

# The Role of Fiberoptic Bronchoscopy in the Diagnosis of Unsuspected Pulmonary Disease Presenting with Hemoptysis

1. Muhammad Ashfaq 2. Ikram Ullah 3. Amjad Zahoor 4. Muhammad Ishaq  
5. Israr Ahmed Akhund

1. Assoc. Prof. of ENT 2. Asstt. Prof. of Pharmacology 3. Assoc. Prof. of Pediatrics 4. Prof. of Surgery  
5. Prof. of Physiology, Jinnah Medical College, Peshawar.

## ABSTRACT

**Objective:** To find out the usefulness of Bronchoscopy Technique in the diagnosis of unsuspected pulmonary disease presenting with Hemoptysis.

**Study Design:** Case serious study.

**Place and Duration of Study:** This study was carried out at the pulmonology Unit of Postgraduate Medical Institute Lady Reading Hospital, Peshawar, Khyber Pakhtunkhwa from 15-04-2011 to 15-04-2012.

**Material and Method:** Two hundred and fifty male smoker patients with age limit of 40-70 years presenting with hemoptysis having clinical suspicion of unsuspected pulmonary disease and fulfilling the inclusion criteria underwent bronchoscopy. The bronchoscopic finding and demographic information were determined regarding their frequencies and percentage.

**Result:** Frequency distribution of pulmonary Tuberculosis 94.59% in age range 40-50 years and 5.4% in 51-60 years. Bronchiectasis 88.3% 50-60 years and 11.6% in 61-70 years. Chronic Bronchitis with respect to age range of 27.58% in the age range 40-50 years 72.43% in age 51-60 years.

**Conclusion:** Bronchoscopy Techniques is a very useful for the determination of unsuspected cases of pulmonary diseases.

**Key Words:** Tuberculosis, Brocheictasis, Chronic Bronchitis, Fileroptic bronchoscopy.

## INTRODUCTION

Hemoptysis is a common clinical problem with many potential etiologies <sup>(1)</sup>. It is reported in 7-15% of patients evaluated in chest clines <sup>(2)</sup>. Number of patients presenting with Hemoptysis many have a serious disorder as tuberculosis and bronchogenic carcimona <sup>(3)</sup>. Hemoptysis is expectoration of blow that originates below the vocal eards<sup>(4)</sup>. Hemoptysis can has many causes including infections like chronic bronchitis, bronehiectasis, tuberculosis, non- tuberculosis mycobacterium, lungs diseases, necrotizing pneumonia, mycetoma cystic fiberlosis. Regarding cardio vascular causes, sever left ventricle heart failure miltral stenosis, pulmonary embolism infraction, right sided endocarditis, broncovascular fistula are common ones. The etiologies of hemoptysis very depending upon the geographic location and inflection. Tuberculosis plays a significant role in developing countries where as some western studies showed that bronchiectasis, chronic bronchitis, acute bronchitis and lung cancer are the major causes<sup>(5)(6)</sup>. Main sign and symptoms of endobronchial Tuberculosis are studied by number of research work. They found that main presenting features are cough fever and hemoptysis<sup>(7)</sup>. New techniques used for the diagnosis have changed the etiologic distribution of hemoptysis. Fibroptic bronchoscopy may identify on endobronchial lesion, most often lung cancer or Tuberculosis etc are the

major causes for hemoptysis. Fibroptics bronchoscopy is indicated in certain categories of patients, those in whom the diagnosis is not evident from history, Physical examination, chest x-ray or chest CT scan. Bronhoscopy is technique for acquiring tissue of the airway for diagnosis without a formal operation. A Bronhoscopy is an examination of inside of the airway using a lighted tube with or without a series of lenses or cameras. Almost all the patients of early stage of lung disease will undergo bronchoscopy prior to section. This technique is used frequently for airway obstruction, relief of airway bleeding and retrieval of foreign body. In Pakistan different hospital based studies have evaluated its role in diagnosis of brenchogenic careinoma <sup>(8)(9)</sup>.

## MATERIALS AND METHODS

This study was carried out at Pulmonology unit of the Postgraduate Medical Institute, Lady Reading Hospital, Peshawar. It was a case series study conducted for one year from April 2011 to April 2012. Two Hundred and fifty smokers Male patients with history of hemoptysis unsuspected cases of pulmonary disease with age rang 40-70 years old were included in this study. After taking informed consent from the patients, each patient fulfilling the inclusion criteria was thoroughly examined by taking past history of smoking and complete physical examination and other diagnostic tests. Flexible Bronchoscopy under local anesthesia was

performed in all these patients. The finding of fibroptic bronchoscopy and other demographic information of patients were recorded.

**Inclusion Criteria:** Male smoker patients with history of >20 pack years of smoking with age range 40-70 years undiagnosed pulmonary disease were included in the study.

**Exclusion Criteria:** Patients with no history of smoking, patients with already known cause for hemoptysis sputum AFB positive and patients using anticoagulant drugs were excluded from this study.

**Data Analysis:** All the studied variables like smoking history, bronchoscopic finding like site of vocal cord involved, trachea, bronchial tree were analyzed for descriptive statistics. Frequencies, percentage were calculated for all these variables and mean, standard deviation was calculated for age. Data analysis was done by computer program SPSS version 12.

