Clinical, radiological and histopathological profile of patients with endobronchial lesions on fibreoptic bronchoscopy

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Abstract

Various pulmonary diseases, both benign as well as malignant, manifest in the form of endobronchial lesions on bronchoscopy. Malignancy is frequently the provisional diagnosis in the mind of a chest physician undergoing an endobronchial biopsy. Other benign diseases, however, may present similarly on bronchoscopy and computerized tomography (CT) scan. This observational study was conducted to better understand why there is such a wide range of endobronchial lesions with even more diverse radiological and pathological presentations. The research was carried out at the Department of Respiratory Medicine, Himalayan Institute of Medical Science (HIMS), Swami Ram Nagar, Dehradun. Subjects were recruited from HIMS, Dehradun patients over a 12-month period (August 2020 to July 2021). The study included patients (over the age of 18) who had a fibreoptic bronchoscopy and were found to have an endobronchial lesion. After a thorough history, examination, and application of the inclusion and exclusion criteria, 120 patients were enrolled. The majority of patients were between the ages of 56 and 65, with males outnumbering females. The majority of the patients were smokers, and the most common complaint was shortness of breath. Poorly differentiated carcinoma and squamous cell carcinoma were the most common endobronchial lesions in men, while small cell carcinoma was the most common in women. A mass lesion was the most common radiological finding, followed by mediastinal lymphadenopathy, and an exophytic lesion was the most common endobronchial lesion detected in bronchoscopy. We looked at the diseases that cause endobronchial lesions and their clinico-radiological and histopathological profiles. This study clearly demonstrates the importance of studying the histopathological profiles of patients with endobronchial growth, which can mimic malignancy in rare cases.

Introduction

Endobronchial lesions are lesions arising from the bronchial wall. Hence, clinical and radiological features of such lesions might not differentiate between different aetiologies, and hence sampling is required to distinguish between benign and malignant lesions [1,2].

As well-known from the available literature, apart from malignancy, various other aetiologies are responsible for endobronchial diseases such as endobronchial tuberculosis, endobronchial carcinoid, endobronchial sarcoidosis, endobronchial aspergilloma, fungal infections such as mycetoma and rhizomucor, viral infections such as CMV, bacterial infections such as

Actinomyces meyeri, *etc*. [3,4]. All these endobronchial diseases have been reported with a certain endobronchial profile [5,6]. These diseases may present as cough and recurrent wheezing and may be misdiagnosed as COPD or asthma, but a keen observation of their endobronchial profile as well as histopathology is helpful for ruling in or ruling out such a wide spectrum of aetiologies [7,8]. Other rare endobronchial diseases are endobronchial hamartoma, synovial sarcoma, endobronchial metastasis, endobronchial lipoma, endobronchial haemangioma, endobronchial fibroma, inflammatory myofibroblastic tumor, fibroepithelial polyp, *etc*. [9,10].

A chest CT scan, which is used to detect and characterise suspected lung lesions, provides a wealth of information, including morphological features, disease staging, and predictability [11], with high sensitivity and specificity rates [12]. But chest CT also has certain limitations, like it can easily miss endobronchial lesions, which is why bronchoscopy is used, which plays a very important role in the evaluation of lung lesions, including those suspicious for bronchogenic carcinoma [13]. It gives us information like morphology of lesions, extent of disease, the degree of involvement of the airway, staging and to decide the mode of therapy for carcinoma. The yield of bronchoscopy is highest for endobronchially visible lesions, with a diagnostic yield of approximately 90% [14,15]. Bronchoscopy also aids in the confirmation of the absence of any radiographically occult lesion.

However, limited information is available from any tertiary care centre in India on the spectrum of diseases causing endobronchial lesions, their clinic-radiological profiles, histological profiles, and their epidemiology. To the best of our knowledge, there is only one study done in a military hospital in Dehradun with a sample size of only 50 patients. Also, gender-wise distribution has not been mentioned in their study.

