Original research article

Clinicohistopathologic and Radiological Profile of Lung Cancer

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Abstract

Background and objectives: Lung cancer is one of the most common cancers and cause of cancer related deaths throughout the world. In India, it is the commonest type of cancer among males accounting for 10.9% of all cancer cases. The clinical presentation of these patients can be so varied. Early diagnosis and treatment might be helpful in these patients. In this study we aim to analyse the clinicopatholgical and radiological profile of lung cancer patients.
Study Design: Hospital based cross-sectional study.
Subjects: 75 patients with suspected neoplastic lung lesions attending to the Department of Tuberculosis and Chest Medicine were included in the study. Patients with metastatic lung lesions resembling lung malignancy were excluded from the study.
Results: Majority of the subjects were in the age group of 61 to 70 years (25%). Most of the subjects were males (90.7%). The most common tumour was squamous cell carcinoma (84%), followed by adenocarcinoma (10.7%). Mostly the patients presented with breathlessness. There was no significant association between cigarette smoking and type of lung cancer. In both smokers and non smokers squamous cell carcinoma was the most predominant type.
Conclusion: It was concluded that old age is a major risk factor for lung cancer. Predominant symptom of lung cancer was breathlessness. On bronchoscopic examination, most of the lesions were intraluminal. Squamous cell carcinoma was the most predominant type of carcinoma and there was no significant association between smoking and type of lung carcinoma.

Keywords: Lung cancer, breathlessness, Squamous cell carcinoma, Adenocarcinoma, Smoking

Introduction

Lung cancer is one of the most common malignant neoplasms worldwide. It accounts for the largest number of cancer related deaths than any other type of cancer. It has a very bad prognosis and accounts for 12.7% of all new cancer cases and 18.2% of all cancer related deaths, throughout the world. In India, it is the commonest and most lethal cancer among males accounting for 10.9% of all cancer cases and 13% of cancer related mortality.[1] Cigarette smoking has been identified as the major risk factor of this type of cancer. 87 to 90% of all tracheal, bronchial and lung cancers may be attributed to smoking.[2] A landmark study in U.K was carried by Doll and Hill, reported in the British Medical Journal, it was repeated once again after 40 years in 1994, estimating that the link was in fact even stronger than initially suggested[3]. There are wide variations in the pattern of lung cancer in terms of the geographical location, gender, age and ethnicity.

Various risk factors have been attributed to the development of lung cancer with cigarette smoking being the most important of all. Lung cancer is almost exclusively a smoker's disease and both incidence and mortality are directly related to the degree of cigarette use that occurs in a population.[4] However, histological cell types may vary with changes in the social and other environmental factors.[5] In this study we aim to study the demographic pattern, clinical, pathological characteristics and radiological profile of lung cancer in northern part of Kerala.

Materials and Methods:

The study was conducted in Kannur Medical College Hospital, Anjarakandy, Kannur, Kerala. It is a hospital based retrospective cross sectional study. The study was conducted over a period of one year. Institutional ethical committee clearance was obtained. Data was collected from patients with clinical suspicion of a lung mass. Patients with suspected neoplastic lung lesions attending to the Department of TB and Chest Medicine were included in the study and patients with metastatic lung lesions and chronic inflammatory diseases resembling lung malignancy were excluded from the study. After obtaining informed written consent, demographic details, clinical history and radiological findings were documented.

Representative samples (Washings/brushings and biopsy) were obtained by diagnostic bronchoscopy for further evaluation.

Results:

Data was entered in Microsoft Excel spread sheet and was analyzed using SPSS 22 statistical software. Qualitative data was represented as frequencies, proportions, and chi-square test was used as test of significance. P value< 0.05 was considered as statistically significant.

In our study, majority of subjects were in the age group from 61 to 70 yrs (25%)[Table 1], followed by 51 to 60 yrs (23%), > 70 yrs (18.7%) and in < 50 yrs (17.3%). Majority of subjects were males (90.7%) and females were 9.3%[Table 2].

In males Squamous cell carcinoma(92.6%) was the most common malignancy and in female adenocarcinoma(85.7%) was the most common malignancy[Table 3]. Most of the patients presented with breathlessness 73.3%, 61.3% presented with cough & 5.3% presented with hemoptysis[Table 4],. In our study majority (50.7%) of subjects had symptoms between 1 to 6 months, 29.3% had symptoms for > 6 months & 20% had symptoms for < 1 month[Table 5]. In the study 50.7% were habitual smokers, 4% had history of Pulmonary Tuberculosis, 1.3% had history of occupational disease and malignancy respectively[Table 6]. There was no

significant association between smoking and type of neoplasm. In both smokers and non smokers squamous cell carcinoma was the most common type of carcinoma.

