

CLINICORADIOLOGICAL AND PATHOLOGICAL CORRELATION OF LUNG CANCER PATIENTS PRESENTING TO A TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND

Lung cancer is the most common cancer worldwide since 1985, both in terms of incidence and mortality. Globally, lung cancer is the largest contributor to new cancer diagnoses and cancer-related deaths.

The aim of the study is to study the clinical, radiological and pathological features of patients diagnosed with lung carcinoma.

MATERIALS AND METHODS

This observational and cross-sectional study was conducted at Himalayan Institute of Medical Sciences (HIMS), which is a large tertiary centre of Uttarakhand on 77 patients of proven lung carcinoma diagnosed over a period of February 2015 to March 2016. The clinical history of the patients was recorded in detail along with the radiological and pathological findings. Ethical clearance certificate was obtained from the ethical committee.

RESULTS

The study included a total of 77 patients of proven lung carcinoma. Out of the total patients, 70 were males and 7 were females. Cough was the most common symptom. Smoking was the commonest addiction (89.61%) in the patients. Non-small cell carcinoma was seen in 59 patients while small cell carcinoma was seen in 23.38% of the cases. Amongst the total patients of non-small cell carcinoma, the maximum number of patients had squamous cell carcinoma (56%).

CONCLUSION

This study showed that smoking is a principle risk factor in causation of lung carcinoma. Lung cancer should be suspected in an old person presenting with cough and other symptoms such as malaise, weight loss etc. Squamous cell carcinoma is still the most common histological type of lung cancer in India.

KEYWORDS

Lung Carcinoma, Tertiary Care Centre, Uttarakhand, India.

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BACKGROUND

Lung cancer is the most common cancer worldwide since 1985, both in terms of incidence and mortality. Globally, lung cancer is the largest contributor to new cancer diagnoses (1,350,000 new cases and 12.4% of total new cancer cases) and to death from cancer (1,180,000 deaths and 17.6% of total cancer deaths).¹

In India, lung cancer constitutes 6.9 percent of all new cancer cases and 9.3 percent of all cancer-related deaths in both sexes. It is the commonest cancer and cause of cancer-related mortality in men.²

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According to World Health Organization (WHO), classification formulated in 1999; there are six major types of malignant epithelial Non-Small Cell Lung Carcinoma (NSCLC) and Small Cell Lung Carcinoma (SCLC).³ Smoking is the cause for more than 85% of the bronchogenic carcinoma cases.⁴

This study was conducted to review the clinical, radiological and pathological features of patients diagnosed with lung carcinoma at Himalayan Institute of Medical Sciences (HIMS), which is a major tertiary centre of Uttarakhand region.

MATERIALS AND METHODS

This observational and cross-sectional study was conducted on 77 patients of proven lung carcinoma, which were diagnosed at our hospital over a period of February 2015 to March 2016.

The clinical history of the patients was recorded in detail along with the radiological and pathological findings. Only patients with a confirmed pathological cell type and adequate medical records were included in the study.



All the patients with proven lung carcinoma were taken as subjects for study after obtaining a written informed consent. The ethical committee of the institute had approved the study.

RESULTS

The study included a total of 77 patients of proven lung carcinoma. Out of the total 77 patients, 70 were males (91%) and 7 were females (9%). Most of the patients were in the age group of 56-65 years. The youngest patient was 35 years old while the oldest was aged 85 years. The overall mean age of the study subjects was 59.3 years. Cough was the most common symptom found in 80.52% of the study population followed by shortness of breath in 58.4% and chest pain in 55.84% of the patients as seen in Figure 1. Smoking was seen to be the most common addiction (89.61%) in the patients included in the study.

On radiographical assessment, right lung was seen to be more commonly involved (66.23%) than the left lung (33.77%) in the study population. Upper lobe was seen to be the more commonly involved (55.84%) than the middle and the lower lobe of lung.

Out of the total 77 patients, 53% of the patients presented with metastasis at the time of the first evaluation. Liver was seen to be the most frequent site of metastasis (22.08%) followed by bone (15.58%), the contralateral lung in 12.99%, brain in 11.69% and adrenal gland in 9.09% of the total patients included in the study (Table 1). Pleural effusion was seen in 23% of the patients, while collapse, consolidation of the affected lung was seen in 44% of the patients.