## RESULTS

Present study was conducted on 250 Male smokers patients with age limit of 40-70 years old with more than 20 pack years of smoking with hemoptysis undiagnosed pulmonary disease were included in this study. Table 1. Showing the frequency distribution of pulmonary tuberculosis, total (n=148) among these (n=140) patients 94.59% with age limit of 40-50 years and (n=08) 51-60 years 5.4%. these results found that pulmonary tuberculosis was detected in the age of 40-50 years with higher pack years of smoking, other disease like bronchiectasis was also detected in the patients with hemoptysis. The frequency distribution of bronchiectasis with respect age is given in the table (2). The frequency n=38 (88.3%) was found in the age range of 51-60 years and n=5 (11.6%) was found in the age range of 61-70 years these results showed that bronchiectasis is the major cause of hemoptysis in the age range of 51-60 years. Table (3) showing the frequency distribution of chronic bronchitis, the frequency n=08 (27.58%) is occurring in 40-50 years age range and n=21 (72.43%) in the age range of 51-60 years. These results show that the cause of hemoptysis in the age range of 51-60 years is also chronic bronchitis when pack years of smoking was increased.

**Table No.1: Frequency distribution of pulmonary tuberculosis with respect to age**

| Age Range (Year) | Frequency  | Percentage  |
|------------------|------------|-------------|
| 40-50            | 140        | 94.49       |
| 51-60            | 08         | 5.4         |
| <b>Total:</b>    | <b>148</b> | <b>100%</b> |

**Table No.2: Frequency distribution of bronchiectasis with respect to age**

| Age Range (Year) | Frequency | Percentage  |
|------------------|-----------|-------------|
| 40-50            | 38        | 88.3        |
| 51-60            | 05        | 11.6        |
| <b>Total:</b>    | <b>43</b> | <b>100%</b> |

**Table No.3: Frequency distribution of Chronic Bronchitis with respect to age**

| Age Range (Year) | Frequency | Percentage  |
|------------------|-----------|-------------|
| 40-50            | 08        | 27.58       |
| 51-60            | 21        | 72.43       |
| <b>Total:</b>    | <b>29</b> | <b>100%</b> |

## DISCUSSION

Pulmonary tuberculosis, bronchiectasis and chronic bronchitis are the leading causes of hemoptysis, a very significant relationship was found with cigarette smoking, number of pack years of smoking age. Hemoptysis is a distressing symptom and at time it poses a diagnostic problem. The etiology may vary depending up on the geographic location and infection, such as tuberculosis play a significant role in developing countries <sup>(11)</sup>. In other studies bronchiectasis, chronic bronchitis, tuberculosis and lung cancer were the most common causes <sup>(6)</sup>. Fibrotic bronchoscopy plays an important role in the diagnosis and major causes of hemoptysis <sup>(11) (12)</sup>. In our study pulmonary tuberculosis was found to be the commonest cause of hemoptysis. Most of the patients were in the age range of 40-50 years. Although efficient tuberculosis programs, wide spread usage of antibiotics is still a major cause of hemoptysis in South East Asia, which is comparable with our studies <sup>(9)</sup>. Knott Craig in their study conducted at South Africa showed that pulmonary tuberculosis was responsible for 73% cases of hemoptysis <sup>(13)</sup>. Domouna et al., reported that pulmonary tuberculosis was the leading cause of hemoptysis followed by pneumonia and bronchiectasis <sup>(14)</sup>. In other study conducted at Istanbul found that pulmonary tuberculosis is the major cause of hemoptysis which is comparable with our studies using fibroptic bronchoscopy <sup>(15)</sup>. Bronchiectasis was found to be the second common cause of hemoptysis in our studies which is in contrast with various western studies <sup>(16)</sup>. Mc Guinness et al., found that bronchiectasis as a major cause of hemoptysis. Abal et al., reported the same finding which are similar with our findings. Chronic bronchitis is found to be the third common cause of hemoptysis in our studies using flexible bronchoscopy. In patients with age range of 51-60 years. Number of studies showed that chronic bronchitis is caused by cigarette smoking <sup>(5)</sup>. In our studies all the patients were smokers. Patients with chronic bronchitis may develop hemoptysis either in a stable state or on acute exacerbation. As expected chronic bronchitis is found to be a significant cause of hemoptysis which is comparable with some western studies <sup>(17)</sup>.

## CONCLUSION

Fibroptic bronchoscopy technique is a very useful diagnostic tool for determining the pulmonary

tuberculosis, bronchiectasis and chronic bronchitis. The frequency of pulmonary tuberculosis is most in patients with age range of 40-50 years, and bronchiectasis in the age range of 50-60 years. The frequency of chronic bronchitis in the age range of 50-60 years was diagnosed in those patients presenting with hemoptysis.

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### Address for Corresponding Author:

**Prof. Dr. Muhammad Ishaq**

Chairman & Founder

Jinnah Medical College Peshawar

Warsak Road, Peshawar

Cell: +92-333-9152060