MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.59218/makrjms.2024.3.331.335

OPEN ACCESS

Key Words
Lung cancer, histopathological confirmation, thoracoscopy

Corresponding Author
S.Veni Krishna,
Department of Pulmonary Medicine, Travancore Medical College, Kollam, Kerala, India

Author Designation
[1]Associate Professor
[2]Assistant Professor

Received: 31 January 2024
Accepted: 27 February 2024
Published: 28 March 2024

Citation: S. Veni Krishna and S.L. Sajith 2024. Clinical profile of patients with lung cancer at a tertiary care hospital Res. J. Med. Sci., 18: 331-335, doi: 10.59218/makrjms.2024.3.331.335

Clinical Profile of Patients with lung Cancer at a Tertiary Care Hospital

[1]S. Veni Krishna and [2]S.L. Sajith
[1,2]Department of Pulmonary Medicine, Travancore Medical College, Kollam, Kerala, India

ABSTRACT
Symptoms such as fever, cough, expectoration, hemoptysis, weight loss and anorexia are common to tuberculosis and lung cancer. In India where tuberculosis is rampant, it is not uncommon to find a lung cancer being treated for tuberculosis or chronic obstructive airway disease. All patients with suspected lung cancer; who were referred to the outpatient department of Oncology and Pulmonary medicine of AIMS for confirmation was included. They undergo initial evaluation which include history, physical examination, complete blood count, biochemical studies and chest X ray PA view. Computer tomography was done for all patients. For histopathological confirmation of lung cancer either bronchoscopic biopsy, per cutaneous USG/CT guided fine needle aspiration or biopsy, thoracoscopic pleural biopsy was done. Majority of patients had combination of symptoms. Cough was the commonest symptoms being present in 87.68% patients. Other common symptoms included shortness of breath, loss of weight and hemoptysis. In known patients with chronic obstructive pulmonary disease, there was a change in nature of cough or severity of symptoms. Less frequently encountered symptoms included hoarseness of voice and dysphagia. Three patients were asymptomatic at presentation.

INTRODUCTION

Lung cancer remains one of the most common malignancies causing very high morbidity and mortality. This is the leading cause of cancer related death in developed countries and is rising at an alarming rates in developing countries[1]. There is direct association of tobacco smoking and other pollutants and toxic exposures to lung cancer making it the leading preventable cause of death. Lung cancer was a rare disease before the advent of cigarette smoking and was not even identified as a distinct disease until 1761[2]. Since the early 1900's, lung cancer rates have grown until now where it is a national epidemic[3]. Poor awareness about harmful effects of smoking of various types has led to increased number of patients with lung cancer. Although smoking is considered as one of the major causes of lung cancer; most smokers did not develop lung cancer, indicating the role of additional cofactors for lung carcinogenesis. Several studies have been carried out to identify the etiological factors of lung cancer. Various lifestyle factors also play an important role in lung cancer etiology.

Symptoms such as fever, cough, expectoration, hemoptysis, weight loss and anorexia are common to tuberculosis and lung cancer. In India where tuberculosis is rampant, it is not uncommon to find a lung cancer being treated for tuberculosis or chronic obstructive airway disease[4]. Despite advances in imaging techniques and treatment modalities the prognosis of lung cancer remains poor, with a five-year survival 14% in early stages and less than 5% in locally advanced stages[5,6]. Unfortunately only 20-30% of patients present with an operable disease, while most of the patients present in an advanced stage. Progressive survival extension and increasing cigarette smoking has led to a numerical rise of patients with primary lung cancer in India. Overall, lung cancer has a high mortality with some variation between the different types and stages of carcinoma. For these reasons, it is more pertinent to focus on prevention rather than treatment of lung cancer.

MATERIALS AND METHODS

Study Design: Cross-sectional study.

