



CLINICORADIOLOGICAL PROFILE OF CARCINOMA LUNG AT TERTIARY CARE CENTRE

Respiratory Medicine

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ABSTRACT

Introduction: Lung cancer is one of the most common malignancies and a major factor in cancer-related deaths worldwide. Lung cancer seems to be becoming more common in India than in the western population. **Material And Methods:** This is Prospective and observational study of 100 Patients with diagnosed Carcinoma of Lung. This study was conducted as out patient and inpatient in Department of Respiratory Medicine Mahatma Gandhi Medical College & Hospital, Jaipur over period from March 2021 to June 2022. The clinical history of the patients was recorded in detail along with the radiological analysis. Ethical clearance certificate was obtained from the ethical committee. **Objective:** To study the Clinico-Radiological profile and Demographical profile of Carcinoma of lung. **Result:** 100 patients of carcinoma lung were included in the study; among them 48% were in > 60 year of age group. 75% of our study subjects were males while 25% were females. 69 % of cases in our cohort had a history of smoking. Commonest symptom of carcinoma lung was cough (89%), followed by shortness of breath (75%). Most common sign were pallor (51%) and clubbing (40%). Most common comorbidity was COPD (28%) & Diabetes (28%), followed by Hypertension (27%). Right lung (58%) was more commonly involved being right upper lobe (30%) frequently involved followed by left upper lobe (25%). Radiological presentation profile of Ca lung the most common finding was mass (83%) Followed by Hilar prominence (65%). **Conclusion:** This study showed that lung cancer should be suspected in an elderly male presenting with cough, shortness of breath, chest pain and hemoptysis; and are found to have pallor, clubbing & lymphadenopathy on presentation. The radiologically mass lesion is the most common presentation.

KEYWORDS

Smoking, lung carcinoma, clinicoradiological.

INTRODUCTION

Lung cancer is one of the most common malignancies and a major factor in cancer-related deaths world wide, with 2.2 million new cases and 1.79 million mortalities from cancer in 2020, it is the leading cause of death amongst all other types of cancers.^[1] Lung cancer seems to be becoming more common in India than in the western population.^[2] In 2018, 57,795 new cases of cancer were reported to the Indian Council of Medical Research cancer registry; by 2025, this number is expected to rise to 67,000 new cases annually.^[3]

Lung cancer is linked to smoking cigarettes, beedis, and hookahs.^[4] Smoking cigarettes increases a person's risk of developing lung cancer by 15 to 30 times compared to non-smoker.^[5] The consequences of local tumour development, regional tumour growth or lymphatic system dissemination, hematogenous distant metastatic spread, remote paraneoplastic effects from tumour products, or immunological cross-reaction with tumour antigens, lead to the clinical symptoms of lung cancer.^[6]

Image-guided transthoracic biopsy or flexible fiberoptic bronchoscopy is usually used to make the diagnosis.

In this study, lung cancer patients from a tertiary care were studied with respect to their clinical and radiological patterns were examined. Therefore we planned this study with respect of the clinicoradiological pattern of carcinoma of lung.

MATERIALS AND METHODS

Study Design: Prospective, observational study

Sample Size: 100 Patients

Study Population: 100 Patients with diagnosed Carcinoma of Lung.

Place of Study :

This study was conducted as out patient and inpatient in Department of Respiratory Medicine Mahatma Gandhi Medical College & Hospital, Jaipur over period from March 2021 to June 2022.

Aim:

To study the Clinico-Radiological profile of Carcinoma of lung.

Inclusion criteria:

All the diagnosed patients of carcinoma of lung were included in the study.

Exclusion criteria:

- Thoracic metastasis from non-pulmonary origin.
- Patient who didn't give the consent.

Investigations-

- Radiological findings such as type of lesions, site of lesion, metastasis and other findings like collapse, consolidation etc. were noted.
- Other basic investigations- complete blood count, sugar, urea, serum creatinine, sputum smear examination, HIV testing was done.

Statistical analysis-

Descriptive statistics, Chi square test, Contingency table analysis, one sample 't' Test. The values obtained would be entered in excel sheet and then appropriate statistical tests would be applied to obtain the outcome using the SPSS software 2017.

