

## **FIBEROPTIC BRONCHOSCOPY FINDINGS IN ENDOSCOPICALLY VISIBLE BRONCHIAL CARCINOMA**

**<sup>1</sup>Ravi Bhaskar, <sup>2\*</sup>Seema Singh, <sup>3</sup>Pooja Singh, <sup>4</sup>Amit Bhagat, <sup>5</sup>Sanchit Tiwari**

<sup>1,3</sup>Department of Pulmonary Medicine, Career Institute of Medical Sciences, Lucknow, India.

<sup>2\*</sup>Department of Respiratory Medicine, King Georges Medical University, Lucknow, India.

<sup>4</sup>Department of Orthopedic Surgery, King Georges Medical University, UP, Lucknow, India.

<sup>5</sup>Department of Biochemistry, Saraswati Medical College. Unnao, U.P.

### **Abstract:**

**Flexible fibreoptic bronchoscopy was performed in 60 proved patients with lung cancer. Tumors were endoscopically visible in 38 (63.3%) of patients. Of the endoscopically visible tumors, the primary sites of involvement were: main bronchus in 21 (55.3%), lobar bronchus in 14 (36.8%), and segmental bronchus in 3 (7.9%) of patients. Histopathological examination of bronchial biopsies yielded positive diagnosis in 31 (81.6%) of patients, and a combination of bronchial biopsy, bronchial aspirate cytology and postbronchoscopic sputum smear examination yielded diagnosis in 35 (92.1%) of patients with lung cancer. Squamous cell and small cell carcinoma were the common central tumors found in 60% and 28.5%, respectively. Flexible fiber optic bronchoscopy is a valuable technique for the diagnosis of endoscopically visible bronchial carcinoma.**

**Keywords:** fibreoptic bronchoscopy, lung cancer, histopathological, endoscopically.

### **Introduction:**

Lung cancer is the malignancy with the highest mortality worldwide, being the only one whose incidence of death has progressively increased despite improved and more aggressive therapy in recent years. For good clinical care, it is important to determine the presence or extent of endobronchial involvement of patients with known or suspected lung cancer. Bronchoscopy is accepted as the best technique for such an evaluation. In India, the diagnosis of lung cancer is delayed in most of the cases due to the lack of awareness of the disease among the population and the scarcity of diagnostic facilities at most of the hospitals. As a result, the patients present at the hospitals at an advanced stage of the disease. Fibreoptic bronchoscopy is a valuable tool for

early detection of lung cancers. Hence, the present study was an attempt to validate the role of flexible fiberoptic bronchoscopy in establishing diagnosis of endoscopically visible tumors.

### **Patients and Methods:**

A total of 60 cases were selected for the study at Career Institute of Medical Sciences, Lucknow, India between July 2019 to January 2020. These cases were proved to have malignant pathology either by flexible fiber optic bronchoscopy (FOB) and/or by other investigations such as fine needle aspiration cytology/CT guided biopsy of mass, plural biopsy, lymph node biopsy or by biopsy of resected lung specimens. FOB was done through trasnasal route under topical anesthesia using Olympus BF- 10 Model Fibrescope with OES Halogen light source-Olympus CLE-10 in all the 60 cases.

Forcep biopsy of endoscopically visible tumors was taken and the biopsy specimens were sent for histopathological examination. If biopsy report was negative then the biopsy was repeated. Bronchial aspirate was collected in a trap placed between the suction channel of bronchoscope and the suction machine. The patient was asked to collect the sputum in a spittoon for 24 hours after the bronchoscopic procedure. Both bronchial aspirate and postbronchoscopic sputum specimens were examined for presence of malignant cells.

### **Results:**

Of 60 cases of lung tumors, 38 (63.3%) had endoscopically visible tumors. Cough and haemoptysis were most common symptoms reported in 35 (92.1%) and 29 (76.3%) of cases, respectively (table 1). Mass lesion was the commonest chest x-ray finding in 23 (60.5%) of cases (table 2). Out of the 38 visible tumors, the tumors mainly involved main stem bronchus in 21 (55.3%), lobar bronchus in 14 (36.8%) and segmental bronchus in 3 (7.9%) of cases. The distribution of tumors was equal on both right and left side i.e. 19 each. The endoscopic appearance of the visible lesions was: tumor in 28 (73.7%), ulcer in 5 (13.2%), marked oedema with necrosis in 4 (10.5%), and localized hyperemia in 1 (2.6%) of cases.

