

Full Length Research Paper

Clinico-pathological profile of lung cancer in a tertiary medical centre in India: Analysis of 266 cases

Bhattacharyya Sujit Kumar^{1*}, Mandal Abhijit², Deoghuria Debasis³, Agarwala Abinash¹, Alope Gopal Ghoshal¹ and Dey Subir Kumar⁴

¹Department of Pulmonary Medicine, Nilratan Ratan Sircar Medical College, Kolkata, West Bengal, India.

²Department of Pulmonary Medicine, Bankura Sammilani Medical College, Bankura, West Bengal, India.

³Department of Radio Diagnosis, Bankura Sammilani Medical College, Bankura, West Bengal, India.

⁴Department of Pulmonary Medicine, National Medical College, Kolkata, West Bengal, India.

Accepted 08 August, 2020

Lung cancer stands one of the most common malignancies causing very high morbidity and mortality. An increase in the incidence of lung cancer has been observed in India. The aim of this study is to evaluate the clinico-pathological profile of lung cancer attended in a tertiary referral centre in India. A retrospective analysis was done over those patients who were histopathologically proved cases of primary lung carcinoma. The outpatient and inpatient of the department of Pulmonary Medicine in a tertiary medical college attended during the period from January 2008 to December 2009. A total of 266 cases were studied, and the male to female ratio was 6.6:1. The major age group involved was 41-60 years (52.63%) and the rest were below 40 years group (2.63%). The commonest clinical symptom was cough (68.42%). The most common radiological finding in the chest was a mass or space occupying lesion (55.26%). In most cases there was a history of smoking (81.2%). Commonest mode of diagnosis was made by imaging guided fine needle aspiration cytology in 170 patients (63.91%). The most common histological type of lung cancer was squamous cell carcinoma (35.34%). Majority of cases were diagnosed in the later stages of diseases (71.8%). It was found that squamous cell carcinoma was the most frequent histological type. History of smoking was found in majority of patients. Major patients were diagnosed at the later stages of disease (Stage 3B or 4).

Key words: Lung carcinoma, histopathological classification, smoking, squamous cell carcinoma.

INTRODUCTION

Lung cancer is probably one of the most important life threatening conditions responsible for the death of millions of people in our today's world, and India is no longer ahead from this race. In the developed countries

incidence and death from lung cancer in female is rising. Lung cancer is responsible for death of about one million people and it is expected to reach three million by the year 2010. Increased survival rate and poor awareness about harmful effects of smoking of various types lead to increased number of patients with lung cancer. Compared to western population, epidemiological study shows there are rising prevalence of lung cancer in Indian population (Jagadish et al., 2009; Ginsberg et al.,

*Corresponding author. E-mail: drsujit.haripal@yahoo.in. Tel: +91 9433151875.

Table 1. Demographic profile of study group (n = 266).

Variable	No. of patient	Percentage
Gender		
Male	231	86.84
Female	35	13.16
Age distribution (years)		
<40	7	2.63
41-60	140	52.63
61-80	106	39.85
>80	13	4.89
Smoking history		
Smoker	216 (M 201: F 15)	81.2%
Non smoker	50 (M 30: F 20)	18.8%

Table 2. Clinical presentation (n = 266).

Symptom	No. of patient	Percentage (%)
Cough	182	68.42
Chest pain	140	52.63
Shortness of breath	168	63.15
Fever	105	39.47
Haemoptysis	98	36.84
Hoarseness of voice	39	14.66
SVC Syndrome	25	9.40

1999). The Main culprit is smoking (Karnath, 2002; Carr et al., 1994). Histopathologically cell types may vary with the changes of social and other environmental factors (Becket, 1993).

MATERIALS AND METHODS

This was a retrospective study using data base of 266 patients of primary lung cancer diagnosed in indoor and outdoor of the department of pulmonary medicine at Nil Ratan Sircar medical college, Kolkata, India from January, 2008 to December, 2009. The cases having doubts about primary origin were excluded from the study group. The clinical records of the patients reviewed in relation with age, sex, duration of symptoms, smoking habit, radiographic finding, method of diagnosis, histopathology and clinical stages of lung cancer. Major diagnosis was based on either imaging guided percutaneous fine needle aspiration cytology or fibre optic bronchoscopy.

