



Original Article

# Clinico-Pathological Study of Lung Carcinoma

Pradhan SB<sup>1</sup>, Shakya S<sup>2</sup>, Shrestha S<sup>3</sup>

<sup>1</sup>Department of Pathology, Sarvanga Swastha Sadan, Lalitpur, Nepal

<sup>2</sup>Department of Oncology, Sarvanga Swastha Sadan, Lalitpur, Nepal

<sup>3</sup>Department of Oncology, Sarvanga Swastha Sadan, Lalitpur, Nepal

## Keywords:

Carcinoma;  
FNAC;  
Smoking;  
Adenocarcinoma.

## ABSTRACT

**Background:** Lung cancer is currently the most frequently diagnosed cancer in the world and the number one cause of cancer mortality worldwide.

**Materials and Methods:** A descriptive study was conducted in 55 diagnosed lung carcinoma cases being treated in a Kathmandu based hospital over a period of 18 months from 22nd Oct. 2012 to 21st April 2014.

**Results:** Out of total 55 lung carcinoma cases, 33 patients were male and 22 were female with Male: Female ratio of 1.5:1. The most frequent age group was 71-80 years. Lung cancer was more common among smokers (52.73 % of cases). Out of 47.27% non smokers, 76.92% were female. Squamous cell carcinoma was found to be the most common cancer type, comprising 63.64% of cases followed by adenocarcinoma (29.09% of cases) and small cell carcinoma (7.27% of cases). Among various diagnostic methods, CT guided Fine needle aspiration cytology (FNAC) and Pleural fluid cytology was found to be the best methods.

**Conclusion:** Smoking showed a positive correlation among carcinoma of lung patients. Squamous cell carcinoma and adenocarcinoma were the most common tumors encountered among the smokers and non-smokers respectively. CT guided Fine needle aspiration cytology (FNAC) and Pleural fluid cytology yields the most diagnostic materials.

## INTRODUCTION

Overall the lung cancer is the most commonly diagnosed cancer comprising 1.69 million (13.3%) out of 12.7 million new cancer cases. It was found to have high mortality rate of 18.2% (1.38 million out of 7.6 million cancer deaths) in 2008.<sup>1</sup> The less developed regions of the world were the most commonly affected comprising 56% of the new cancer cases and 63% of the cancer death.<sup>1</sup> Since 1987, more women have died each year of lung cancer than of the breast

cancer, which for over 40 years had been the major cause of death in women.<sup>2</sup> This shift could be due to the increasing trend of smoking habit among the women. Smokers account to 80-90% of the lung cancer<sup>2,3</sup> cases where as non smoker accounts to about 10-15% of cases.<sup>4</sup>

Commonly the patients with lung carcinoma presents with symptom like cough, hemoptysis, wheeze, shortness of breath and pain.<sup>4</sup> However, for the diagnosis investigations are required among which X-ray chest is one of the first investigative step.<sup>3</sup> Others include CT imaging and cytological examination of sputum, pleural fluid, alveolar lavage, bronchial brushing and CT guided Fine needle

## Correspondence:

Dr. Sailesh B. Pradhan, MD

Consultant Pathologist

Department of Pathology, Sarvanga Swastha Sadan

Email:saibinita@gmail.com

aspiration cytology (FNAC) and Biopsy.<sup>5</sup>

## MATERIALS AND METHODS

Fifty five diagnosed carcinoma lung cases being treated in Sarvanga Swastha Sadan over a period of 18 months from 22<sup>nd</sup> Oct. 2012 to 21<sup>st</sup> April, 2014 were included in the study. Their detail clinical history along with age, gender, symptoms, anatomical site involved, investigation, diagnosis were studied and correlated.

## RESULTS

Out of 55 diagnosed cases of lung carcinoma being treated in the study period, 60% patients were male and 40% were female with male to female ratio of 1.5:1. The distribution of patients in various age groups with types of carcinoma is shown in Table 1. The most common age group was 61-80 years. In contrast to the general population, among the age group below 60 years, we found that female accounted to 64.28% of cases.

A total of 52.73% were found to be either smoker or ex-smoker and 47.27% were nonsmoker. Most of the nonsmokers were female, comprising 76.92% of cases. Beside chronic cough 25.45% cases, in our study, had history of hemoptysis.

Squamous cell carcinoma was found to be the most common type comprising to 63.64% of cases, followed by adenocarcinoma (29.09 %) and small cell carcinoma (7.27 %).

Out of 20 female non smokers, 50% had adenocarcinoma, 45% had squamous cell carcinoma and 5% had small cell carcinoma. Out of 6 male nonsmokers, 83.33% had squamous cell carcinoma and 16.67% had small cell carcinoma.

Various means of diagnostic tools were used to diagnose carcinoma lung in our study. Table 2 shows modalities of diagnosis and their results in terms of positive, negative and suspicious cases. Among the various diagnostic approaches, sputum cytology was done in 6 cases and only 2 were positive. Out of 10 Pleural fluid cytology, 9 were positive and one was suspicious which was confirmed by CT guided FNAC. Similarly, out of 7 bronchial brushing, all were positive. CT guided FNAC showed positivity in all tested 23 cases. Biopsy, which followed cytological diagnosis, was done in 19 cases and all show positivity.

