ORIGINAL ARTICLE

Pattern of Lung Tumors at Chandka Medical College & Hospital Larkana

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ABSTRACT

Objective: To evaluate the frequency and pattern of lung carcinoma with respect to age and sex and to assess the role of smoking as an etiological factor.
Study design: Descriptive
Place and duration: The study was conducted in the Department of Pathology, Chandka Medical College Larkana from January 2008 to June 2010.
Patients and Methods: Total of 119 patients, admitted in Department of Chest Medicine, Chandka Medical College Hospital Larkana, with clinical and radiological diagnosis of lung tumors was included. All the biopsies were fixed, processed, stained for haematoxylin and eosin and examined under light microscope.
Results: Total of 119 cases of lung carcinoma were received in 2 ½ years. Squamous cell carcinoma was more common in 46.2 % of cases. Majority of cases of lung carcinoma (70.6 %) were smokers and it was equally common in both sexes but squamous cell variant wall significantly more in males.
Conclusion: Frequency of lung carcinoma has tremendously increased over last decade in females due to habit of smoking.
Key words: Lung cancer, Histological types, Smoking.

INTRODUCTION

Lung cancer labeled as smokers disease is leading cause of death world wise with over 1 million deaths each year[1,2], not only frequently diagnosed in western world but it has remained most common visceral malignancy in Pakistan and India. [2,3,4,5,]

Multiple factors are responsible for causation of lung carcinoma, whereas role of active as well as passive smoking is well known[6,7,8]. Various studies in USA, Europe, Pakistan and India have confirmed this version [9,10,11,12]. Not only primary carcinomas but lungs are most common site of metastases, both carcinomas and sarcomas arising any where in body may be found in 20-50% cases[13]. Almost half of the cases occur in the developing countries, due to rising trend of smoking[2,14]. Percentage of cases may increase in these Asian and African countries due to aggressive marketing campaigns by tobacco companies, targeting not only men but also women and young people who have been lured to trap in India and Pakistan[15]. To combat the disease successfully it should be diagnosed at the earliest possible stage[11]. Of the different diagnostic modalities, histopathological examination remains the main stay of diagnosis[6]. The present study was carried out to find out the age and sex distribution of pulmonary malignancies so as to establish base line data in Larkana, where tertiary care hospital is providing health facilities to towns of upper sindh located on left and right banks of river Indus, areas of Punjab and Balochistan bordering the province of Sindh.

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MATERIALS AND METHODS

This was descriptive study conducted retrospectively in the Department of Pathology Chandka Medical College Larkana, from January 2008 to June 2010. A total of 122 cases, in all ages were studied. The patients with history of cough, haemoptysis, chest pain, weight loss were admitted in Department of Chest diseases Chandka Medical College Hospital Larkana. After routine tests like CBC, urine DR, etc, patients showing a hilar radio opacity or multiple round to oval opacities in the lung parenchyma on x-ray chest were included in the study. In some cases MRI reports were also available. One case of in determinate sex (eunuch) was excluded as only cases of both sexes were included. Histopathological specimens included were bronchial biopsy or in some cases transthoracic tru-cut needle lung biopsy.

The specimens were fixed in 10% formal saline[16], tissues were taken and processed in automatic processor (Microme Germany) for 16-18 hours[17], later on paraffin embedded blocks were prepared and thin section 5 micron thick were cut

with help of manual rotary microtome (SLEE Maniz Germany) and stained with haematoxylin & eosin[18]. The sections were mounted with dibutyl phthalate xylene (DPX) and examined under low power (x10) objective and high power (x40) objective. Of 121 cases two cases could not be diagnosed hence also excluded from study.

RESULTS

After exclusion of three cases, there were 119 patients in our study. The age ranged from 11-80 years with mean age of 54.46 ± 12.56 SD (Table-I). The large numbers of patients, 108 were above 40 years of age, while only eleven were under 40. There were 60 males and 59 females (Table-II) with over all male to female ratio of approximately 1:1. However in the primary lung tumors, bronchogenic carcinoma with four histological variants i.e. squamous cell carcinoma, adenocarcinoma, small cell carcinoma and poorly differentiated carcinoma was present in 103 cases with male to female ratio 1.1:1. The squamous cell carcinoma was found in 55 cases (46.2%) while poorly differentiated carcinoma was seen in 12 cases (10.1%), metastatic tumors were also seen in 10.1% of cases (Table-III) and figure-I. Sex wise distribution in different malignancies is given in Table-IV. Squamous cell carcinoma was significantly more in males than in females ($p < .015$) while adenocarcinoma and small cell carcinoma were more in females as compared to males ($p < .014$), ($p < .029$) respectively.

