

CLINICOPATHOLOGICAL PROFILE OF LUNG CANCER IN A TERTIARY CARE HOSPITAL IN DEPARTMENT OF RADIOTHERAPY IN NORTH INDIA**¹Dr. Hanifa Akhtar, ²Dr. Subiya Kaneez, ^{3*}Dr. Amat-us-Sami, ⁴Dr. Ashfaq Hafiz and ⁵Dr. Sajad Ahmad Dar**¹Assistant Professor, Department of Radiotherapy, Government Medical College Srinagar.²Associate Professor, Department of Radiotherapy, Government Medical College, Srinagar.³Consultant Surgeon, Directorate Health Services Kashmir.^{4,5}Lecturer, Department of Radiotherapy, Government Medical College Srinagar.***Corresponding Author: Dr. Amat-us-Sami**

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Article Received on 25/04/2022

Article Revised on 15/05/2022

Article Accepted on 05/06/2022

ABSTRACT

Introduction: Among malignant diseases, lung carcinoma is the most common cancer in men worldwide in terms of both incidence and mortality. Its increasing incidence in developing countries like India is an important public health problem. This work aimed to study the demographic, clinical, radiological, and histological features of patients with confirmed lung cancer. **Materials and Methods:** A total of 100 patients with histologically confirmed lung cancer at a tertiary care center in North India from December 2019 to November 2021 were studied and analyzed. **Results:** Out of 100 diagnosed lung cancer patients, 82% were men and 18% women; 65% of patients were aged more than 60 years. Majority were smokers (81%) and all were men. Cough (90%) was the most common presenting symptom followed by dyspnea (67%), chest pain (46%), and hemoptysis (35%). Of the 100 patients, 54(54%) had soft tissue density mass lesion on radiograph. Squamous cell carcinoma (SCC) was the diagnosed histological cell type in 46 (46%) patients and adenocarcinoma in 42 (42%) patients. Distant metastasis was observed in 42 (42%) patients. **Conclusion:** In this study, the most common histopathological cell type is SCC. Patients aged more than 50 years and smokers are at high risk of lung cancer. Patients with a smoking history and persistent respiratory symptoms should be promptly evaluated for lung malignancy.

INTRODUCTION

In developed countries, lung carcinoma is the leading cause of cancer-related deaths in both men and women,^[1] but its incidence and mortality rates have been falling in the last three decades. In contrast, developing nations continue to have high rates of lung cancer incidence and mortality. Most lung cancer deaths are attributable to smoking. Incidence of lung cancer is more common in males as compared with females. But its incidence and mortality are rising in females due to changing smoking patterns. Data from GLOBOCON report 2018 reported approximately 2.1 million new cases (11.6% of all cancers) and 1.8 million deaths due to lung cancer (18.4% of all cancer-related deaths) worldwide.² In India, 67,795 new lung cancer cases (5.9% of all cancers) were estimated in 2018, of which 48,698 were males. Furthermore, lung cancer caused 63,475 deaths (8.1% of all cancer-related deaths).^[2] Tobacco smoking is the primary risk factor for the development of lung cancer.^[3] Current smokers of one pack per day for 40 years are at high risk of developing lung cancer approximately 20 times than those who have never smoked. Other risk factors include exposure to indoor and outdoor air pollution,^[4] environmental tobacco smoke,^[5] and occupational exposure to asbestos, radon,^[6] nickel, arsenic, chromium.^[7]

MATERIALS AND METHODS

This was a cross-sectional observational study that included 100 patients with histologically proven primary lung cancer who visited the Department of radiotherapy at a tertiary care hospital in India. Prior approval was taken from the institutional Ethics Committee.