## DISCUSSION

Cancer, one of the most dreaded non-communicable diseases has become an important contributor to the global burden of diseases. The burden of cancer is growing and is the most common cause of cancer mortality worldwide.<sup>6</sup> Of

12 million new cancer cases estimated worldwide in the year 2007, 6.7 million cases were in developing countries only.<sup>7</sup> Further more there is an assumption that the developing countries will have an increase of 70% new cancer cases by the year 2020.<sup>8</sup>

Among all the cancers, lung cancer is found to be the most common type contributing to the large burden of cancer mortality and morbidity. In our study, out of 55 diagnosed cases of lung carcinoma, 60% patients were male and 40% were female. Male to female ratio was 1.5:1. In the similar study done by Shrestha HG et al<sup>9</sup>, it was found to be in the ratio of 2.2:1. In another study done by Radzikowska<sup>10</sup>, it was found to be much higher than ours accounting to 6.2:1. In the present study, the increased incidence of lung carcinoma in female could be due to increasing trend of smoking habit among female in our study population.

Squamous cell carcinoma was found to be the most common type comprising 63.64% of cases, followed by Adenocarcinoma (29.09 %) and Small cell carcinoma (7.27 %). The findings were similar to the study done by Shrestha HG et al<sup>9</sup> where frequency of Squamous cell carcinoma was 74.52%.

**Table 1: Frequency of lung carcinoma with its types**

Age group	No. of cases (%)	Types of carcinoma	No.
<= 50 years	6 (10.91%)	Adenocarcinoma	2
		Squamous cell carcinoma	4
51-60	8 (14.54%)	Adenocarcinoma	5
		Squamous cell carcinoma	3
61-70	17 (30.91%)	Adenocarcinoma	5
		Squamous cell carcinoma	10
		Small cell carcinoma	2
71-80	20 (36.36%)	Adenocarcinoma	4
		Squamous cell carcinoma	14
		Small cell carcinoma	2
>=81	4 (7.27%)	Squamous cell carcinoma	4
<b>TOTAL</b>	<b>55(100%)</b>		<b>55</b>

**Table 2: Modalities of diagnosis**

Modality	No of cases	Results		
		Positive	Negative	Suspicious
CT guided FNAC	23	23		
Biopsy	19	19		
Pleural fluid cytology	10	9		1
Bronchial brushing	7	7		
Sputum cytology	6	2	4	
Alveolar lavage	2		2	
<b>Total</b>	<b>67</b>	<b>60</b>	<b>6</b>	<b>1</b>

Regarding the distribution of patients in various age groups, in the present study, 61-80 age group was found to be the most common age group where 30.91% were in age group of 61-70 years and 36.36% in the age group of 71-80 years. Similarly, Shrestha HG et al<sup>9</sup> and Karlikaya et al<sup>11</sup> also found the maximum number of cases in their sixth and seventh decade of life.

In our study, 52.73% were found to be either smoker or ex-smoker and 47.27% of cases were non smoker. Most of the non smokers were female comprising 76.92% of cases. In a study done by Shrestha HG et al<sup>9</sup>, most of the patients having lung cancer were smokers (85.71%) and all non smokers developing lung cancer were females.

In our study, out of 20 female non smokers, 50% had Adenocarcinoma, 45% had Squamous cell carcinoma and remaining 5% had small cell carcinoma. This finding supports the well known fact that adenocarcinoma develops more frequently in individuals (particularly women) who have never smoked.<sup>12,13</sup>

Among all the major symptoms, our study showed only 25.45% of cases had history of hemoptysis. Similarly, 45.85% cases had a history of hemoptysis in a study done by Shrestha HG et al.<sup>9</sup> Since hemoptysis is one the commonest symptom of tuberculosis, one may misdiagnosed lung carcinoma as tuberculosis as mentioned by Sayami P et al.<sup>14</sup> In their study 18% of the patients were wrongly diagnosed as tuberculosis and being treated with Anti tubercular drug before being diagnosed as lung cancer. So, one should always think of possibilities of lung carcinoma in all patients with hemoptysis and should investigate in that line.

Simple and non invasive investigations like X- ray, sputum cytology and pleural fluid cytology are done first and if one reliable investigation shows the positivity, other invasive investigations like Bronchial lavage, brushing, FNAC, Biopsy, may be omitted. In our study, sputum cytology was done in 6 cases and only 2 were positive. Out of 10 Pleural fluid cytology, 9 were positive and one was suspicious which was confirmed by CT guided FNAC. Similarly, out of 7 Alveolar brushing, all were positive. CT guided FNAC showed positivity in all tested 23 cases. Biopsy which is the gold standard for tumor diagnosis was done in 19 cases and all show positivity.

## CONCLUSION

Lung carcinoma is very common among all the elderly smoker patients. In which further, squamous cell carcinoma is the commonest type. Adenocarcinoma, on the other hand, is common among non smokers. Pleural fluid cytology and CT guided FNAC are the next best alternate for the quick and early diagnosis, were bronchoscopy and biopsy are not accessible.

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