Inclusion Criteria:

- Patients with a definite histopathological diagnosis of bronchogenic carcinoma in the form of bronchoscopic or transthoracic biopsy/cytology
- Patients with indirect evidence of bronchogenic carcinoma in the form of positive sputum or pleural fluid cytology or pleural biopsy with CT thorax showing evidence of a lesion consistent with bronchogenic carcinoma
- Patients with indirect evidence of bronchogenic carcinoma in the form of cytologic or histologic evidence of metastatic malignancy with CT thorax demonstarting a lesion consistent with bronchogenic carcinoma

Exclusion Criteria:

- Patients with definite histological evidence of active extra-pulmonary malignancy were excluded from the study

All patients with suspected lung cancer; who were referred to the outpatient department of Oncology and Pulmonary medicine of AIMS for confirmation was included. They undergo initial evaluation which include history, physical examination, complete blood count, biochemical studies and chest X ray PA view. Computer tomography was done for all patients. For histopathological confirmation of lung cancer either bronchoscopic biopsy, per cutaneous USG/CT guided fine needle aspiration or biopsy, thoracoscopic pleural biopsy was done. Pleural fluid analysis, cytological examination of regional lymph nodes and metastatic deposits was done in appropriate cases. CT scan of abdomen, brain or other parts of body was done in selected cases if suggestive symptoms of involvement are present. A standardized questionnaire was prepared for collecting data of included patients. Details including age, sex, occupation, smoking history, chief complaints, radiological findings, method of diagnosis, histopathological diagnosis and clinical stages was entered in the preform. Statistical analysis was done on the data collected.

Sample Size: This was a study regarding distribution of lung cancer cases in Amrita Institute of medical sciences in relation to demographics and clinical variables. Hence sample size is not computed for estimation of a parameter or testing the statistical significance of a hypothesis. Based on the availability and time factor it is anticipated that a minimum of 100 lung cancer cases were available for my study.

RESULTS AND DISCUSSIONS

Most patients fall in the age group between 61-70 years. Seventy four patients were above 61 years of age. The youngest patient was aged 36 years and the oldest 86 years. The overall mean age of study subjects was 65.25 years [SD 9.36]. For male patients, the mean age was 67.73 years and for female patients it was 62.62 years. Of the 100 study subjects, 76 were males and 24 were females. The overall male: female ratio was 3.16: 1. Of 76 males, 75% belonged to age group

between 51 -70 years, and in females, 58% were in age group between 51-70 years.

Majority of the study subjects were unskilled workers [42%]. There were 22% of unemployed people in the study group, of which 17 patients [77%] were females. Majority of patients were current or ex-smokers. Overall 60% of the patients were smokers while 40% were non-smokers. 21% of the males were nonsmokers and 100% of female patients were non-smokers. The overall smoker: non-smoker ratio was 1.5: 1. The male smoker: nonsmoker ratio was 3.75: 1. Of non-smokers, 10 patients [25%] had history of exposure to passive smoking. The mean age of smokers was 67.87 with SD [07.16] and for nonsmokers it was 61.33 with SD of [10.88]. This difference was found to be statistically significant with a p value of 0.001. Of the 60 smokers encountered in the present study, 33.33% were both bidi and cigarette users. Twenty one patients [35%] were exclusive cigarette smokers. There were no smokers in the age below 50 yrs. Of the 60 smokers encountered in the present study, 45 subjects had pack years of less than 30. 15 patients [25%] had pack years above 30. Average pack years of study subjects was 17.68. Apart from smoking, there were other risk factors like burning of wood, construction site works, exposure to asbestos and chemical fumes.