RESULTS

The series included 266 patients with a male to female ratio of 6.6:1. Distribution of age varied from 38 to 85 years. Maximum patients were found in the 41 to 60 years

age group (52.63%) followed by 61 to 80 years (39.85%) and least in less than 40 years (2.63%) group. Most of the patients were chronic smokers (81.2%) and most of them were male. The ratio of male smokers to female smokers was 13.4:1 (Table 1). The most common presenting symptom was cough (68.42%) followed by breathlessness (63.15%), chest pain (52.63%), fever (39.47%) and haemoptysis (36.84%) (Table 2). In major cases, right lung was involved (65.79%). Radiologically, most common presentation was a mass or space occupying lesion in 154 patients (57.89%) followed by collapse in 42 (15.79%) and a combined group in 70 patients (26.32%) (Table 3). Computerized tomography guided fine needle aspiration cytology had the highest diagnostic yield leading to a diagnosis in 170 patients (63.91%). Similarly, fibre optic bronchoscopy diagnosed 96 patients (36.09%) (Table 4). The most common histological presentation was squamous cell carcinoma in 94 patients (35.34%) followed by adenocarcinoma in 42 patients (15.79%), small cell carcinoma in 37 patients (13.91%), undifferentiated group found in 88 patients (33.08%), and large cell carcinoma in 5 patients (1.88%) (Table 5). Majority was diagnosed at the later stages of illness (71.8%). Usual time for the patients

Table 3. Radiological presentation (n = 266).

Site	No. of patient	Percentage
Right lung	175	65.79
Left lung	84	31.58
Bilateral	7	2.63
Mass	154	57.89
Collapse	42	15.79
Combined presentation	70	26.32

Table 4. Diagnostic yield of various investigative procedure (n = 266).

Diagnostic procedure	Yield	Percentage
CT FNAC	170	63.91
FOB	96	36.09

Table 5. Histological type of lung cancer (n = 266).

Histology	No. of patient	Percentage
Squamous cell carcinoma	94	35.34
Adenocarcinoma	42	15.79
Small cell carcinoma	37	13.91
Undifferentiated	88	33.08
Large cell carcinoma	5	1.88

seeking for treatment varied from 3 weeks to 6 months with an average of 128 days.

DISCUSSION

In the present study, we had a ratio of 6.6:1 for male to female. Reddy et al. (1972) found a male to female ratio of 4:1 in his study. Kashyap et al. (2003) reported a ratio of 6.1:1. Similar observation was reported by Arora et al. (1990) in another Indian study. Most of the patients belonged to the age group between 40 to 80 years (92.1%). Thippanna et al. (1999) noticed a similar distribution that studied history of smoking, and found 81.5% patients. The ratio of male to female smoker was 13.4:1 while the ratio of smokers to nonsmokers was 4.3:1. Gupta et al. (2007) observed ratio of smokers to nonsmokers as 4.3:1. A similar observation was reported by Gupta et al. (2001) who studied cough (68.42%) as the most common presenting symptom, breathlessness (63.15%), chest pain (52.63%), and hoarseness of voice in 39 patients (14.66%). Jindal and Behera (1990) reported similar clinical features. They said unexplained cough for more than several weeks may lead to a high degree of suspicions. In our study it is observed that

about 71.8% patients diagnosed in the later stage of diseases where either in stage 3B or 4. Some patients received anti tubercular drugs for several weeks before attending to the physician, which was already too late. In our study group there was an average delay of about 5 to 6 months in seeking treatment. Rawat et al. observed a similar experience. Fernando et al. (2009) found 66.5% patients at presentation in Stage 3B or 4. The commonest radiological presentation was mass lesion in 57.89% followed by collapse 15.79% and combined 26.32%. Most of the lesion was found on the right side at 65.79%. Khan et al. (2006) observed 63% lesion in the right lung and other Western literature. Swett et al. (1982) also supported this observation. In his study, imaging guided fine needle aspiration cytology was diagnosed in 70 cases (63.91%). Rajasekaran et al. (1994) and Sandrucci et al. (1998) showed the success rate above 60%. They also studied fibre optic bronchoscopy (FOB) diagnosed in 96 cases (36.09%). Vyas et al. (1981) and Arroliga and Matthay (1993) showed positive yield for primary malignant tumor to the extent of 40%. The pattern of lung carcinoma is being increasingly diagnosed in women; adeno carcinoma has taken squamous cell carcinoma as the most common histological cell type (Beckett, 1993). However pattern in the present study

seem different. Squamous cell carcinoma is still the most common cell (35.34%) followed by undifferentiated (33.08%). Histopathology may be due to the fact that smoking is less prevalent among Indian female as opposed to the west (Kapoor et al., 1993; Rajsekharan et al., 1993) found similar yield in their study.

