

## Original Research Article

# A retrospective study of bronchoscopic profile of patients in a tertiary care centre

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**Received:** 22 January 2018

**Accepted:** 03 February 2018

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### ABSTRACT

**Background:** The purpose of this study was to find out the demographic profiles, indications, bronchoscopic findings and diagnosis of the patients who underwent bronchoscopic examination.

**Methods:** A retrospective analysis of 200 consecutive fiber-optic bronchoscopies was performed at RMCH from June 2015 to June 2017 to find out the demographic and clinical profile of the patients who underwent this procedure. The instrument Olympus video bronchoscope was used for the procedure.

**Results:** Among total of 200 patients, 131 (65.5%) were males and 69 (34.5%) patients were females. 150 (75%) patients were smokers and 50 (25%) patients were non-smokers. Cough was the most common presenting symptom in 180 (90%) of the patients followed by breathlessness 138 (69%), chest pain 114 (57%), hemoptysis 80 (40%), fever 66 (33%). The most common finding is endobronchial growth in 119 (59.5%) followed by nonspecific inflammation 40 (20%), inconclusive 21 (10.5%), normal 12 (6%), suspected growth 8 (4%). Out of 200 patient biopsy was done in 65 patients (32.5%) and most common histopathological diagnosis was malignancy 42 (64.61%), pulmonary tuberculosis 10 (15.38%), Infective pathology 9 (13.8%), inconclusive 4 (6.1%).

**Conclusions:** Bronchoscopy is a safe and useful tool for making the diagnosis of a variety of pulmonary diseases. Endobronchial growth and malignancy were the commonest findings on bronchoscopy and histopathological examination respectively. Moreover, we would like to emphasize the importance of attempting biopsy from the abnormal segment of the lung even when bronchoscopy does not show frank mucosal growth.

**Keywords:** Bronchoscopy, Endobronchial growth, Hemoptysis, Tuberculosis

### INTRODUCTION

Bronchoscopy has become an increasingly important diagnostic and therapeutic tool for the management of pulmonary diseases. The flexible fiber-optic bronchoscope developed by Ikeda has progressively supplanted rigid bronchoscopy.<sup>1,2</sup>

Fiber-optic bronchoscopy can be easily performed with the patient awake under topical anesthesia and it offers extensive visualization of the tracheo-bronchial tree.

Samples can be collected by several methods like bronchial biopsy, bronchial brushing, aspiration, transbronchial lung biopsy, transbronchial needle aspiration and these combined advantages enhance the diagnostic value of bronchoscopy.<sup>3</sup>

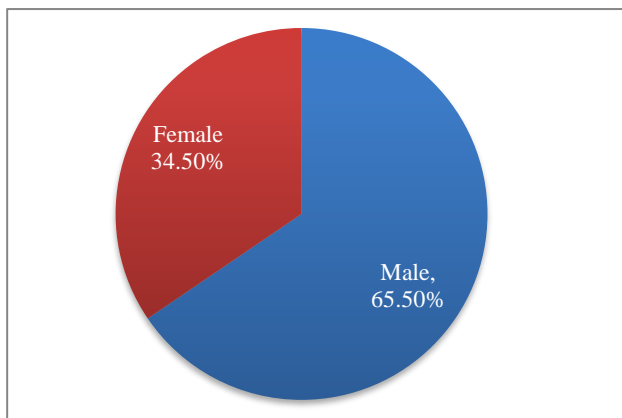
This retrospective study has been done to share the two years' experience of bronchoscopy at Rohilkhand Medical College and Hospital (RMCH), Bareilly U.P. and to study the clinical profiles and histopathological diagnosis of the patients who underwent this procedure.

**METHODS**

A retrospective analysis of 200 consecutive fiber-optic bronchoscopies was performed at RMCH from June 2015 to June 2017 to find out the demographic and clinical profile of the patients who underwent this procedure. The instrument Olympus video bronchoscope was used for the procedure. A detailed history and thorough clinical examination were carried out. Contraindications, if any were ruled out. Chest X-rays in both PA and lateral views were obtained in all the patients before the procedure to define the location of the lesion. The patients were kept fasting for at least four hours before the procedure. Premedication with 0.6mg Atropine and 25 mg Promethazine i.m. was administered to all the patients about 30 minutes before the procedure. Lignocaine (4.0%) solution was sprayed in the upper respiratory tract prior to the insertion of the instrument. Supplemental oxygen was administered by the nasal cannula to maintain the oxygen saturation above 90% in patients who had low SpO2 during initial evaluation. The instrument was introduced nasally in majority of the patients. In some patients the instrument had to be introduced orally either because of narrow nasal passages or due to oxygen being administered through the nasal cannula.