Majority of patients had combination of symptoms. Cough was the commonest symptoms being present in 87.68% patients. Other common symptoms included shortness of breath, loss of weight and hemoptysis. In known patients with chronic obstructive pulmonary disease, there was a change in nature of cough or severity of symptoms. Less frequently encountered symptoms included hoarsness of voice and dysphagia. Three patients were asymptomatic at presentation. Mean duration of symptoms in the present study was found to be 10 weeks. The shortest duration of symptom was 7 days and longest being 1 year, which was seen in 3 subjects. There were 3 asymptomatic patients out of 100 subjects. They were referred on the basis of radiological findings which was detected when done for other reasons. There were also patients who presented with paraneoplastic syndromes like syndrome of inappropriate antidiuretic hormone secretion [2%], subacute sensory neuropathy [2%], hypertrophic osteoarthropathy [1%] and palmoplantar keratosis in 1%. General examination findings included clubbing [53%], peripheral lymphadenopathy [14%], evidence of superior venacaval occlusion in 2% of cases. 1 patient presented with pneumothorax and there were 31% cases with pleural effusion. All 100 patients had abnormal chest radiograph at presentation. Common patterns included mass lesion in 65% of cases, followed by pleural effusion in 31% of cases. Less commonly observed features included cavitation, lymphangitis carcinomatosis and rib destruction. All patients who had alveolar opacities were later diagnosed as broncho alveolar carcinoma. 21 out of 31 pleural effusions were due to adenocarcinoma [67%]. There is predominance of right side in 60% of cases. Mass lesions, consolidatory changes were mainly involving the right upper lobe [26%]. Fifty four percent of cases were peripherally located.

The commonest clinical symptoms which were encountered in the present study included change in nature of cough and change in the severity of dyspnoea [85% and 63% respectively]. Other common symptoms included weight loss, chest pain and hemoptysis. This was in accordance with a similar study by Jindal and Behera *et al*[7]. (1990) who reported cough (88%) as the most common presenting symptom. Other findings by Jindal *et al*[8]. included chest pain (52.2%), and hoarseness of voice in 29.99% patients. They said unexplained cough for more than several weeks should lead to a high degree of suspicion. In the present study hemoptysis was seen only in 25% of patients, which was similar to the study by Jagadish *et al*[9]. in 2009 [25.12%]. It was found that

Table 1: Age distribution of patients with carcinoma lung [n= 100]

Age group	Number of patients
31-40	2
41-50	4
51-60	20
61-70	51
71-80	19
Above 80	4
Total	100

Table 2: Sex distribution in various age groups in patients with carcinoma lung

Age group	NO. of males	NO. of females
31-50	2 [02.63]	4 [16.66]
51-70	57[75.00]	14[58.33]
above 71	17[22.36]	6 [25.00]
Total [n= 100]	76	24

Table 3: Occupation of patients with carcinoma lung [n= 100]

Occupation	Males	Females	Total Number
Professional	2	4	6
Skilled	29	1	30
Unskilled	40	2	42
Unemployed	5	17	22
Total	76	24	100

Table 4: Age wise smoking habits of patients with carcinoma lung

Age group	Number of smokers	Percentage of smokers
31- 50 [n=6]	0	00.00
51-60 [n= 21]	10	47.60
61-70 [n= 50]	35	70.00
71-80 [n= 19]	12	63.15
Above 80[n= 4]	3	75.00
Total [n= 100]	60	100.00

Table 5: Mean age of smokers and nonsmokers in lung carcinoma patients

Mean age	Smokers [SD]	Nonsmokers [SD]	P-value
	67.87 [07.16]	61.33 [10.88]	0.001

Table 6: Pattern of smoking of patients with carcinoma lung

Number of smokers in age group	Exclusive bidi smokers	Exclusive cigarette smokers	Both bidi and cigarette smokers
31-50 [n =0]	0 [00.00]	0 [00.00]	0 [00.00]
51-60 [n=10]	5 [50.00]	3 [30.00]	2 [20.00]
61- 70 [n= 35]	10[28.55]	13[37.14]	12 [34.28]
71-80 [n= 12]	4 [33.33]	3 [25.00]	5 [41.66]
Above 80 [n= 3]	0 [00.00]	2 [66.66]	1 [33.33]
Total [n= 60]	19 [31.66]	21 [35.00]	20 [33.33]

Table 7: Severity of exposure to tobacco smoke of patients with carcinoma lung [n= 60]

Pack Years	Number [n=60]
Less than 30	45 [75.00]
30-60	13 [21.66]
Above 60	02 [03.33]

Table 8: Exposure history in patients with carcinoma lung [n= 100]