Non-small cell carcinoma was seen to be the most frequent diagnosis being in 59 patients that constitute 76.62% of the sampled population. Small cell carcinoma was seen in 23.38% of the cases. Amongst the total 59 patients who had non-small cell, the maximum number of patients had squamous cell carcinoma (56%) followed by adenocarcinoma (42.4%). Large cell carcinoma was seen in only one patient (1.7%) and was seen to be the least frequent in the study population (Table 2).

The most common age group of presentation of squamous cell carcinoma, adenocarcinoma and large cell carcinoma was 56-65 year of age group. Small cell carcinoma was most commonly seen in 66-75 year of age group (Table 3).

Adenocarcinoma (100%) followed by squamous cell carcinoma (91%) was the most common type of lung carcinoma diagnosed in males. Out of the 7 females included

in study, large cell carcinoma and small cell carcinoma were the most frequent diagnosis (100% and 16%, respectively).

Squamous cell carcinoma and small cell carcinoma were seen to present more frequently as central mass in lung (90% and 83%, respectively) while adenocarcinoma was seen to present more usually as a peripheral mass. The occurrence of squamous cell carcinoma as a central mass and adenocarcinoma as a peripheral mass was also seen to be statistically significant (Table 4 and Table 5).

Cytopathology was used as a diagnostic modality in 66% of the patients. Out of the different type of cytological modalities, image-guided FNA was the most commonly employed procedure.

The diagnostic yield of cytology was seen to be 88% while for histopathology it was 97%.

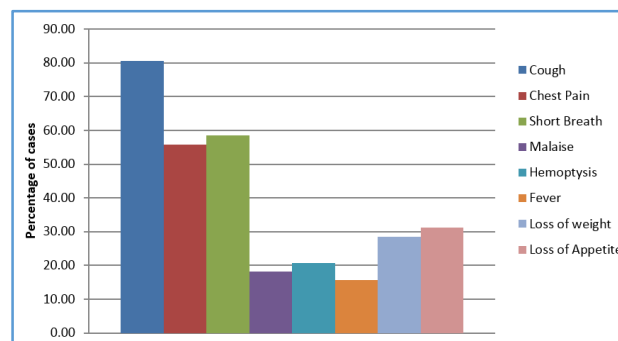


Figure 1. Common Symptoms of Patient with Lung Carcinoma at Presentation

Site	Number of Patients	Percentage
Contralateral lung	10	12.99
Bone	12	15.58
Liver	17	22.08
Brain	9	11.69
Adrenal	7	9.09

Table 1. Distribution of Study Population (n=77) According to Site of Metastasis

Non-small cell carcinoma	Type of Carcinoma	Number of Individuals	Percentage
	Large cell	1	1.30
Squamous cell	Squamous cell	33	42.86
	Adenocarcinoma	25	32.47
Small cell carcinoma	Small Cell	18	23.38
Total	Total	77	100.00

Table 2. Showing Various Histological Type of Lung Carcinoma Seen in Our Study Population

Age Groups (Years)	Squamous Cell Carcinoma	Adenocarcinoma	Large Cell Carcinoma	Small Cell Carcinoma
35-45 years	2 (6.06%)	1 (4%)	0	2 (11.11%)
46-55 years	8 (24.24%)	7 (28%)	0	2 (11.11%)
56-65 years	12 (36.36%)	10 (40%)	1 (100%)	5 (27.78%)
66-75 years	9 (27.27%)	5 (20%)	0	7 (38.89%)
76-85 years	2 (6.06%)	2 (8%)	0	2 (11.11%)
Total	33 (100%)	25 (100%)	1 (100%)	18 (100%)

Table 3. Distribution of Different Types of Lung Carcinoma According to Age

Location	Present		Absent	
	Observed	Expected	Observed	Expected
Central	11	19.48	49	40.52
Peripheral	14	5.52	3	11.48

Table 4. Distribution of Adenocarcinoma (n=25) According to Location of the Lesion

Chi-square-24.76; p=0.000001.

