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## FIBEROPTIC BRONCHOSCOPY; DIAGNOSTIC ROLE, A LOCAL EXPERIENCE

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**ABSTRACT... Objectives:** To demonstrate the usefulness of Bronchoscopy as a diagnostic tool in various pulmonary disorders. **Design:** Prospective study. **Setting:** Nawaz Medicare Hospital Faisalabad. **Period:** June 2004 to December 2007. **Materials & Methods:** This study was conducted on 52 patients, 37 were male & 15 were female. Their ages ranged from 26 to 85 years. These patients who under went Bronchoscopy were either suspected cases of bronchogenic carcinoma or had difficult to treat un-resolving pneumonias. Endobronchial biopsies and bronchial aspirates were obtained. **Results:** In the patients suspected of bronchogenic tumor 66.67% patients turned out to be positive on endobronchial biopsies. Bronchial aspirates were diagnostic in 73.32% cases of un-resolving pneumonias. The commonest symptoms in patients under going Bronchoscopy were haemoptysis and cough. **Conclusion:** Bronchoscopy is very useful in the diagnosis of suspected cases of bronchogenic carcinoma. Bronchial aspirates are helpful in the diagnosis of un-resolving pneumonias.

**Key words:** Diagnostic role, Bronchoscopy.

**INTRODUCTION**

Slightly more than a century ago, the first translaryngeal rigid bronchoscopy was performed by Gustov Killian of the University of Freiburg Germany<sup>1</sup>. For more than 80 years, this remarkable instrument was the main access to the lower airway for diagnostic and therapeutic interventions. Fiberoptic bronchoscopes were introduced into clinical practice by Shigeto Ikeda and co workers in the late 1960s<sup>2</sup>.

Flexible bronchoscopy is an essential basic investigation in respiratory medicine. It enables visual inspection of the airways down to the subsegments, and allows various samples to be easily obtained. The procedure is very

safe and is performed as a day-care procedure with local anaesthesia, with or without short-acting intravenous sedation<sup>3</sup>.

Bronchoscopy has numerous indications both diagnostic and therapeutic. It is indicated for the diagnosis of common respiratory symptoms like haemoptysis and

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persistent cough. The most important indication is the diagnosis of suspected bronchial neoplasms.

Other diagnostic indications are investigation of non resolving pneumonias and difficult to treat infections where bronchial aspirates taken through flexible bronchoscope are quite helpful.

Flexible bronchoscopy is a less frequently used and feared investigation in our setting. This study was done to evaluate the diagnostic role of bronchoscopy in patients presenting with various chest complaints.

### MATERIALS & METHODS

This was a prospective study. It was conducted at the endoscopy unit of Nawaz Medicare Hospital Faisalabad, from June 2004 to December 2007. A total number of 52 patients were bronchoscoped, 37 were male & 15 were female. These patients presented with various chest complaints. Their age ranged from 26 to 85 years with a mean age of 55.5 years.

Majority of the patients were selected on outdoor basis. Some patients were referred from other specialists. The indications in these patients were decided by the referring doctors. All patients were bronchoscoped with Olympus bronchofiberscope BF-TE after lignocaine throat spray and gargles. Vocal cords were also anesthetised with lignocaine 4%. Endobronchial biopsies were taken of all suspicious lesions and bronchial aspirates were also taken when felt appropriate.

### INCLUSION CRITERIA

All patients referred with various respiratory symptoms and a suspicion of malignancy or patients presenting with non-resolving pneumonias were included if they did not have any contraindication.

### EXCLUSION CRITERIA

1. Age less than 12 years.
2. Uncooperative/ unfit patients for bronchoscopy.
3. Patients having concomitant diseases like Myocardial Infarction, severe bronchospasm and disturbed conscious level.

### RESULTS

A Total number of 52 patients were bronchoscoped with various respiratory complaints over a period of 2.5 years, 37 patients were male and 15 patients were female (Table I). Age ranged from 26 to 85 years with a mean age of 55.5 years.