Pollutants	Number
Chemical fumes	5
Wood	10
Asbestos	3
Tile work	2

Table 9: Symptoms of patients with carcinoma lung at presentation [n= 97]

Symptoms	Number	Percentage
Hemoptysis	25	25.77
Cough	85	87.68
Chest pain	39	40.20
Shortness of breath	63	64.94
Dysphagia	3	03.09
Hoarsness	6	06.18
Weight loss	58	59.79

Table 10: Examination findings of patients with carcinoma lung [n= 100]

Findings	No. of cases
Clubbing	53
Peripheral lymphadenopathy	14
SVC obstruction	02
Hemiparesis	03
Pleural effusion	31
Pneumothorax	01

Table 11: Radiological features of patients with carcinoma lungs [n=100]

Appearance	Number
Mass lesion	65
SPN	02
Consolidation	29
Pleural effusion	31
Collapse	25
Others	26

Table 12: Side of involvement in patients with carcinoma lungs [n=100]

Side of Lesion	Number
Right	60
Left	40

symptoms like shortness of breath and hemoptysis were more common with central tumours like squamous cell carcinoma [78%]. There was no statistically significant difference between the presenting symptoms between smokers and nonsmokers. This was similar to the study by Norohva *et al*[10]. which also demonstrated no statistical significant difference between smokers and non-smokers. The mean duration of symptoms was less in the present study when compared to other Indian studies. In study by Jindal, Behera *et al*[7]. 46.4% had symptoms between 3-6 months. Most cases were treated as tuberculosis for varying periods of time before a diagnosis was made. In the present series also, 14 patients received prior antituberculous treatment. Wang *et al.,* observed that the diagnosis of lung cancer in 47 patients (70% of all patients below 40 years) was delayed, with an erroneous diagnosis of tuberculosis in 55% of patients[11]. A paradigm shift is needed in the thinking of clinicians that lung cancer is not purely a smoking-related disease, nor should every chest shadow raise a suspicion of only tuberculosis.

Most common radiological finding in lung cancer patients in this study was mass lesion which was found in 65%. It was right side in 60% and left side in remaining 40% patients. Khan *et al*[12]. (2006) also observed 63% lesion in the right lung. Other radiological findings included mediastinal widening (35%), collapse [25%], consolidation (29%) and pleural effusion in 31%. In a study of 336 patients with bronchogenic carcinoma carried out in Chandigarh by S.K. Jindal *et al*[8]. commonest finding was an opacity with or without collapse (64%) and pleural effusion (23%). In a study by Jagdish *et al*[9]. mass lesions was reported in 46.31% cases, collapse-consolidation in 40.89 and pleural effusion in 4.43% cases. There is wide variability in these observations in different studies; however the finding of a mass lesion at the time of diagnosis of lung cancer is high. Symptoms arise only once the lesion grows or has metastasized; which can explain the variability in presentation at different times.

The mean age of patients with lung carcinoma in the present study was 65.5 years. It was different from most of the previous Indian studies which reported a mean age of 56.8 yrs. Few recent studies by Prabhat *et al*[13]. and Gupta *et al*[14]. had reported the commonest age group as 51-70 yrs, which was similar to the present study. Previous studies by Arora *et al*[15]. and Thippana *et al*[16]. showed the commonest age group as 40-60 yrs, which was quite different from the present studies. This observation confirms the established fact of increasing incidence of lung cancer as the age advances and need of detailed evaluation of elderly patients who present with features suggestive of lung cancer.

The male: female ratio of patients with lung carcinoma has varied in different studies. The present study showed a male: female ratio of 3.16:1 which was lower than most of the previously reported studies. The higher prevalence of lung cancer in males may be a result of the greater frequency of smoking in men

and of a higher exposure to atmospheric pollution due to increased outdoor activities in comparison to women in India. Our results were similar to most of the studies in other parts of the globe that have reported that the incidence of lung cancer among women is on rise. The dramatic increase of lung cancer among women all over the world is attributed to increase in cigarette consumption that is a well-known major risk factor for the development of lung cancer. In the current study, 60% of male patients were smokers while none of the female patients had history of smoking. This again is in contrast with another study that reported active tobacco smoking in females to be as high as 85 percent.