OBSERVATIONS AND RESULTS

Table 1- Age & Sex Distribution of study subjects

AGE	No. of cases	Percentage
< 40	3	3
40 – 50	15	15
51 – 60	34	34
>60	48	48
Total	100	100
Sex	No. of cases	Percentage
Male	75	75%
Female	25	25%
Total	100	100%

Table 2: Status of smoking of study subjects

Smokers	Non-Smokers	Total
69 (69%)	31 (31%)	100 (100%)

Table 3: Symptoms and signs of Ca Lung in study subjects

Symptom	No.	Percentage
Cough	89	89
Shortness of breath	75	75
Loss of weight	58	58
Chest pain	52	52
Haemoptysis	49	49
Fever	27	27
Hoarseness of voice	21	21
Sign	No.	Percentage
Pallor	51	51
Clubbing	40	40
Lymphadenopathy	25	25
SVC obstruction	2	2

Table 4: Spectrum of comorbidities in study subjects

Comorbidity	No.	Percentage
COPD	28	28
Diabetes	28	28
Hypertension	27	27
Previous H/O ATT	25	25
CKD	10	10
Coronary artery disease	9	9
Asthma	6	6
Thyroid	2	2

Table 5: Site & side involvement in study subjects

Right and Left Lungs with Lobes				
	Upper	Middle / Lingular	Lower	Total
Right	30	12	16	58
Left	25	6	11	42
Total	55	18	27	100

Table 6: Radiological presentation profile of patients with Ca lung in study subjects:

Radiological profile	No.	Percentage
Mass	83	83
Hilar prominence	65	65
Collapse	63	63
Mediastinal widening	60	60
Cavitation	24	24
Pleural effusion	18	18
Bony erosion	01	01

DISCUSSION

The early 20th century saw a low incidence of primary lung cancer in India. However, lung cancer has reached pandemic levels in India as a result of longer life expectancy and higher smoking rate. Smoking is still considered a common risk factor of lung cancer, and the prevalence of smoking in a population has a direct impact on both lung cancer incidence and mortality.

Out of the total cases, the 48% of cases were in >60 year of age group

followed by 34% in 51 to 60 year of age group, 15% in 40 to 50 year of age group, 3% in <40 year of age group, Mean was 60.57 years and SD was 10.54 years. These are similar and comparable to earlier studies on India, by Malik P, Sharma et. al. who had a mean age of 61.45 years.^[7-9]

75% of all the patients affected were males while 25% of the patients affected were females which is highly significant, Chi square 50, p-value: 0.0001. The sex ratio in our study was 3:1 with a clear male preponderance. The sex ratio reported studies by Bhattacharya et. al, Lakshman Kumar et. al. ranged from 4.6:1 to 8.2:1^[49,50,51] compared to a study from USA where the male: female ratio was 3:2.7, demonstrated by Kanematsu T et. al. which is nearly equal.^[13]

According to the our study, 69% of participants were smoker, 31 patients did not have a history of smoking which is highly significant, P value 0.001. The ratio of smoker: never smoker ratio of 2.2:1. Similar observation was found in study by Navin Pandhi et. al. and Dhandapani S et. al. who found that ratios were 1.5:1 and 1.45:1, respectively.^[9,10] This suggests that smoking is the main contributing factor for lung cancer, as demonstrated by Behera et. al. as well^[11].

Most common lung involved right lung (58%) than left lung (42%). Most common lobe involved RUL (30%) followed by LUL (25%), RLB (16%), RMB (12%), LLL (11%), Left lingular lobe (6%). Lung cancers present more often on the right than the left side, and in the upper than in the lower lobes according studies by Lakshman Kumar et. al. and Dandapani S. et. al.^[12, 10] which is analogous to the observation made in our study.

In our study most common symptom was cough, occurring in 89% of patients. The result was consistent with earlier literature, demonstrated by Malik et. al, Bhattacharya et. al. and Lakshman Kumar et. al. wherein they had cough as the most occurring symptom in 70-95% of patients.^[13,14, 15] The second most common symptom was shortness of breath in our study 75% patients had shortness of breath as their presenting symptom. A study by Rajkrishnan Soman et al.^[16] demonstrated that shortness of breath was seen in about 64.65% of all patients.

Loss of weight was seen in 58% of our patients, which was similar to Rajkrishnan Soman et al.'s^[16]. Hemoptysis was seen in 49% of all our patients. This is more than a study conducted by AVS Anil Kumar et. al. who demonstrated that hemoptysis was present in only 24% patients.

The most common sign in the present study was pallor (51%) followed by finger clubbing (40%) which is differing from Navin Pandhi et. al. who reported finger clubbing as common finding. They demonstrated a finding of clubbing in 56% of their patients.

In the present study, comorbid conditions present in lung cancer patients were obstructive airway disease (28%) followed by diabetes mellitus (28%). This was consistent with findings noted by Mandal S et al. Next common comorbid conditions were Hypertension (27%), previous H/O ATT (25%), CKD (10%), coronary artery disease (9%), Asthma (6%), Thyroid (2%).

