

## Original Research

# Evaluation of Clinico-radiological Spectrum of Lung Cancer: An Institutional Based Study

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### ABSTRACT

**Background:** This study was conducted to assess the clinical and radiological profile of lung cancer.

**Material and Methods:** The study constituted of 100 subjects having lung cancer. The procedure was explained to all the participants of the study and they were asked to give consent. The clinical presentation, exposure to risk variables, histological type, stage at presentation, and metastasis sites of these individuals were all examined. Statistical analysis was conducted using SPSS software.

**Results:** In this study, there were 60 males and 40 females. In radiographic findings, 65 subjects displayed mass lesion, 15 subjects showed pleural effusion and 20 subjects showed cavitation. Cough, dyspnea, chest pain and hemoptysis were seen in 45, 25, 20 and 10 subjects, respectively.

**Conclusion:** The most common radiographic finding was mass lesion, and the most common clinical finding was cough.

**Keywords:** Lung Cancer, Cough, Radiographic Findings.

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### INTRODUCTION

Lung cancer is believed to be the most common fatal neoplastic disease in the world today. It is responsible for 28% of all the cancer related deaths.<sup>1</sup> In the developed countries, incidence and mortality from lung cancer in females is rising, whereas it is declining in males. Lung cancer is responsible for approximately one million deaths per year at present, and it is estimated to rise to three million per year by the year 2010.

Progressive survival extension and increasing cigarette smoking has led to a numerical rise of patients with primary lung cancer in India. It is in accordance with the epidemiological data from western countries, which shows rising prevalence of the disease in Indian population.<sup>2</sup> Smoking is the cause for more than 85% of the bronchogenic carcinoma cases.<sup>3,4</sup> According to the 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).<sup>5</sup> The

proportions of histopathological cell types of lung cancer vary with changes in social and other environmental factor. Hence, this study was conducted to assess the clinical and radiological profile of lung cancer.

### MATERIAL AND METHODS

This study constituted of 100 subjects having lung cancer. The procedure was explained to all the participants of the study and they were asked to give consent. Participants in this trial were not allowed to have lymphoproliferative, granulomatous, or secondary lung cancer, nor to have any other cancer. The clinical presentation, exposure to risk variables, histological type, stage at presentation, and metastasis sites of these individuals were all examined. Statistical analysis was conducted using SPSS software.

### RESULTS

This study comprised of 100 subjects out of which 60 were males and 40 were females. 65 subjects displayed mass lesion,

15 subjects showed pleural effusion and 20 subjects showed cavitation. Cough, dyspnea, chest pain and hemoptysis were seen in 45, 25, 20 and 10 subjects, respectively.

**Table 1: Gender-wise distribution of subjects**

Gender	Number of subjects	Percentage
Males	60	60%
Females	40	40%
Total	100	100%

**Table 2: Radiographic findings**

Radiographic findings	Number of subjects	Percentage
Mass lesion	65	65%
Pleural effusion	15	15%
Cavitation	20	20%
Total	100	100%

**Table 3: clinical findings**

Clinical findings	Number of subjects	Percentage
Cough	45	45%
Dyspnea	25	25%
Chest pain	20	20%
Hemoptysis	10	10%

## DISCUSSION

Lung cancer is the most common cause of cancer-related deaths in both men and women in the United States, and it accounts for more deaths than breast, prostate, colon, rectal, and pancreatic cancers combined. The 5-year survival rate for primary lung cancer is 16%, compared with 65%, 90%, and 99% for colon, breast, and prostate cancer, respectively. Although the incidence of lung cancer in men is beginning to decline, the incidence in women is rising, such that since 1987, lung cancer has caused more cancer-related deaths in women than breast cancer. More than half of all people with lung cancer will die within 1 year of diagnosis; however, if diagnosed at an early stage, 5-year survival reaches ~50%.<sup>6</sup> Smoking is the major risk factor for lung cancer, with less common factors including radon and asbestos exposure. Smoking contributes to 80% and 90% of lung cancer deaths in men and women, respectively.<sup>7</sup> The benefits of smoking cessation have been established and should be included in all treatment regimens. This is particularly important in the era of improved cancer treatment and potentially leads to prolonged overall survival. Benefits include improved quality-of-life measures, such as decreased shortness of breath and fatigue, and increased energy, self-esteem, and performance status.<sup>8</sup> Majority of the lung cancer patients (approx 80%) are clinically symptomatic and present with cough, hemoptysis, dyspnea, chest pain, and non-resolving pneumonia.<sup>9</sup> Occasionally, they present with features suggestive of metastatic disease like skeletal pain or neurological symptoms and signs. Less than 10% of the patients are asymptomatic when the cancer is detected as an incidental finding.<sup>10</sup> Lung cancer is classified as either non-small cell lung cancer (NSCLC) or small cell lung cancer, with the NSCLC accounting for the vast majority (87%). Chest radiograph is the first investigation which is performed while investigating

a suspected case of lung cancer. Though it is a very good tool in providing preliminary information about the disease, it is inadequate for optimal characterization and staging. Computed Tomography (CT) scan of the chest is the cornerstone of lung cancer imaging based on which further management is decided.