**Table 1: Symptoms of patients with endoscopically visible tumors (n=38)**

Symptoms	No. cases	Percent
Cough	35	92.1
Haemoptysis	29	76.3
Dyspnoea	11	28.9
Neck Lymphadenopathy	10	26.3
Hoarseness of voice	6	15.8
Chest pain	3	7.9
SVC Syndrome	2	5.3

**Table 2: Radiological findings in endoscopically visible tumors (n=38).**

Radiological findings	No. Of cases	Percent
Mass Lesions	23	60.5
Collapse of segment/lobe(s)	8	21.0
Non/slow resolving	4	10.5

pneumonia		
Pleural effusion	4	10.5
Cavitations	4	10.5
Elevation of dome of Hemi diaphragm	4	10.5
Normal chest- X-ray	1	2.6

**Table 3: Final diagnosis established in endoscopically visible tumors (n=38)**

Final diagnosis established by histopathology	Cases diagnosed by FOB	
	No. of cases	Percent
Squamous Cell Carcinoma	21	60.00
Small Cell Carcinoma	10	28.57
Adeno Carcinoma	2	5.71
Large Cell Carcinoma	1	2.86
Carcinoma in Situ	1	2.86

Histopathological examination of bronchial biopsies yielded positive diagnosis in 31 (81.6%) of cases having endoscopically visible tumors. The bronchial aspirate cytology and postbronchoscopic sputum specimens were positive in 10 (26.3%) and 7 (18.4%) of cases, respectively. A combination of forcep biopsy, bronchial aspirate and postbronchoscopic sputum specimens yielded a positive diagnosis in 35 (92.1%) of cases having endoscopically visible tumors. Final diagnosis established by all the three procedures combined revealed that Squamous cell carcinoma and small cell carcinoma were common tumors found in 60% and 28.6% of cases, respectively (table 3).

### **Discussion:**

In this study of 38 cases of endoscopically visible tumors, the tumors were located both in right and left side of the lung in equal number (19 each). On visual observation, tumor growth occupying whole or part of bronchial lumen was the commonest finding (73.7%). The main stem bronchus involvement was observed in 21 (55.3%) and labor bronchus in 14 (36.8%) of cases. Similar high occurrence of tumors in the main stem bronchi (57.1%) was reported in an earlier study elsewhere (1). These findings of fiberoptic bronchoscopy also suggest that most of the patients of lung tumors in the population seek care quite late in the process. This is probably due to the fact that, in contrast to western countries, any shadow seen in the chest x-ray in India is regarded initially as tuberculosis and antitubercular drugs are prescribed as a routine (2). This leads to an avoidable delay in the diagnosis of cancers and many tumors become untreatable.

Among 38 bronchoscopically visible tumors, forceps biopsy, bronchial aspirate cytology and postbronchoscopic sputum cytology yielded positive diagnosis in 31 (81.6%), 10 (26.3%) and 7 (18.4%), respectively. The results of forceps biopsy in our series are comparable with 83% (3) and 85.7% (1) in other studies, but lower than those reported at 97% (4) and 98% (5). Such lower results using the forcep biopsy could be due to necrosis and sloughing around the intra bronchial tumors and the biopsy specimens from the periphery is many a time reported as inconclusive. The comparative low yield using the forcep biopsy may also be due to bleeding from

endobronchial lesions as soon as biopsy forcep was touched, obscuring the visibility of tumors. An earlier study emphasized a major drawback of the fibreoptic bronchoscope i.e. small and shallow samples of tissues obtained with the small biopsy forceps used in this procedure (6).

The results of bronchial aspirate cytology were similar to those reported in an earlier study (7). Combination of all three specimens in this study yielded a positive diagnosis in 92.1% of cases; similar results were reported in other studies (5,7,8). In this study, one case of carcinoma in situ was found who had the complaints of haemoptysis, a normal chest –x-ray, and a localized hyperemic area in right main stem bronchus on FOB. The forceps biopsy in this case clinched the diagnosis; although all other investigations were negative. The diagnosis of this case otherwise would have been either missed if bronchoscopy was not done; or the patient would have presented late with an advanced stage of malignancy. Thus, fibreoptic bronchoscopy has an important role when chest x-ray is normal. When risk factor such as smoking is present, bronchoscopic examination should be performed in a patient over the age of 40, presenting with haemoptysis and a normal chest x-ray (9).

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