Hence, this study of clinical, radiological, and histopathological profiles of patients with endobronchial growth in bronchoscopy was done in our tertiary care centre as we have a high influx of patients from most parts of the Northern part of India.

Aims and objectives

i) To study the clinical, radiological, and histopathological profiles of patients with endobronchial lesions on fibreoptic bronchoscopy.
ii) To use fibreoptic bronchoscopy in evaluating types and numbers of endobronchial lesions and involvement of bronchial segments for the diagnosis of malignancy.

Materials and Methods

The study was conducted in the Department of Pulmonary Medicine, Himalayan Institute of Medical Sciences (HIMS), Swami Ram Nagar, Dehradun, over a period of twelve months from August 2020 to July 2021. Subjects were recruited from patients presenting in OPD, IPD, and emergency, HIMS, Dehradun. Patients scheduled for fibreoptic bronchoscopy were evaluated with a case history and detailed clinical examination before taking part in the procedure after obtaining written informed consent and approval from the Institutional Ethics Committee.

Study design

This is a descriptive study, for which the convenient sampling method was followed. Patients fulfilling the inclusion criteria of the study in the Department of Pulmonary Medicine, Himalayan Hospital over a period of twelve months were included in the study.

Patients' selection

Inclusion criteria. All patients (>18 years) undergoing fibreoptic bronchoscopy and detected to have endobronchial lesion who gave written informed consent.

Exclusion criteria.: Lack of consent; deranged coagulation; compromised cardiovascular status; renal insufficiency; history of contrast allergy; pregnancy

Data management and statistical analysis

The data was collected and entered in MS excel 2010. Statistical analysis of the observation was performed using SPSS (Statistical Package for Social Sciences) software. Graphical representation of the variables using tables, bar charts and pie diagrams were shown to understand the results. Categorical data such as gender, socioeconomic status, symptoms, radiological findings, etc were expressed as frequency and percentage.

Results

The study was conducted in Himalayan institute of medical sciences, Dehradun, Uttarakhand over a period of 1 year from August 2020 to July 2021. The study population included 120 patients who underwent bronchoscopy. All patients were observed for their clinical, radiological, histopathological and endobronchial profiles as shown in Tables 1 to 4.

Table 1 shows that out of total 120 patients, most patients were in age group of 56-65 years being 47 in number (39.17%), followed by age group 66-75 years which constitutes 21.67%. Only 5% were in <35 years age group. Male patients were 100 (83.33%) and female patients were 20 (16.67%). Also, Maximum patients were smokers being 78 in number (65%) followed by habit of tobacco chewing in 23 patients (19.17%). Rest of the 19 patients were non-smoker and non-tobacco chewers.

Table 2 shows that most common complaint was shortness of breath in 83 patients (69.17%), followed by chest pain in 52 patients (43.33%), cough in 49 patients (40.83%), haemoptysis in 28 patients (23.33%), loss of appetite in 17 patients (14.17%), weight loss in 6 patients (5%), hoarseness of voice in 4 patients (3.33%).

Table 3 showed that Pallor was found in 8 cases (6.67%) followed by lymphadenopathy and SVC syndrome which were found in 1 case each (0.83%). Rest of the 110 patients had no signs in general physical examination.

Most common finding was mass lesion (Figure 1) which was detected in 78 (65%) patients, mediastinal lymphadenopathy (Figure 2) was found in 24 patients (20%), cavitary lesion and ground glassing was equally found in 4 (3.33%) patients. Other findings were collapse, pleural effusion in 3 (2.5%) patients, consolidation in 2 (1.67%) patients, fibroatelactic changes and reticular nodular opacities in 1 (0.83%) case. Most common endobronchial lesion detected in bronchoscopy was exophytic in 80 (66.67%) (Figure 3) of cases; out of them, 76 (63.33%) had globular lesion and 4 (3.33%) had fungating growth (Figure 4). Nodular lesions were detected in 17 (14.17%) cases, mucosal abnormality was in 18 (15%) and ulcerative/plaque lesions were detected in 18 (15%) cases.