Location	Present		Absent	
	Observed	Expected	Observed	Expected
Central	30	25.71	30	34.29
Peripheral	3	9.35	14	9.71

Table 5. Distribution of Squamous Cell Carcinoma According to the Location of the Lesion

Chi-square-5.66; p=0.017.

DISCUSSION

Lung carcinoma is the leading cause of cancer deaths in United States,⁵ Europe⁶ and worldwide.⁷ The five-year survival among lung carcinoma is poor and worldwide varies between 6% and 14% for men and 7% and 18% for women.⁸

In this study, age of patients ranged from 35 to 85 years and the mean age was 62.18 years. Maximum numbers of patients were in the age group of 56-65 years (36%). These findings were similar to findings by Bhurgri, which aimed to evaluate demographics of lung carcinoma in Karachi, the mean age of patients with lung carcinoma was 60.4 years in males and 53.7 years in females.⁹ In another study by Navin Pandhi et al on 150 patients of lung carcinoma, the overall mean age of the study subjects was 59.3 years.¹⁰ It was noticed that in most of the studies including the present one, patients with lung carcinoma usually presented in 5th-6th decade of their lives.

Out of 77 subjects included in the study, majority (n=70, 91%) were males. Similarly, in study by Rawat J et al on 203 patients of lung cancer, 89.16% of the patients were males.¹¹ Similar results showing male predominance were also found in study Bhurgri Y et al.⁹

In this study, cough (80.52%) was the most common presenting complaint in the patients of lung carcinoma. Breathlessness was the next common symptom in the present study being present in 59% cases. Similar results were seen in studies conducted by Shetty et al¹² and A. Vigg et al.¹³

Smoking was the most common predisposing factor seen in our study. Out of the 77 patients included in the study, 69 (90%) of the patients were smokers and only 8 (10%) subjects were nonsmokers. Similar results were seen in a study done by Notani P et al¹⁴ and Jindal SK et al¹⁵ on patients of lung carcinoma.

At the time of initial clinicoradiological evaluation, 41 out of 77 patients presented with metastasis. Liver was seen to be the most common site of metastasis (22.08%) in patients of lung carcinoma. In a study conducted by Gupta R et al on 153 cases of lung carcinoma, liver metastasis was seen in 24.8% of the total patients studied.¹⁶ A study done by Dube

N et al on patients with lung carcinoma also reported liver to be the most common site of extrathoracic metastasis.¹⁷

Out of the 77 patients included in the study, squamous cell carcinoma was the most common histological cell type of lung carcinoma seen. 33 patients (42.86%) were diagnosed with squamous cell carcinoma followed by adenocarcinoma, which was seen in 25 patients constituting 32.47% of the study population. This is similar to the reports from other part of India. In a study by Sharma CP et al on 300 cases of lung cancers, squamous cell carcinoma was the most common histological cell type and was seen in 42.4% of the study population.¹⁸

Squamous cell carcinoma was seen to present more frequently as a central mass than a peripheral mass and adenocarcinoma was seen to present more frequently as a peripheral mass according to our study. The association of squamous cell carcinoma and central location of presentation along with association of adenocarcinoma and peripheral location of presentation were also proven to be statistically significant. Small cell carcinoma was also seen to present more frequently as central mass (83.3%). Similar results were seen in study conducted by Sharma CP et al.¹⁸ The study done by Bhadke B. on patients with lung carcinoma also denoted that squamous cell carcinoma commonly presents as central tumours, whereas adenocarcinoma as peripheral tumour.¹⁹

CONCLUSION

This study showed that smoking is a principle risk factor in causation of lung carcinoma. It was seen to present more frequently in elderly age groups. Patients commonly present with chief complaints of smoking and breathlessness. Further investigations should be carried out in such circumstances to confirm the diagnosis. Lung carcinoma should be suspected in a person presenting with cough and other symptoms such as malaise, weight loss, etc. Squamous cell carcinoma is still the most common histological type of lung carcinoma in India. Adenocarcinoma is also emerging as a dominant histological type due to changing trends in smoking habits.

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