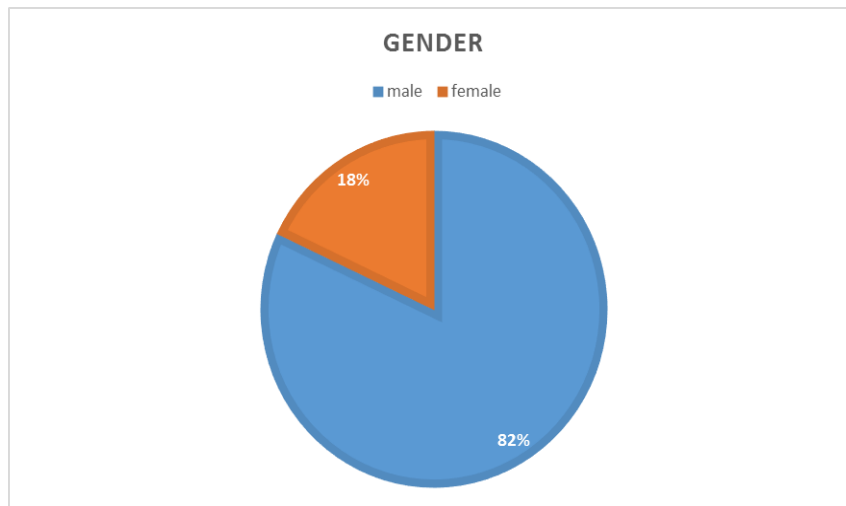
A detailed clinical history, general physical examination, systemic examination, and diagnostic investigations (chest radiograph, ultrasonography, computed tomography [CT] of the thorax, abdomen, and brain, PET scan, cytological examination of regional lymph nodes, pleural fluid analysis, CT, or bronchoscopy guided biopsy) were performed after informed written consent.

Objective

Clinicopathological Profile of Lung Cancer in a Tertiary care Hospital.

RESULTS**Gender**

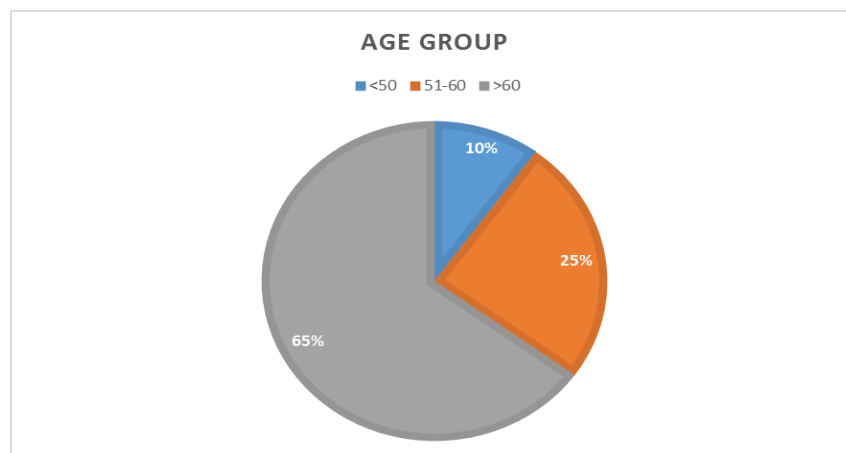
A total of 100 patients were included in this study, of which 82 (82%) were males and 18 (18%) were females. The male to female ratio was 6:1.



Age

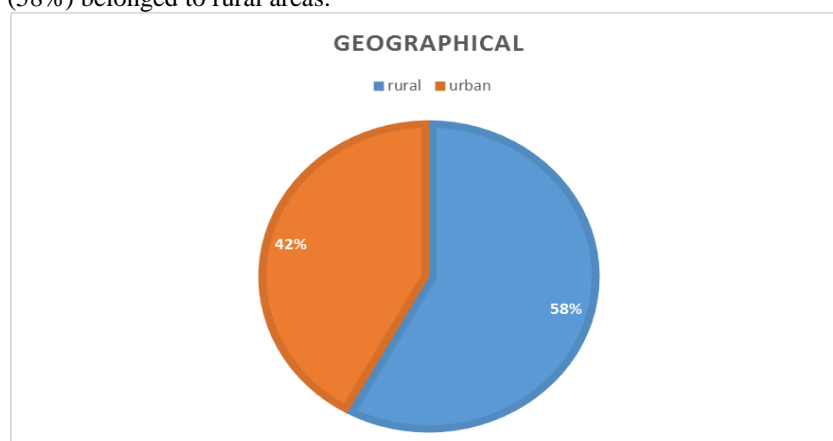
The average age of the patients was 63 years. The youngest patient was 45 years of age, whereas the oldest

patient 90 years of age. More number of patients belonged to the age group of 60 to 70 years.