In Table 5, moderately differentiated squamous cell carcinoma and poorly differentiated carcinoma were equally found in histopathological diagnosis which was 28 (23.33%) of cases followed by small cell carcinoma which was detected in 22 (18.33%) of cases. Inflammation was seen in 19 (15.83%) cases, adenocarcinoma in 9 (7.50%) cases, non-small cell carcinoma in 3 (2.50%) cases, aspergillosis in 2 (1.67%) cases. While mucormycosis, benign lesion and endobronchial TB was found in 1 (0.83%) case each. Normal histopathology was reported in 6 (5%) cases. Poorly differentiated carcinoma, moderately

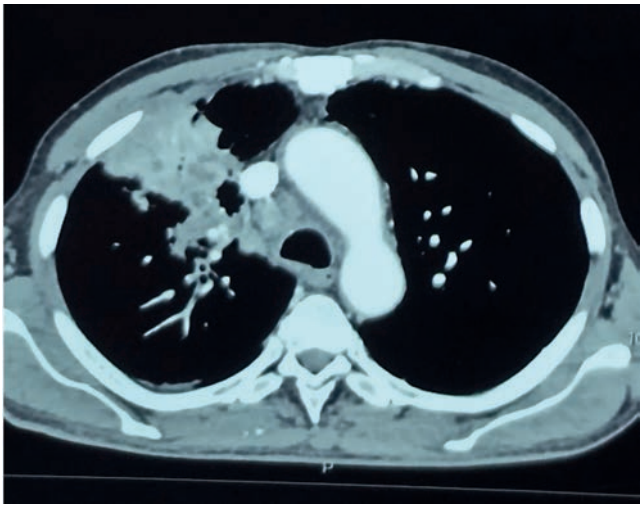

Figure 1. CT scan showing right upper lobe mass involving anterior and apical segments.

Table 1. Age-wise distribution of cases (n=120).

Age group	Number of cases	%
<35	6	5.00
45–45	7	5.83
46–55	23	19.17
56–65	47	39.17
66–75	26	21.67
>75	11	9.17

Table 2. Clinical profile (symptomatology) of cases (n=120).

	Number of cases	%
Shortness of breath	83	69.17
Chest pain	52	43.33
Cough	49	40.83
Haemoptysis	28	23.33
Decreased appetite	17	14.17
Weight loss	6	5.00
Hoarseness of voice	4	3.33

Table 3. General physical examination (signs) of cases (n=120).

	Number of cases	%
Pallor	8	6.67
Lymphadenopathy	1	0.83
Superior vena cava syndrome	1	0.83

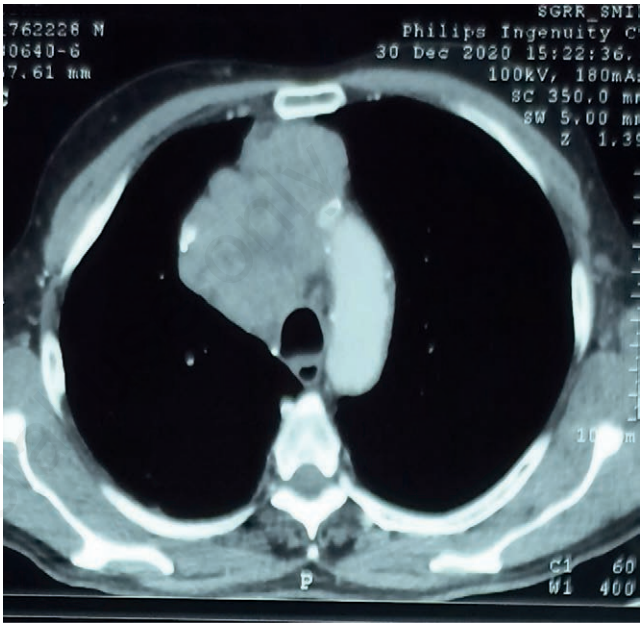

Figure 2. CT scan showing right upper lobe and mediastinal mass.