Table I: Age distribution of subjects

		Frequency	Percent
Age	<50 yrs	13	17.3
	51 to 60 yrs	23	30.7
	61 to 70 yrs	25	33.3
	> 70 yrs	14	18.7
	Total	75	100.0

Table II: Gender distribution of subjects

		Frequency	Percent
Gender	Male	68	90.7
	Female	7	9.3
	Total	75	100.0

Table III: Gender wise distribution of malignancy

Histological type	Gender			
	Male		Female	
	Count	%	Count	%
Adenocarcinoma	2	2.9%	6	85.7%
Squamous cell carcinoma	63	92.6%	0	0.0%
Small Cell Carcinoma	2	2.9%	1	14.3%
Pulmonary Carcinoid	1	1.5%	0	0.0%

$\chi 2 = 49.396$, df = 3 , $p < 0.001$*

Table IV: Presenting complaints in subjects

Symptoms	Present	
Breathlessness	55	73.3%
Cough	46	61.3%
Hemoptysis	4	5.3%

Table V: Duration of Symptoms in subjects

		Frequency	Percent
Duration	< 1 month	15	20.0
	1 to 6 months	38	50.7
	> 6 months	22	29.3
	Total	75	100.0

Table VI: Past History in subjects

		Count	%
History of Smoking	Nonsmoker	37	49.3%
	Habitual Smoker	38	50.7%
History of Pulmonary Tuberculosis	Present	3	4.0%
	Absent	72	96.0%
History of occupational lung disease	Present	1	1.3%
	Absent	74	98.7%
History of Malignancy	Present	1	1.3%
	Absent	74	98.7%

Table VII: Radiological Findings in X-Ray

		Count	%
Type of Lesion	Mass Lesion	58	77.3%
	Collapse	10	13.3%
	Cavitatory	5	6.7%
	Opacity	2	2.7%
Site of Lesion	Right Side	36	48.0%
	Left side	18	24.0%
	Hilar	21	28.0%

Table VIII: Bronchoscopic Findings in subjects

		Count	%
Type of Lesion	Intraluminal	58	77.3%
	Extra luminal	17	22.7%
Site of Lesion	Right Upper Lobe	21	28.0%
	Right Middle Lobe	23	30.7%
	Right Lower Lobe	9	12.0%
	Left Upper Lobe	13	17.3%
	Left Lower Lobe	9	12.0%

Table IX: Histopathological diagnosis in subjects

		Count	%
Histological type	Adenocarcinoma	8	10.7%
	Squamous cell carcinoma	63	84.0%
	Small Cell Carcinoma	3	4.0%
	Carcinoid	1	1.3%

Table X: Association between Smoking and Diagnosis of pulmonary neoplasms

		History of Smoking			
		Nonsmoker		Habitual Smoker	
		Count	%	Count	%
Histological type	Adenocarcinoma	7	18.9%	1	2.6%
	Squamous cell carcinoma	27	73.0%	36	94.7%
	Small Cell Carcinoma	2	5.4%	1	2.6%
	Pulmonary Carcinoid	1	2.7%	0	0.0%

χ 2 = 7.107, df = 1 , p = 0.069

Discussion:

The aim of our study was to analyze the clinicopathological and radiological profile of lung cancer patients. In our study majority of the subjects were in the age group of 61 to 70 years (25%) which is similar to studies done by Shagufta Tahir Mufti et al[6]. In the present study most of the subjects were males (90.7%) which was similar to the study done by RecepBedir et al.[7]. 50.7% of male subjects were habitual smokers, which is not in concordance with the studies done by Anitha Bodh et al[8]. In our study radiological examination (X-Ray) revealed that most of the patients had mass lesions (77.3%)[Table 7], which was similar to the finding obtained from a study done by A. R. M. Fauzi et al [9]. On bronchoscopic examination it was observed that majority of lesions were intraluminal (77.3%) which was similar to the findings obtained by studies done by Dr. Anupam Sarma et al [10] and J. Rawat et al [11] [Table 8]. In the present study, squamous cell carcinoma was the most common type of tumor[Table 9], which is accordance with other studies done by Eva Piya et al[12], Recep Bedir et al[7], Monisha Choudary et al [13], AB Fuladi et al [14] and Anitha Bodh et al [8]. In our study it was observed that in males Squamous cell carcinoma (92.6%) is the most common malignancy and in females adenocarcinoma (85.7%) is the most common type, a similar finding was observed in a study done by Dr Anupam Sarma et al [10].

Conclusion:

Lung cancer is the most frequently diagnosed and the commonest cause of cancer related mortality throughout the world. In our study majority of the subjects were in the age group from 61 to 70 years with male predominance (90.7%). It was observed that radiological findings revealed majority had mass lesion (77.3%) and most of the lesions were on the right side of lung (48%). On bronchoscopic examination the lesions were predominantly intraluminal (77.3%). In males Squamous cell carcinoma was the most common malignancy (92.6%) and in females Adenocarcinoma was the most common malignancy (85.7%). It was observed that there was no significant association between smoking and type of cancer. In both smokers and nonsmokers Squamous cell carcinoma was the most common type of cancer. The main limitation of this study was that the sample was smaller and not representative of the entire population.

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