The most common radiological presentation seen in our study was mass lesion (83%) which was almost similar to that reported by various studies Prasad R et al., Laxman Kumar S et al., Dhandapani S et al.^[7, 15, 12] Next common radiological finding was unilateral hilar prominence seen in 65% of patients. Other common finding includes collapse (63%), mediastinal widening (38%), and cavity (24%).

Summary

The goal of the current study is to assess the radiological and clinical trends of lung cancer in a tertiary care setting.

- Lung cancer frequently struck older people, mostly men. There exists a male predominance with a ratio of male:female is 3:1.
- While various risk factors other than active smoking play a significant part in developing lung cancer in females and non-smokers, smoking was the primary contributing factor for lung cancer among smokers. In the current study, 90% of the men smoked.
- The most frequent initial symptom was a cough.
- Common concomitant illnesses that lung cancer patients frequently had were COPD followed by Diabetes mellitus.
- Mass lesions were the most typical radiological appearance. Upper lobe predominance and the most of the lesion were discovered on the right lung.

REFERENCES

1. Islami,Farhad,Lindsey A.Torre, and Ahmedin Jemal."Global Trends of Lung Cancer Mortality and Smoking Prevalence."Translational Lung Cancer Research 4.4 (2015): 327–338. PMC. Web. 12 Sept. 2017.
2. Takiar R,Nadayil D,Nandakumar A. Projections of number of cancer cases in India (2010-2020) by cancer groups.Asian Pac J Cancer Prev 2010;11: 1045-9.
3. Pakhale SS,Jayant A,Binde SV.Methods of reduction of harmful constituent in bidi smoke.Indian J Cest Dis Sci. 1985;27:148–152.
4. Parkin M,Tyczynski JE,Boffetta P.Tumours of the Lung Lung cancer epidemiology and aetiology;.Available at:<http://www.iarc.fr/en/publications/pdfs-online/patgen/bb10/bb10-chap1.pdf>
5. Janssen-Heijnen,M. (2003).The changing epidemiology of lung cancer in Europe.Lung Cancer, 41(3), pp.245-258.
6. Gould MK,Maclean CC Kuschner WG, Rydzak CE, Owens DK. Accuracy of positron emission tomography for diagnosis of pulmonary nodules and mass lesions:a meta-analysis.*JAMA* 2001; 285: 914-24.
7. Prasad R,James P,Kesarwani V,et al(20004).Clinicopathological study of bronchogenic carcinoma.Respirology, 9,557-60.
8. Navin Pandhi et al.Clinicopathological Profile of Patients with Lung Cancer Visiting Chest and TB Hospital Amritsar.Scholars Journal of Applied Medical Sciences(SJAMS),2015;3(2D):802-809
9. American Cancer Society.Cancer facts & figures.Atlanta, GA:American Cancer Society;2017.Kanematsu T,Hanibuchi M,Tomimoto H
10. Behera D,Balamugesh T (2004).Lung cancer in India.Indian J Chest Dis Allied Sci,46,269-281.
11. Kumar,P., Dikshit, R.,Pramesh,C.,Agarwal, J.,Noronha,V.,Raut,N., Karimundackal, G. and Munshi, A. (2012).Epidemiology of lung cancer in India:Focus on the differences between non-smokers and smokers: A single- centre experience. Indian Journal of Cancer,49(1),p.74.
12. Dhandapani S,Srinivasan A,Rajagopalan R,Chellamuthu S,Rajkumar A, Palaniswamy P.Clinicopathological Profile of Lung Cancer Patients in A Teaching Hospital in South India.J Cardiothorac Med. 2016;4(2):440-443.
13. Malik P, Sharma M, Mohanti B et al.Clinico-pathological Profile of Lung Cancer at AIIMS:A Changing Paradigm in India.Asian Pacific Journal of Cancer Prevention.2013;14(1):489-494.doi:10.7314/apjcp.2013.14.1.489.
14. Bhattacharyya,Sujit Kumar & Kumar & Mandal,Abhijit & Debasis, Deoghuria & Abinash, Agarwala & Ghoshal, Alope & Subir Kumar, Dey. (2011).Clinico-pathological profile of lung cancer in a tertiary medical centre in India:Analysis of 266 cases. J Dent Oral Hyg. 3.
15. Laxman Kumar S et al. Clinical-pathological and radiological profile of primary lung cancer in Western Rajasthan, India:Analysis of 310 cases. International Journal of Current Research.2015; 7(06):17066-1706.
16. Bhaskarapillai B, Kumar SS,Balasubramanian S (2012). Lung cancer in malabar cancer center in Kerala--a descriptive analysis.Asian Pac J Cancer Prev, 14,4639-43.