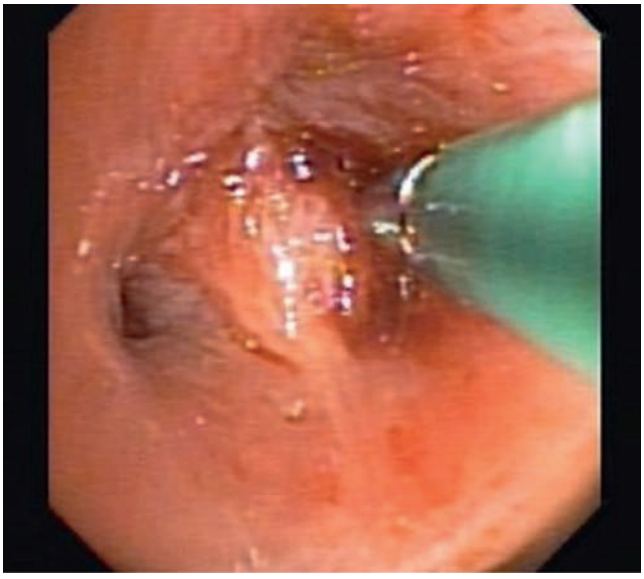

Figure 3. External compression in bronchoscopy. Lesion bled on touch while taking biopsy from the mucosa.

differentiated squamous cell carcinoma and small cell carcinoma were amongst the most common histopathological diagnosis in smokers.

Most common lobe (Figure 5) involved was right upper lobe which was involved in 38 (31.67%) of cases followed by left upper lobe in 29 (24.17%), right middle lobe in 22 cases (18.33%), left lower lobe in 18 cases (15%) and right lower lobe in 13 (10.83%) cases.

Complications

Intraprocedural: 65 (54.17%) lesions bled on touch during the procedure.

Postprocedural: Haemoptysis and hypoxia were two most common postprocedural complications being present in 83.33% and 16.67 5 cases respectively.

Discussion

Endobronchial lesions are frequently encountered during bronchoscopy. The clinical profile of an individual, including smoking history, symptoms, radiological picture, and profile of endobronchial lesions, including type (nodular, exophytic, plaque, or ulcerative), location of the lesion, tells us about the likely possibility of diagnosis. But the diagnosis is generally confirmed by histopathological examination. Endobronchial lesions are frequently encountered during bronchoscopy. The clinical profile of an individual, including smoking history, symptoms, radiological picture, and profile of endobronchial lesions, including type (nodular, exophytic, plaque, or ulcerative), location of the lesion, tells us about the likely possibility of diagnosis. But the diagnosis is generally confirmed by histopathological examination.

Table 4. Radiological profile of cases along with respective endobronchial profiles (n=120).

CECT thorax findings	Endobronchial profile					
	Globular	Fungating	Nodular	Mucosal abnormality	External compression	Total (%)
Cavitary	0	0	1	3	0	4 (3.33)
Collapse	2	0	0	0	1	3 (2.50)
Consolidation	0	0	2	0	0	2 (1.67)
Effusion	2	0	1	0	0	3 (2.50)
Fibroatelactic changes	1	0	0	0	0	1 (0.83)
Ground glassing	1	1	0	2	0	4 (3.33)
Mass	54	3	10	9	3	78 (65)
Mediastinal lymphadenopathy	17	0	3	3	1	24 (20)
Reticulonodular opacity	0	0	0	1	0	1 (0.83)
Total (%)	76 (63.33)	4 (3.33)	17 (14.17)	18 (15)	5 (4.17)	120

Table 5. Histopathological diagnosis of cases along with their smoking habits and gender wise distribution (n=120).