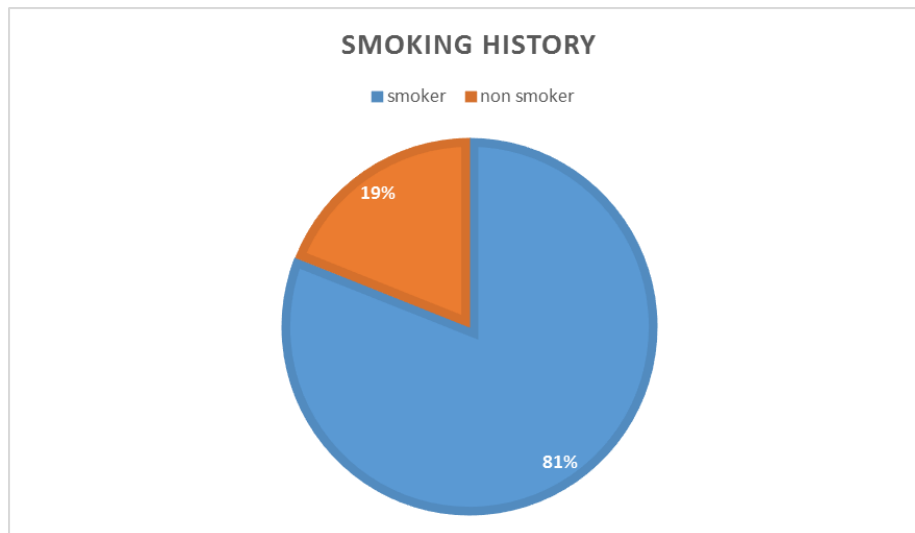
Geographical distribution

Most of the patients (58%) belonged to rural areas.



Smoking history

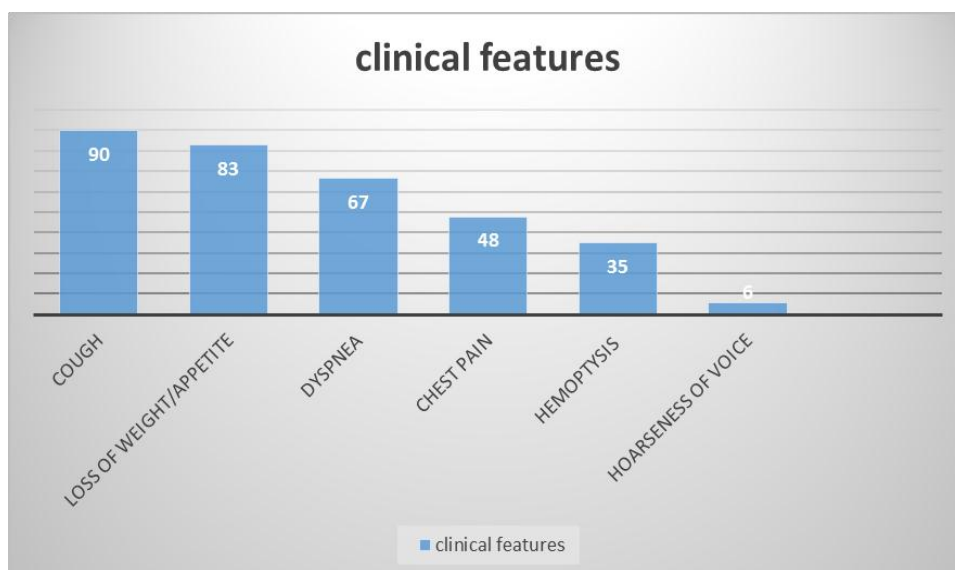
Majority (n = 81, 81%) of patients were chronic smokers, and all were males. The smoker to never smoker ratio was 5.2:1.



Clinical features

The most common presenting symptoms were cough (90%), loss of appetite and weight (82%), dyspnea (67%), chest pain (48%), hemoptysis (35%), and

hoarseness of voice (6%). Significant physical findings included digital clubbing (58%), peripheral lymphadenopathy (18%), and superior vena cava obstruction (12%).



Lesion

The right and left upper lobes were most affected. Of the 100 patients, 54 (54%) presented with right lung lesion and 20 (40%) with left lung lesion. The most common radiological abnormality was mass lesion, which was observed in 58 (58%) patients, followed by pleural effusion (22%), consolidation, and collapse. Other findings were mediastinal widening, cavitation, air–fluid level, nodular pattern, rib erosion, elevated hemidiaphragm, and a combination of findings.