Sex	No of Patients	% age
Male	37	71.1
Female	15	28.8

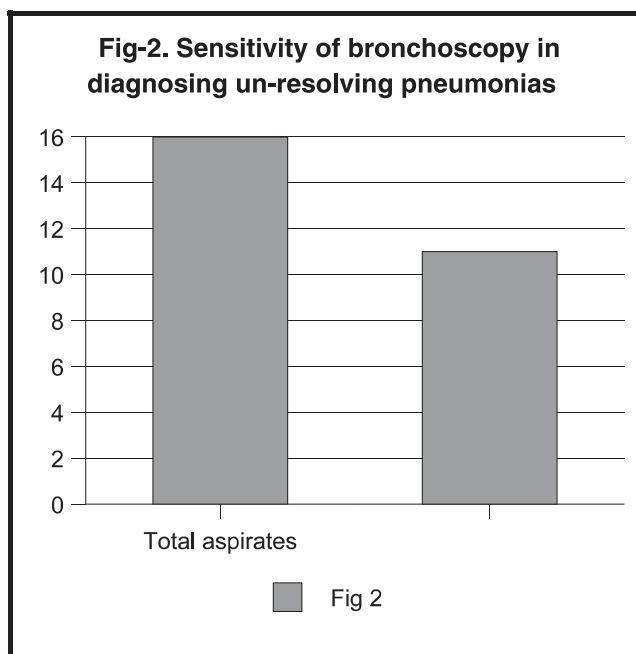
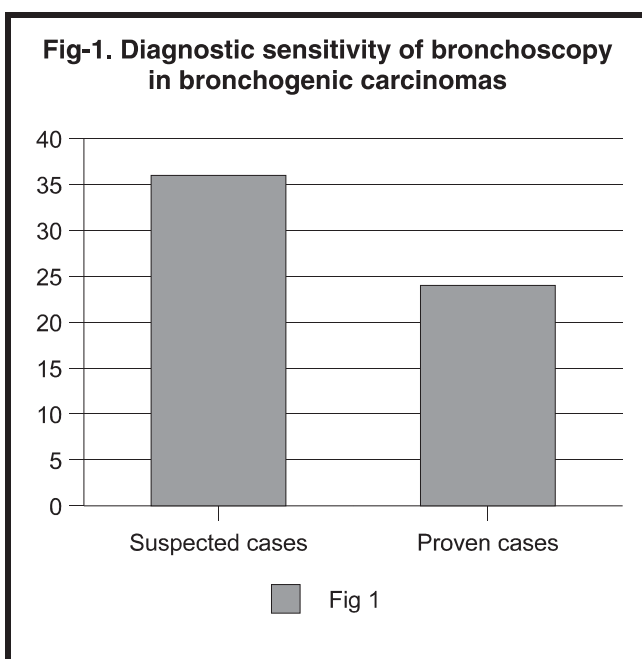
(Table-II). The patients presented with a variety of symptoms with most common being Haemoptysis and cough

Age	No of Patients	% age
< 40	06	11.5
40-49	12	23.07
50-59	12	23.07
60-69	10	19.2
70-79	09	17.3
80 and above	03	5.7

(Table-III). The most common indication for bronchoscopy was suspected bronchogenic carcinoma in 36 patients. Out of these 36 cases 24 were proven to be malignant on Endobronchial biopsies (66.67%) (Fig-11). Among these 24 cases 12 were squamous cell carcinoma, 6 were large cell carcinoma and another 6 were small cell carcinoma (Table-IV).

The other indication for bronchoscopy was non-resolving pneumonias and difficult to treat infections. There were 16 cases in this group. In these cases bronchial aspirates were taken, 11 out of 16 cases came back with a positive

diagnosis (73.32%) (Fig 2). In these 11 bronchial aspirates four showed growth of Pseudomonas, two showed a growth of Klebsiella another two showed growth of Aspergillus and one each showed growth of Nocardia, Atypical Mycobacteria and Enterobacter Species (Table-V).