Biopsy	Number of cases	%	Smoker		Non-smokers		Male		Female	
			n	%	n	%	n	%	n	%
Moderately differentiated squamous cell carcinoma	28	23.33	20	16.67	8	6.67	25	20.83	3	2.50
Poorly differentiated carcinoma	28	23.33	23	19.17	5	4.17	26	21.67	2	1.67
Small cell carcinoma	22	18.33	16	13.33	6	5	15	12.50	7	5.83
Inflammation	19	15.83	5	4.17	14	11.67	16	13.33	3	2.50
Adenocarcinoma	9	7.50	7	5.83	2	1.67	8	6.67	1	0.83
Non-small cell carcinoma	3	2.50	1	0.83	2	1.67	2	1.67	1	0.83
Aspergillosis	2	1.67	1	0.83	1	0.83	2	1.67	0	0
Mucor mycosis	1	0.83	1	0.83	0	0	1	0.83	0	0
Benign	1	0.83	1	0.83	0	0	1	0.83	0	0
Endobronchial tuberculosis	1	0.83	0	0	1	0.83	0	0	1	0.83
Normal	6	5.00	3	2.50	3	2.50	4	3.33	2	1.67
Total	120		78	65	42	35	100	83.3	20	16.7

In this study, male preponderance in the percentage of 83.33 for diagnostic bronchoscopy was likely because of the fact that the risk factors associated with respiratory diseases like smoking and tobacco chewing are more common in males. This was similar to the findings of other studies such as Rana *et al*. and Sharma *et al*. [16,17].

Most patients (69%) were older than 55 years of age, with people in the age group between 55 and 65 years of age constituting the largest group. This is likely because of the fact that most cases who underwent bronchoscopy were suspected of malignancy, and the chances of carcinoma of the lung increase with age.

The habit of smoking was noted in 65% of cases who underwent bronchoscopy; 16 % were non-smokers and 19% were tobacco chewers. Smoking is associated with greater than 90% of carcinoma lung cases and is also a common risk factor for various lung diseases like airway diseases causing symptoms like cough and dyspnoea [18]. The most common symptom of patients was shortness of breath, which differed from previous published studies such as Rana *et al*. [16], Khaled *et al*. [17] and Sharma *et al*. [18], in which cough was the most common complaint. Patients frequently complained of chest pain and coughing. Haemoptysis was a primary complaint in twenty-eight patients, which also constitutes a major percentage.

Out of 120 cases taken, one patient presented with supraclavicular lymphadenopathy, one patient with SVC syndrome, and eight cases with pallor. None of the patients had clubbing. Rana *et al*. [16] reported mass as the most common radiological finding. In our study, the most common radiological finding was a mass lesion detected in the CECT chest followed by mediastinal lymphadenopathy, cavity, and collapse. Other findings were pleural effusion, reticular nodular opacities, ground glassing, and fibroatelactatic changes. Similar findings have been published in a number of case studies [17,18,21,22]. Right lung was involved in 60% of cases and upper lobe was involved in 52% of cases. Similar reports have been published in the literature [17,20]. The left lung was involved in 40% of cases. The most common finding detected during bronchoscopy was globular growth, which was detected in 61.67% of patients. Similar reports are available in the literature. The second most common finding was nodular growth, followed by mucosal abnormality. In this study, the most common diagnosis was carcinoma of the lung, and this explains the similarity of lesions detected in our study and lesions reported in other studies published in the literature [21].

The most common complication confronted after bronchoscopy was haemoptysis, which was observed in 80% of individuals who underwent bronchoscopy. Haemoptysis can be explained by the invasive nature of the procedure (endobronchial biopsy), the friability of the lesion, and the surrounding unhealthy mucosa [21-23]. In 12% of cases, hypoxemia was observed in 12% of cases, which can be explained by a compromised cardiopulmonary system due to the nature of the disease, associated obstructive airway diseases, and old age. No major complications like bronchospasm or severe haemoptysis were observed, and no mortality was observed. Haemoptysis resolved with conservative management, and hypoxemia was treated with oxygen supplementation.