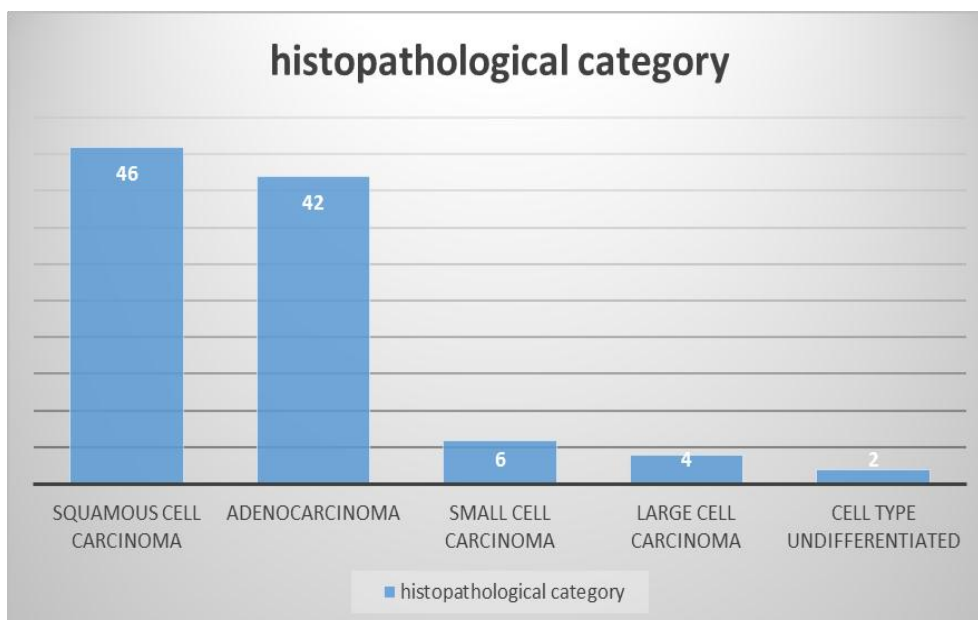
cervical lymph node (18%), skeletal system (12%), adrenal glands (8%), and brain (4%).

Histopathological category

Squamous cell carcinoma was the most common pathological type (46%) followed by adenocarcinoma (42%) and small cell carcinoma (6%), and in two (4%) patients the cell type could not be confirmed.

Distant metastasis

In this study, 42 (42%) patients had evidence of distant metastasis, which included metastasis in the liver (19%),



DISCUSSION

In India, the incidence of lung cancer is rising due to a high prevalence of smoking. It is accountable as the third largest cause of cancer-related mortality. Among males, it is a leading cause of cancer-related mortality. However, there has been a considerable downswing in lung cancer rates in developed countries.^[11] The average age of our patients was 63 years, with male predominance, which is similar to that reported in other Indian studies conducted by Prasad *et al*^[18] (57 years), Dey *et al*^[9] (60.37 years), and Kaur *et al*^[10] (58.6 years). The male to female ratio was 6:1, which is similar to that found in other studies conducted in India by Viswanathan *et al*^[11] (ratio: 6.9:1) and Yadav *et al*^[12] (ratio: 6:1). Similarly, the highest number of patients were in the age group of 61 to 70 years (40%), which is similar to other Indian studies conducted by Jindal *et al*^[13] (37.50%), Malik *et al*^[14] (36.6%), and Hathila *et al*^[15] (50.76%).

In this study, majority (81%) of patients were smokers, whereas all female patients were nonsmokers. These data are close to previous Indian studies conducted by Mohan *et al*^[16] (smokers constituted 79.3%) and Dubey *et al*^[17] (79% patients were smokers).

In this study, the most common radiographic findings were right lung lesion (62%), left lung lesion (40%), mass lesion (55%), pleural effusion (20%), consolidation (12%), and cavitory lesion (5%). Similar findings reported in studies conducted by Sharma *et al*^[18] (right lung lesion: 54.20%; left lung lesion: 38.30%; mass lesion: 49.90%; pleural effusion: 8.80%; consolidation: 14.20%; and cavitory lesion: 8.80%) and Saha *et al*^[19] (right lung lesion: 73.08%; left lung lesion: 22.12%; mass lesion: 26.92%; consolidation: 18.27%; pleural effusion: 10.58%; and cavitory lesion: 8.65%).

In this study, 46 (46%) patients had squamous cell carcinoma, 42 (42%) had adenocarcinoma, and 6 (6%) had small cell carcinoma. Thus, squamous cell carcinoma was the most common histological subtype in our study followed by adenocarcinoma. Previous Indian studies have reported a similar proportion of squamous cell carcinoma compared with adenocarcinoma. Currently, several studies have reported adenocarcinoma has surpassed squamous cell carcinoma as the most common histological subtype of lung cancer.^[20]

CONCLUSION

Squamous cell carcinoma is the most common histological cell type followed by adenocarcinoma. Patients aged more than 50 years, males, and smokers are at high risk of developing lung cancer. Adenocarcinoma is the common histological cell type among females and nonsmokers. Patients with a history of smoking and persistent respiratory symptoms should be promptly evaluated for lung malignancy.

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