In this study, there were 60 males and 40 females. In radiographic findings, 65 subjects displayed mass lesion, 15 subjects showed pleural effusion and 20 subjects showed cavitation. Cough, dyspnea, chest pain and hemoptysis were seen in 45, 25, 20 and 10 subjects, respectively. Rawat J et al<sup>11</sup> evaluated the clinico, a pathological profile of lung cancer in hilly state of Uttarakhand. They performed a retrospective analysis of histopathologically proven cases of bronchogenic carcinoma admitted in their hospital from January 1998 to August 2005. Their study included 203 patients with confirmed cases of lung cancer. Male to female ratio was 8.2:1. The common age group being 40-60 years, 9.86% of the patients were less than 40 years old age. Smoking was found to be the main risk factor in 81.77% patients. The most frequent symptom was cough (72.90%) followed by fever (58.12%). The most common radiological presentation was mass lesion (46.31%). The most common histopathological type was squamous cell carcinoma (SCC) (44.83%) followed by adenocarcinoma (19.78%) and small cell lung carcinoma (SCLC) (16.75%). The majority patients (73.29%) were diagnosed in the later stages of the disease (III B and IV). It was found out that SCC was the most frequent histopathological form. SCLC predominates below 40 year and SCC over 60 years of age. Smoking still remains the major risk factors in pathogenesis of lung cancer. Alamoudi, Omer S<sup>12</sup> assessed the clinical, radiological, pathological, biochemical and bronchoscopic abnormalities in lung cancer patients and to compare their findings with those reported in the literature. A total of 114 patients with proven lung cancer were selected for the study. A questionnaire concerning patients' demographic data was obtained; the abnormalities and the cell types of lung cancer were recorded prospectively in each subject. A total of 114 patients with lung cancer were studied. Mean age  $\pm$  SD was (59.8  $\pm$  10.8) years, and (71.1%) were smokers and 95.1% of them were male, (90.1%) smoked >20 pack/yr (96.2%) for 20 years or more. Cough (76.3%) and clubbing (40.4%) were the most common symptom and physical abnormality respectively. The right lung (64.9%) was more commonly affected than the left (37.7%). Metastases were present in (49.1%) at presentation. The right and left upper bronchi (24% vs. 16%) were the mostly affected. Hypercalcemia was more common in squamous cell, while hyponatremia was more common in adenocarcinoma, and small cell. Squamous cell carcinoma was the most common cell type (51.8%) and significantly associated with smoking ( $P \leq 0.001$ ) Squamous cell carcinoma was the most common cell type, and significantly associated with smoking. The incidence of metastasis was high at presentation. The right lung and right upper bronchus were often affected. Hypercalcemia and hyponatremia were the most common biochemical abnormalities.

## CONCLUSION

The most common radiographic finding was mass lesion and the most common clinical finding was cough.

**REFERENCES**

1. Beckett WS. Epidemiology and etiology of lung cancer. *Clin Chest Med.* 1993;14:1–15.
2. Ginsberg RJ, Vokes EE, Raben A. Cancer of the lung. In: DeVita VT, Hellman S, Rosenberg SA, editors. *Cancer: Principles and practices of oncology.* Philadelphia, PA: Lippincott-Raven; 1999: 849–950.
3. Carr DT, Holoye PY, Hong WK. Bronchogenic carcinoma. In: Murray JF, Nadal JA, editors. *Textbook of respiratory medicine.* 2nd ed. Philadelphia: WB Saunders Company; 1994: 1528–96.
4. Rosenow EC. Symposium on intrathoracic neoplasm, Introduction. *Mayo Clin Proc.* 1993;68:168–9.
5. Franklin WA. Diagnosis of lung cancer. *Chest.* 2000;117:80–9. (Travis WD, Colby TV, Corrin B. Histological typing of tumors of lung and pleura. In: Sobin LH, editor. *World Health Organization. Classification of tumors.* 3rd ed. Berlin: Springer-Verlag 1999.
6. <http://www.lung.org/lung-disease/lung-cancer/resources/facts-figures/lung-cancer-fact-sheet.html>. Accessed December 2012.
7. Buccheri G, Ferrigno D. Lung cancer: Clinical presentation and specialist referral time. *Eur Respir J.* 2004;24:898–904.
8. *Cancer facts and figures 2008.* Atlanta, Ga: American Cancer Society; 2008. American Cancer Society.
9. Padovani B, Mouroux J, Seksik L, Chanalet S, Sedat J, Rotomondo C, et al. Chest wall invasion by bronchogenic carcinoma: Evaluation with MR imaging. *Radiology.* 1993;187:33–8.
10. Webb WR, Gatsonis C, Zerhouni EA, Heelan RT, Glazer GM, Francis IR, et al. CT and MR imaging in staging non-small cell bronchogenic carcinoma: Report of the radiologic diagnostic oncology group. *Radiology.* 1991;178:705–13.
11. Rawat J, Sindhwani G, Gaur D, Dua R, Saini S. Clinicopathological profile of lung cancer in Uttarakhand. *Lung India.* 2009 Jul;26(3):74-6.
12. Alamoudi, Omer S. Lung cancer at a University Hospital in Saudi Arabia: A four-year prospective study of clinical, pathological, radiological, bronchoscopic, and biochemical parameters. *Annals of Thoracic Medicine* 2010 Jan-Mar; 5(1): 30-36