Highest mean age of presentation was seen in cases of squamous cell carcinoma, whereas lowest mean age of presentation was noted in adenocarcinoma (Table-V). In our study a total of 84 cases (70.6%) were smokers and 35 cases (29.4%) were non-smokers ($p < .000$). In primary tumors, 81 cases out of 107 were smokers while in metastatic tumors only 3 out of 12 were smokers (Table-VI).

Table-I-Descriptive statistics

N	**Valid**	**119**
	Missing	0
Mean		54.4622
Median		54.0000
Mode		50.00(a)
Std. Deviation		12.56562
Variance		157.895
Range		69.00

Table-II- Sex frequency

Valid	**Frequency**	**%age**	**Valid %**	**Cumulative %**
Male	60	50.4	50.4	50.4
Female	59	49.6	49.6	100.0
Total	119	100.0	100.0	

Table-III- Different histological variants of lung carcinoma

Valid	**Frequency**	**%age**	**Valid %**	**Cumula -tive%**
squamous cell carcinoma	55	46.2	46.2	46.2
Adeno-carcinoma	18	15.1	15.1	61.3
Small cell carcinoma	18	15.1	15.1	76.5
Poorly differentiated carcinoma	12	10.1	10.1	86.6
Others	4	3.4	3.4	89.9
Metastatic	12	10.1	10.1	100.0
Total	119	100.0	100.0	

Table-IV- Sex distribution in different histological variants

Histological type	**Male**	**Female**	**Total**
Squamous cell carcinoma	36	19	55
Adenocarcinoma	06	12	18
Small cell	07	11	18
Poorly	05	7	12
Other	0	04	4
Metastatic	6	6	12

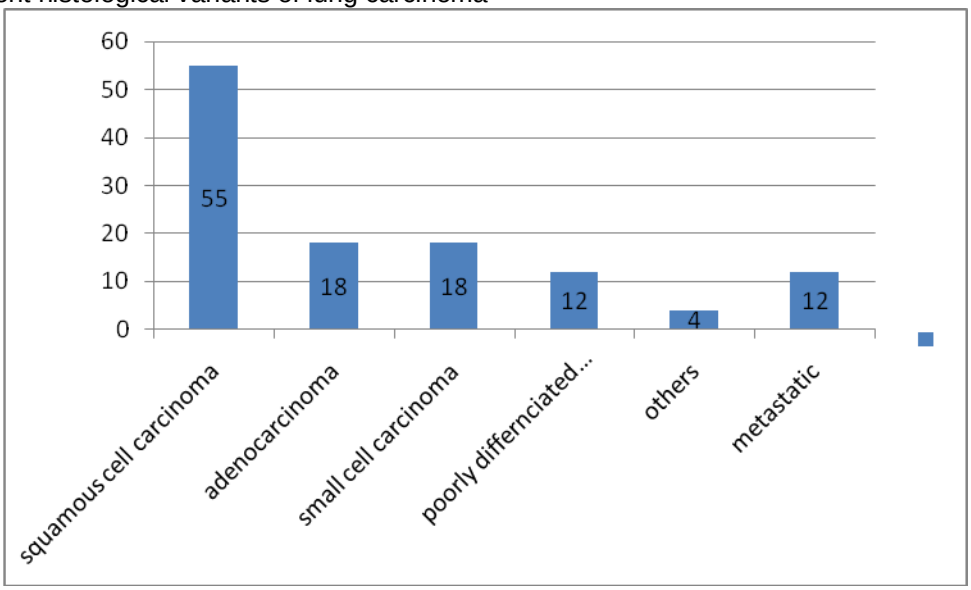
Table-V-Mean age in different histological variants

diagnosis	**Mean age**	**N**	**Std. Deviation**
squamous cell carcinoma	57.2182	55	10.61741
adenocarcinoma	48.5556	18	10.30832
small cell carcinoma	56.3333	18	10.56632
poorly differentiated carcinoma	59.7500	12	12.70021
Others	56.0000	4	4.54606
Metastatic	42.0833	12	18.36726
Total	54.4622	119	12.56562

