

# Frequency of Bronchogenic Carcinoma in Smoker Patients with Hemoptysis Undergoing Fiberoptic Bronchoscopy

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## ABSTRACT

**Objective:** To know the frequency of bronchogenic carcinoma in smoker patients presenting with hemoptysis using fiberoptic bronchoscopy technique

**Study Design:** Description case series study

**Place and duration:** This study was carried out at the pulmonology unit of Postgraduate Medical Institute Lady Reading Hospital Peshawar, KPK from 18/09/2007 to 18/09/2008.

**Material and Methods:** Two hundred and fifty smoker patients presenting with hemoptysis, having clinical suspicion of bronchogenic carcinoma and fulfilling the inclusions criteria underwent fiberoptic bronchoscopy. The bronchoscopic findings and other demographic information were determined regarding their frequencies and percentage.

**Results:** Fifty Nine point Two Percent (59.2%) patients were found to have pulmonary tuberculosis, seventeen Point Two Percent (17.2%) were diagnosed to have bronchiectasis, 11.6% chronic bronchitis, 5.2% with bronchogenic carcinoma and 6.8% remained with undetermined cause.

**Conclusion:** Pulmonary Tuberculosis is a major cause of hemoptysis in relatively younger smokers but the bronchogenic carcinoma is a major cause of hemoptysis in smokers of old age group.

**Key words:** Smoking, Hemoptysis, Bronchogenic carcinoma, Fiberoptic bronchoscopy.

## INTRODUCTION

Lung Cancer is a major cause of morbidity and mortality worldwide and accounts for nearly 13% of all new cancer diagnoses in both sexes<sup>1,2</sup>. Lung cancer is the second most commonly diagnosed malignancy in United State is a leading cause of cancer death, accounting for 28% of all cancer deaths<sup>3,4</sup>. In Japan and China lung cancer is responsible for cancer related deaths per year and the death rates are expected to substantially increase over the next several decades<sup>5,6</sup>.

Smoking is the most common risk factor for lung cancer<sup>7</sup>. The incidence of lung cancer throughout the world reflects the prevalence of cigarette smoking. Cigarette smoke contains over 300 chemicals, 40 of which are known, carcinogenic. Although the presumed cause of hemoptysis in South East Asia is tuberculosis, it is also the presenting symptoms of underlying carcinoma of lung.

Unfortunately, in Pakistan there is no proper tumor registry by which one can know about the frequency of lung cancer, in smoker patients presents with hemoptysis. According to some hospital based studies, the lung cancer is a very frequent malignancy in male patients<sup>8</sup>.

The two predominant types of bronchogenic carcinoma are non-small cell carcinoma (NSCLC) and small cell lung carcinoma (SCLC) about 80% of bronchogenic carcinomas are NSCLC and 20% are Small cell

carcinoma. This clinical scenario is no different from pattern of bronchogenic carcinoma in Pakistani population in which the predominant histopathology is NSCLC reported by various hospital based studies<sup>9,10</sup>.

Hemoptysis is a common clinical problem with many potential etiologies, it is significant and sometimes an alarming symptom which requires thorough investigation<sup>11</sup>. A number of patients presenting with hemoptysis may have a serious underlying disorder as tuberculosis and bronchogenic carcinoma<sup>12</sup>.

If the X-ray chest is negative or unrevealing it does not rule out important disease as a cause of hemoptysis. Generally Computed Tomography (CT) of the chest is preferred next study, three forms of CT are valuable that might be useful in diagnosing the cause of hemoptysis. CT chest with Contrast, high resolution chest CT and spiral CT of chest.

Fiberoptic bronchoscopy is generally the next study to be considered. It may identify an endobronchial lesion, most often lung cancer as the cause of hemoptysis and can help localize the lobe or segment from which the blood is coming out. The combination of fiberoptic bronchoscopy and chest CT has been shown to give higher yield of specific diagnosis than either test alone.

The fiberoptic bronchoscopy is a safe procedure to diagnose bronchial carcinoma, unsuspected cases of Pulmonary tuberculosis and unexplained lung lesions.

## MATERIALS AND METHODS

The study was carried out for the first time at the pulmonary unit of Post Graduate Medical Institute, Lady Reading Hospital Peshawar. It was a descriptive case series study extending from September, 2007 to September 2008.

Two hundred Fifty smoker patients with history of mild and moderate hemoptysis clinically suspected of bronchogenic carcinoma were included in this study. After taking informed consent from patients, each patient fulfilling the inclusion criteria were thoroughly examined by taking past history of smoking and complete physical examination before undergoing diagnostic fiberoptic bronchoscopy. Flexible bronchoscopy under local anesthesia was performed in all patients. Biopsies were taken from involved sites and sent for Histo-Pathological examination. The findings of fiberoptic bronchoscopy and other demographic information of patients were recorded.

**Inclusion Criteria:** Cases of male smokers patients with history of  $\geq 20$  pack years of smoking and aged more than forty years were included in this study.

**Exclusion Criteria:** Patients with no history of smoking, patients with already known cause for hemoptysis, septum AFB position and patients, using anticoagulant drugs were excluded from the study. Data analysis was done by computer program SPSS version 12.

## RESULTS

Total number of patients were (n=250), age distribution in different age group (n=48) 40-50 years, (n=80) 51-60 years old and (n=22) 61-70 years were included in this study.