Symptoms	No of Patients	% age
Haemoptysis	27	51.9
Cough	27	51.9
Breathlessness	18	34.6
Expectoration	12	23.07
Weight loss	12	23.07
Hoarseness	09	17.3
Dysphagia	06	11.5
IVC obstruction	03	5.7
Pleural Effusion	03	5.7

Tumors	No of Patients	% age
Squamous	12	50
Large cell carcinoma	06	25
Small cell carcinoma	06	25
Total	24	-

Etiology	No of Patients	% age
Pseudomonas	04	36.3
Klebsiella	02	18.1
Aspergillus	02	18.1
Enterobacter	01	9.0
Nocardia	01	9.0
Atypical Mycobacteria	01	9.0
Total	11	-

## DISCUSSION

Bronchoscopy is a very useful diagnostic tool. It is a safe procedure if careful patient selection is done. It is a relatively underutilized tool in our setup. In our study which was done to assess its utility, it diagnosed bronchogenic Carcinoma in 66.67% cases successfully out of these cases 50% were Squamous cell Carcinomas and 25% were small cell carcinomas and large cell carcinomas each.

Agarwal et al,<sup>4</sup> did a similar study in Kathmandu Nepal in his series bronchoscopy diagnosed 57% of suspected cases of bronchogenic carcinoma, 45.2% cases were of Squamous cell carcinoma, 23.8% cases were of small cell carcinoma, 16.66% cases were of large cell carcinoma and 9.52% cases were of Adenocarcinoma. Our results were similar to Agarwal et al with a slight variation for Adenocarcinoma. Adenocarcinomas are usually peripheral lesions, because Agarwal et al utilized bronchial brushings and aspirates along with biopsies so their yield for more peripheral Adenocarcinomas was higher.

The commonest symptom with which patients presented in our study was Haemoptysis. Tsoumakidou M et al,<sup>5</sup> in their prospective analysis of 184 haemoptysis cases concluded that smokers with Haemoptysis are at an increased risk for lung cancer and need to be evaluated with chest CT and bronchoscopy. Skaansar K et al,<sup>6</sup> in their series found out that the diagnostic sensitivity of bronchoscopy in bronchogenic carcinoma was 71%. It was higher when the tumor was endoscopically visible.

Ahmed A and Ahmed S,<sup>7</sup> at Ayub Medical College found out that BAL cytology done during bronchoscopy was a highly sensitive and specific test for the diagnosis of carcinoma lung.

Amorim A, et al,<sup>8</sup> in their series showed that in the diagnosis of bronchial carcinoma, bronchial biopsies were the most cost effective technique. This technique was used in our study with positive results. They further added that additional information obtained from bronchial washing and brushing was also relevant.

The other important indication for which bronchoscopy

was used in our study was non-resolving pneumonias and difficult to treat infections. It was done in 16 patients and bronchial aspirates were taken, a positive diagnosis was obtained in 73.32% cases. The aspirates showed growth of Pseudomonas, Klebsiella, Enterobacter, Aspergillus and Nocardia.

Chang JH. et al,<sup>9</sup> studied bronchial aspirates from patients admitted to ICU with pneumonia they concluded that selective BAL with bronchoscopy in ICU patients with pneumonia is a very useful tool.

Alexander Panda et al,<sup>10</sup> at Yale University School of Medicine studied the role of fiberoptic bronchoscopy in patients with febrile neutropenia and pulmonary infiltrates. A diagnosis was obtained in 76% patients. They concluded that bronchoscopic procedures were useful techniques for the diagnosis of pulmonary infiltrates in immunocompromised patients.

Hummel M et al,<sup>11</sup> studied the diagnostic yield of bronchoscopy with BAL in febrile patients with hematologic malignancies and pulmonary infiltrates. Bronchial aspirates gave a positive diagnosis in 47.97% cases. Aspirates showed gram positive, gram negative, mixed infections and fungal infections with Aspergillus and Candida.

They concluded that fiberoptic bronchoscopy with BAL is a valuable diagnostic tool with low complication rate in high risk febrile patients.

## CONCLUSION



We feel that diagnostic yield of bronchoscopy is high if the patient selection is done in a meticulous way. Those patients who present with respiratory symptoms suggestive of bronchogenic carcinoma or present with difficult to treat or un-resolving pneumonias should be referred for bronchoscopy in time.

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