**RESULTS**

Of the 200 patients evaluated 131 (65.5%) were males and 69 (34.5%) patients were females (Figure 1).

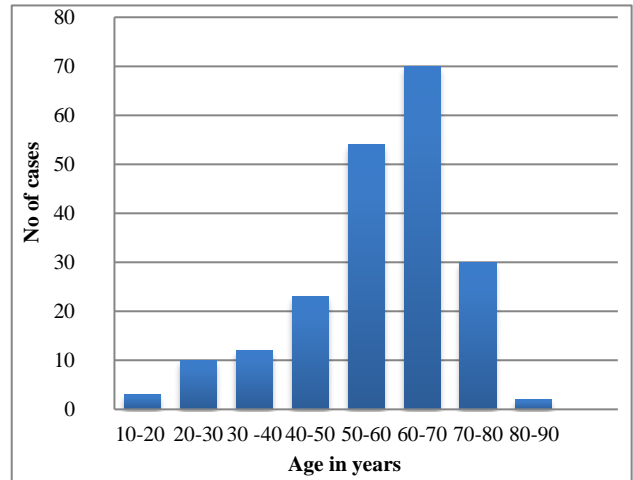


**Figure 1: Distribution of cases according to gender.**

Most of the patients were above 50 years of age (Figure 2). The youngest patient who had undergone bronchoscopy was 15 years old.

This analysis was performed in total of 200 patients who underwent bronchoscopy. Among the 200 cases, the most common indication was radiological opacity, which was seen in 160 patients (80%). In 20 (10%) patients diffuse pulmonary infiltrate was the indication. 16 (8%) patients underwent bronchoscopy for hemoptysis with normal chest X ray. In the remaining 4 (2%) patients,

bronchoscopy was done for evaluation of the cause of unexplained, persistent cough (Table 1).



**Figure 2: Distribution of cases according to age group.**

**Table 1: Indication of bronchoscopy.**

Indication	No	%
Radiological opacity	160	80%
Diffuse pulmonary infiltrate	20	10%
Hemoptysis with normal chest x ray	16	8%
Others	4	2%

Cough was the most common presenting symptom in 180 (90%) of the patients. Shortness of breath, chest pain, hemoptysis was present in 138 (69%), 114 (57%) and 80 (40%) patients respectively. Fever was present in 66 (33%) patients (Table 2).

**Table 2: Clinical features.**

Clinical features	No	%
Cough	180	90%
Hemoptysis	80	40%
Breathlessness	138	69%
Chest pain	114	57%
Fever	66	33%

One hundred fifty (75%) patients were smokers (present or past) and fifty (25%) patients were non- smokers.

The commonest finding on bronchoscopy was endobronchial growth, seen in 119 (59.5%) patients. Endobronchial abnormality without obvious growth was seen in 8 patients (4.0 %). 40 (20%) patients had non specific inflammatory changes. Bronchoscopy was inconclusive in 21 (10.5%) patients whereas in 12 (6%) patient’s bronchoscopy was normal (Table 3).

Pathological examination of the specimen obtained by bronchoscopy was performed. On cytology, malignancy was seen in 51 (25.5%) patients, suspicious malignancy in 29 (14.5%) patients and inflammation in 24 (12%)

patients. The cytology was normal in 96 patients (48%) (Table 4).

