of Medical Sciences (Patna). *East J Med Sci*. 2017; 2(1):8-11
5. Sharma T, Ghewade B, Jadhav U, Chaudhari S. Clinical profile of lung cancer at Acharya Vinoba Bhave Rural Hospital. *Journal of Datta Meghe Institute of Medical Sciences University*. 2017 Jan 1;12(1):41.
6. Kshetrimayum S, Srivastava A, Kant S, Verma AK, Prakash V, Bajaj DK, Husain N, Bhatt ML. A study of the sociodemographic, clinical, pathological and radiological profile of lung cancer in a tertiary care center. *International Journal of Advances in Medicine*. 2016 Dec 24;3(4):920-7.
7. Bharate Ramesh Tukaram, D G Mhaisekar, Anil Maske. Clinical profile of lung cancer patients. *MedPulse International Journal of Medicine*. February 2017; 1(2): 54-58.
8. Mandal SK, Singh TT, Sharma TD, Amrithalingam V. Clinico-pathology of lung cancer in a regional cancer center in Northeastern India. *Asian Pacific Journal of Cancer Prevention*. 2013;14(12):7277-81.
9. Noronha V, Pinninti R, Patil VM, Joshi A, Prabhash K. Lung cancer in the Indian subcontinent. *South Asian Journal of Cancer*. 2016;5(3):95-103.