**Table No.3: Bronchoscopic findings in patients of bronchogenic carcinoma (n=13).**

| S. No | Vocal Cord |        | Trachea | Carina | Bronchial Tree |        |
|-------|------------|--------|---------|--------|----------------|--------|
|       | Right      | Left   |         |        | Right          | Left   |
| 1     | Normal     | Normal | Normal  | Normal | Tumor          | Normal |
| 2     | Normal     | Palsy  | Normal  | Normal | Normal         | Tumor  |
| 3     | Normal     | Palsy  | Normal  | Normal | Normal         | Tumor  |
| 4     | Normal     | Normal | Normal  | Normal | Tumor          | Normal |
| 5     | Normal     | Palsy  | Normal  | Normal | Normal         | Tumor  |
| 6     | Normal     | Normal | Normal  | Normal | Tumor          | Normal |
| 7     | Normal     | Palsy  | Normal  | Normal | Normal         | Tumor  |
| 8     | Normal     | Normal | Normal  | Normal | Normal         | Tumor  |
| 9     | Normal     | Normal | Normal  | Normal | Normal         | Tumor  |
| 10    | Normal     | Normal | Normal  | Normal | Tumor          | Normal |
| 11    | Normal     | Palsy  | Normal  | Normal | Normal         | Tumor  |
| 12    | Normal     | Normal | Normal  | Normal | Tumor          | Normal |
| 13    | Normal     | Normal | Normal  | Normal | Tumor          | Normal |

Table 1 showing the frequency distribution of bronchogenic carcinoma with hemoptysis with respect to age. Twelve n=12 patients (92.3%) were between (61-70) years of age and one patients (7.6%) between

Causes of Hemoptysis was found in this study. 59.2% Tuberculosis, 17.2% bronchiectasis, 11.6% Chronic bronchitis, 5.2% Bronchogenic carcinoma and 6.8% unknown causes.

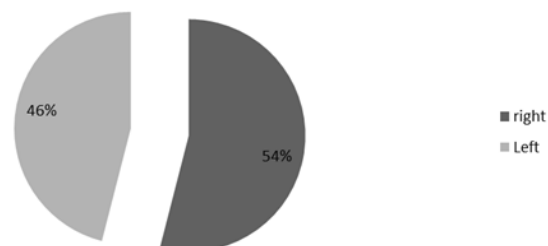
**Table No.1: Frequency distribution of bronchogenic carcinoma with respect to age.**

| Age range (years) | Frequency | Percentage   |
|-------------------|-----------|--------------|
| 61-70             | 12        | 92.3         |
| 51-60             | 01        | 7.6          |
| <b>Total</b>      | <b>13</b> | <b>99.99</b> |

**Table No.2: Frequency and percentage of histopathology of bronchogenic carcinoma (n=13).**

| Histopathology | Frequency | Percentage |
|----------------|-----------|------------|
| NSCLC          | 11        | 84.6       |
| SCLC           | 02        | 15.3       |

**Side of Lung Involvement**



**Pie chart showing the side of lung involvement with bronchogenic carcinoma.**

(51-60%) years of age. Among these thirteen patients, who were found to the having bronchogenic carcinoma on biopsy.

NSCLC was found in 84.6% and SCLC was found in 15.3% of cases as shown in Table 2. Among NSCLC squamous cell carcinoma and adenocarcinoma were most frequent histopathology.

Bronchoscopic findings in patients of bronchogenic carcinoma are discussed in Table 3. Seven patients (53.84%) were found to have bronchogenic carcinoma on right side and six patients (46.15%) were found to have carcinoma on left side. Figure showing the side of lung involvement with bronchogenic carcinoma.

## DISCUSSION

Smoking is responsible for majority of bronchogenic carcinoma, not only in the west<sup>13,14</sup> but retrospective studies in Pakistan showed that smoking history was positive in 79-83% of patients with bronchogenic carcinoma<sup>15</sup>.

Hemoptysis occurs as a presenting symptoms in 6-31% of patients with lung cancer<sup>16</sup>. Since massive bleeding is caused by erosion of the tumor into a major vessel such as pulmonary artery, it was reported that approximately 50% of patients with massive hemoptysis due to lung cancer death as compared to 28% from other causes.

FIBEROPTIC BRONCHOSCOPY plays an important role in managing hemoptysis for diagnosis and treatment<sup>17,18</sup>.

In our study bronchogenic carcinoma was found in smokers with 40 or more than 40 of smoking and almost all of them except one was in the age range of 61-70 years. This is in consistent with some western studies<sup>19</sup>. Ekim et. al.<sup>20</sup> found that patients with hemoptysis has normal x-ray he found two patients had endobronchial lesion obvious at FIBEROPTIC BRONCHOSCOPY, one turned out to be lung cancer and other pulmonary tuberculosis, further evaluation of hemoptysis requires CT scan of chest and FIBEROPTIC BRONCHOSCOPY. Although the frequency of lung cancer in patients with normal CT chest is rare, all possible effects should be made to ensure that no lung cancer should be missed, for this reasons it is suggested that FIBEROPTIC BRONCHOSCOPY must be included in the initial evaluation of smokers, who represent high risk for lung cancer.

## CONCLUSION

As the cigarette smoking is a major risk factor for bronchogenic carcinoma, come out to be the leading cause of hemoptysis, 40 or more than forty pack years of smoking should be evaluated with fiberoptic bronchoscopy which results is reduce cost compared with CT Scan of chest and many other histologic diagnosis tests.

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**Corrigendum**

The designations of Authors of the article '**The Effects of Acute and Chronic Noise Stress on the Body Weight of Male Albino Rats**' published in Med Forum Vol 24. No.11, available at pages 45-48, have been printed wrongly which may be read as follows:

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