**Table 3: Bronchoscopic finding.**

Bronchoscopic finding	No	%
Endobronchial growth	119	59.5%
Non specific inflammation	40	20%
Suspected growth	8	4%
Inconclusive	21	10.5%
Normal	12	6%

**Table 4: Cytological diagnosis.**

Cytological diagnosis	No	%
Confirmed malignancy	51	25.5%
Suspected malignancy	29	14.5%
Pulmonary tuberculosis	40	20%
Normal	56	28%
Inflammation	24	12%

## DISCUSSION

Of the total cases that had undergone bronchoscopy, the majority were males (64.5%), and most of the patients were from the age group of 60 to 70 years. There was a gradual increase in the number of patients requiring bronchoscopic examination till the age group of 60 to 70. Among the age group 60 to 70, 35 (50%) of the patients had bronchogenic carcinoma. This may be due to the higher incidence of bronchogenic carcinoma with increasing age.

Cough was the commonest indication (90%) for bronchoscopy, which is similar to a previously published study.<sup>2</sup> A change in the character of the 'regular' cough of a smoker or a COPD patient, particularly if it is associated with other new respiratory symptoms, the possibility of bronchogenic carcinoma should be ruled out. COPD and bronchogenic carcinoma share similar etiology like smoking, so COPD and bronchogenic carcinoma often coexist. Epidemiological studies suggest majority of patients with bronchogenic carcinoma have signs and symptoms of COPD.<sup>4,5</sup> The most important indications for bronchoscopy in this study were opacity on chest X ray, pulmonary infiltrate and hemoptysis. Bronchogenic carcinoma was the commonest cause of hemoptysis in our study. This is similar to other published studies.<sup>6-8</sup>

The most common finding at bronchoscopy was endobronchial growth, seen in 119 (59.5%) of cases and 21 patients with inconclusive bronchoscopy, histopathological examination of attempted biopsy (65 cases) revealed malignancy in 42 (64.61%), pulmonary tuberculosis in 10 (15.38%), infective pathology in 9 (13.84%). Bronchogenic carcinoma was the commonest disease which was diagnosed by histopathological examination in 42 (64.61%) patients (Table 5). In another

study done in a tertiary care hospital in Kathmandu, lung cancer was diagnosed in similar percentage.<sup>9</sup>

**Table 5: Histopathological finding.**

Histopathological finding	No	%
Malignancy	42	64.61%
Pulmonary tuberculosis	10	15.38%
Infective pathology	9	13.84%
Inconclusive	4	6.15%

Of all the bronchogenic carcinoma diagnosed, 31 (73.80%) had non-small cell carcinoma and the rest of the patients 11 (26.19%) had small cell carcinoma. This finding is similar with other published series.<sup>10</sup>

It has been established that smoking is the most important risk factor for the causation of lung cancer.<sup>11-14</sup> The cumulative lung cancer risk among heavy smokers may be as high as 30 percent, compared with a lifetime risk of lung cancer of 1 percent or less in nonsmokers.<sup>15,16</sup> Smoking is associated with more than 90.0% of lung cancers.<sup>17</sup> Similarly, in our study, majority (92.4%) of the cancer patients were smokers. Various complications have been reported with bronchoscopy. In a retrospective study of more than 4,000 flexible bronchoscopies, the frequency of complications was 1.3 percent.<sup>18</sup> Approximately 25 percent of all complications can be attributed to premedications or anesthetic drugs.<sup>19</sup> In our study only a single patient suffered from any major complications. Mild to moderate hemorrhages was noticed in some cases during the procedure which were self-limiting except one who had profuse hemoptysis and was managed properly.

Our study covers only the diagnostic use of bronchoscopy. Because of lack of other accessories and sophisticated instruments for therapeutic interventions, fiber-optic bronchoscopy has been limited to diagnostic purposes in our set up

## CONCLUSION

Bronchoscopy is a safe and useful tool for making the diagnosis of a variety of pulmonary diseases like bronchogenic carcinoma, pulmonary tuberculosis and some interstitial lung diseases. In our study cough and hemoptysis were the commonest presenting symptoms of the patients. Radiological opacity was the commonest indication. Endobronchial growth and malignancy were the commonest findings on bronchoscopy and histopathological examination respectively. Moreover, we would like to emphasize the importance of attempting biopsy from the abnormal segment of the lung even when bronchoscopy does not show frank mucosal growth.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Kumar A, Choudhary P, Khan J, Saini R. A retrospective study of brochosopic profile of patients in a tertiary care centre. *Int J Res Med Sci* 2018;6:808-11.