CONCLUSION

All 100 patients had abnormal chest radiograph at presentation. Common patterns included mass lesion in 65% of cases, followed by pleural effusion in 31% of cases. Less commonly observed features included cavitation, lymphangitis carcinomatosis and rib destruction. All patients who had alveolar opacities were later diagnosed as bronchoalveolar carcinoma. 21 out of 31 pleural effusions were due to adenocarcinoma [67%].

REFERENCES

1. Khuri, F.R., R.S. Herbst and F.V. Fossella, 2001. Emerging therapies in non-small-cell lung cancer. Ann. Oncol., 12: 739-744.
2. Morgagni and G. Battista, 0000. De Sedibus, et Causis Morborum Per Anatomen Indagatis Libri Quinque. B and L Rootenberg Rare Books, ABAA., Sherman Oaks, Los Angeles, California, USA.,
3. Ries, L.A.G., D. Melbert, M. Krapcho, D.G. Stinchcomb, N. Howlader et al. 2008. SEER Cancer Statistics Review, 1975-2005. National Cancer Institute, Bethesda, Maryland, USA., https://seer.cancer.gov/archive/csr/1975_2005/index.html
4. Behera, D. and S. Kashyap, 1988. Pattern of malignancy in a north Indian hospital. J. Indian Med. Assoc., 86: 28-29.
5. Maghfoor, I. and M.C. Perry, 2005. Lung cancer. Ann. Saudi Med., 25: 1-12.
6. Mountain, C.F., 1986. A new international staging system for lung cancer. Chest, 89: 225-233.
7. Jindal, S.K. and D. Behera, 1990. Clinical spectrum of primary lung cancer-review of chandigarh experience of 10 years. Lung India, 8: 94-98.
8. Jindal, S.K., S.K. Malik, A.K. Malik, K. Singh, J.S. Gujral and J.S. Sodhi, 1979. Bronchogenic carcinoma (a review of 150 cases). Indian J. Chest. Dis. Allied Sci., 21: 59-64.
9. Rawat, J., G. Sindhwani, D. Gaur, R. Dua and S. Saini, 2009. Clinico-pathological profile of lung cancer in uttarakhand. Lung India, 26: 74-76.
10. Noronha, V., R. Dikshit, N. Raut, A. Joshi and C.S. Pramesh *et al.* 2012. Epidemiology of lung cancer in India: Focus on the differences between non-smokers and smokers: A single-centre experience. Indian J. Cancer, 49: 74-81.
11. Wang, T., H. Ren, Z. Li, Z. Zhang, C. Sun and L. Xu, 1993. Misdiagnosis of lung cancer in patients under age 40-a clinical analysis of 47 cases. Chin. Med. Sci. J., 8: 95-97.
12. Khan, N.A., F. Afroz, M.M. Lone, M.A. Teli, M. Muzaffar and N. Jan, 2006. Profile of lung cancer in Kashmir, India: A five-year study. Indian J. Chest Dis. Allied Sci., 48: 187-190.
13. Malik, P.S., M.C. Sharma, B.K. Mohanti, N.K. Shukla and S.V.S. Deo *et al.,* 2013. Clinico-pathological profile of lung cancer at aiims: A changing paradigm in India. Asian Pac. J. Cancer Prev., 14: 489-494.
14. Gupta, D., P. Boffetta, V. Gaborieau and S.K. Jindal, 2001. Risk factors of lung cancer in Chandigarh, India. Indian J. Med. Res., 113: 142-150.
15. Arora, V.K., M.L. Seetharaman, S. Ramkumar, T.V. Mamatha *et al.* 1990. Bronchogenic carcinoma: Clinicopathological pattern in south Indian population. Lung India, 8: 133-136.
16. Thippanna, G., K. Venu, V. Gopalakrishnaiah, P.N. Reddy and B.G. Charan, 1999. A profile of lung cancer patients in Hyderabad. J. Indian Med. Assoc., 97: 357-359