Table-VI- Smoking status in different histological variants

	Diagnosis						Total
	Squamous cell carcinoma	Adenocarcinoma	small cell carcinoma	poorly differentiated carcinoma	Others	Metastatic	
smoker	46	10	15	9	1	3	84
non-smoker	9	8	3	3	3	9	35
Total	55	18	18	12	4	12	119

Figure I- Different histological variants of lung carcinoma



DISCUSSION

The number of lung cancer is increasingly rising in Pakistan, being most common in Southern part, due to abuse of tobacco in younger population[19]. Aziz et al in 2003 had apprehended, the pulmonary malignancy to rank number one among the most common cancers of Pakistan in next ten years[20]. The age of patients in this study ranged from 11-80 years with mean age of 54.5 ± 12.56. Our results are almost similar to study of srivasta[21] and Hussain et al[6]. Higher mean ages ranging from 61.8 to 71 years have been reported in different studies[22,23,24]. The lung carcinoma is the disease of middle aged and elderly persons[6]. In this study large number of cases (90%) is over forty. Our results are in accordance with Koul et al[12]. The male to female ratio in our study is 1.1:1 in primary bronchogenic carcinoma but the survey conducted in Pakistan during 1998-2002, revealed the incidence of lung carcinoma in males and females in a ratio of 6:1[5]. Further more different workers during last decade have shown male to female ratio ranging from 4.2 to 8:1[6,12,25,26,27,28.] However decreasing male to female ratio ranging from 3 to 2:1 has been reported in various studies around the world[29,30,31,32], hence our study is significantly different from other studies as for as male, female ratio in primary lung carcinoma is concerned because lowest ratio that has been described in literature is 2:1[32] , whereas we have found almost half of ratio (1.1:1) in present study Rising incidence of lung carcinoma among females has been confirmed by workers in USA, Europe, China, West Indies and even in India[33,34,35,36,37]. In our study increased frequency of lung tumors in females is possibly due to rampant use of tobacco in form of Hukka smoking especially in illiterate rural women folk. In our study squamous cell carcinoma was most frequent histological type (46.2%), more common in males ($p < .015$) followed by adenocarcinoma and small cell carcinoma (15.1% each) with p value of $< .014$, $.< .029$ respectively. Poorly differentiated carcinoma and metastatic malignancies were 10.1% each. Our results in squamous cell carcinoma are comparable to different studies conducted in Indo-Pak[6,26,38,]. However more percentage of cases in small cell carcinoma and adenocarcinoma have been reported in many European countries[39,40]. Our results are also in agreement with Roohi & Haq who reported 12.5% and 16.6% cases of adenocarcinoma and small cell carcinoma respectively[41]. Our results

are different from study of Koul et al[12] who reported higher percentage (76.5%) for squamous cell carcinoma as compared to our study (46.2%) and lower percentage for adenocarcinoma 3.3%. as compared to 12.12% in our study. Smoking is closely related with increased incidence of lung cancer[42]. In our study, 84 patients were smokers and 35 non smokers. Percentage of smokers in different studies ranged from 80-90%[7,30,43,44,45,46,] but we found 70.6 % of smokers (p <.000), which is highly significant statistically. This percentage in our study is almost same as reported by Hussain et al (70.6%)[11]. Squamous cell carcinoma and small cell carcinoma have strong relationship with smoking [47], and this has been supported by our study as well.

In this study quite sufficient number of patients with adenocarcinoma (44%) was non-smokers. Our results are in accordance with different studies[11,28,48,]. The lungs are the frequent metastatic targets, secondary deposits are found in 20-50% of cases as reported by Fisseler and Muller[13], whereas in our study 10.1% cases are of secondary nature.

CONCLUSION

Lung cancer is almost equally common in both sexes while squamous cell carcinoma is the most common variety and majority of cases occur in smokers.

RECOMMENDATION

If drastic anti smoking measures are not taken the disease would attain the epidemic proportion in next few decades.

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