ACKNOWLEDGEMENT

We acknowledge those patients who participated in this study. However, the study was not funded by any person.

REFERENCES

- Jagadish R, Girish S, Dushyant G, Ruchi D, Sunil S (2009). Clinico-pathological profile of lung cancer in Uttarakhand. *Lung India*. 26(3): 74-76
- Ginsberg RJ, Vokes EE, Raben A (1999). Cancer of the lung. In: Devita VT, Hellman S, Rosenberg SA (Eds.). *Cancer: Principles and Practices of Oncology*. Philadelphia PA: Lippincott-Raven. p. 849-950.
- Karnath B (2002): Smoking Cessation. *Am. J. Med.*, 112: 399
- Carr DT, Holoye PY, Hong WK (1994). Bronchogenic carcinoma. In Murray JF, Nadal JA (Eds.). *Text book of respiratory Medicine*. (2nd ed). Philadelphia: WB Saunders Company. p. 1528-96.
- Beckett WS (1993). Epidemiology and etiology of lung cancer. *Clin. Chest Med.*, 14: 1-15
- Reddy DB, Prasanthamurthy D, Satyavathi S (1972). Bronchogenic carcinoma: A clinico-pathological study. *Indian J. Chest Dis.*, 14: 86-9.
- Kashyap S, Mohapatra PR, Nagi RS (2003). Pattern of primary lung cancer among bidi smokers in north-western Himalyan region of India. *Lung cancer*; 41(Suppl 2):S111
- Arora VA, Seetharaman ML, Ramkumar (1990). Bronchogenic carcinoma: A clinic-pathological pattern in south Indian population. *Lung India*. 7: 133-8.
- Thippanna G, Venu K, Gopalkrishna V, Reddy PNS, Sai cheiran BG (1999). A profile of lung cancer patients in Hyderabad. *J Indian Med Asso.*, 97: 357-359.
- Gupta KB, Gupta R, Gulati N, Visshvkarma S, Shandilya RA (2007). Etiological profile of non tuberculous upper lobe lung lesions. *Pulmonary*, 9(3): 97-105.
- Gupta D, Boffetta P, Gaborieau V, Jindal SK (2001). Risk factors of lung cancer in Chandigarh. *Indian J. Med. Res.*, 113: 142-150.
- Jindal SK, Behara D (1990). Clinical spectrum of primary lung cancer. Review of Chandigarh experience of 10 years. *Lung India*. 8: 94-98.
- Fernando LW, Luis CL, Edson OA, Jose CN, Andrei SS, Bruna CNC (2009). Characteristics of patients with lung cancer in the city of Manaus, Brazil; *J. Brasileiro de pneumologia* p. 35: 2.
- Khan NA, Afroz F, Lone MM, Teli A, Jan N (2006). Profile of lung cancer in Kashmir. A five year study. *Int. J. Chest Dis. Allied Sci.*, 48: 187-190.
- Swett HA, Nagel JS, Sostman HS (1982). Imaging methods in primary lung carcinoma. *Clin Chest Med.*, 3:337-41.
- Rajasekaran S, Manickam TG, Vasanthan MRA (1994). Primary lung cancer in non-tuberculous upper lobe lesions. *Ind. J. Chest Dis. Allied Sci.*, 36(2): 55-60.
- Sandrucci F, Vismara L, Molinari S, Regimentri P, Rebeck L. (1998). Percutaneous needle biopsy guided with CT of chest: Personal experience of 1605 cases. *Radiol. Med.*, 96: 675-683.
- Vyas JJ, Desai PB, Rao DN (1981). Lung cancer. *Ind. J. Tub.*, 28(4): 164-181.
- Arroliga AG, Matthay RA (1993). The role of bronchoscopy in lung cancer. *Clin. Chest Med.*, 13:235-52.
- Beckett WS (1993). Epidemiology and etiology of lung cancer. *Clin Chest Med.*, 14: 1-10.
- Kapoor R, Goswami KC, Kapoor B (1993). Pattern of cancer in Jammu region (hospital based study 1978-87). *Indian J. Cancer*, (30): 67-71.
- Rajasekharan S, Manickam TG, Subharaman B VA (1993) Pattern of primary Lung Cartcinoma a Madrass study. *Lung India*;11(1 and11).7:7-12.