In a study by Rabahi *et al*. [24] discovered that squamous cell carcinoma was the most common, followed by adenocarcinoma and then small cell carcinoma. In our study, the most common histological type was squamous cell carcinoma of the lung, which was confirmed in 28 cases out of 90, followed by poorly differentiated carcinoma in 28 cases and adenocarcinoma, which was confirmed in 9 cases. The preponderance of squamous cell carcinoma can be attributed to the fact that squamous cell lung carcinoma is central in location. Smoking may also have contributed to the increase in squamous cell carcinoma as smoking is more commonly associated with this histopathological variant, and perhaps this is still the most common variant in Asia [23]. The endobronchial findings of squamous cell carcinoma in Rabahi *et al*. [24] were a mass (globular) lesion followed by mucosal abnormality followed by luminal narrowing and external compression. In our study, the most common finding of squamous cell carcinoma was globular lesion, followed by ulcerative lesion and nodular mucosa. Chronic inflammation was detected in 16% of cases. Other diagnosis like endobronchial tuberculosis, benign lesion, carcinoid, mucormycosis and aspergillosis are not that common entities detected routinely in bronchoscopy. It can explain small proportion contributed by these diseases in our study, but they have also been reported in other studies as well like Devkota *et al*. [19]. Invasive aspergillosis has been reported in multiple case studies and reports. A case report and literature review by Ma *et al*. [20] aimed to find

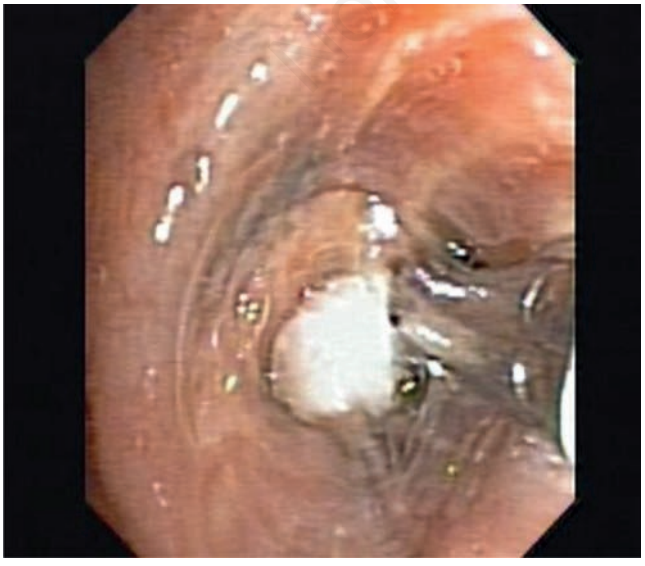

Figure 4. Fungating necrotic growth in bronchoscopy.

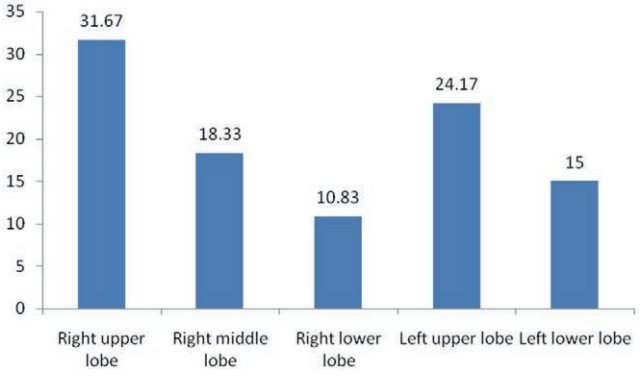

Figure 5. Bar chart representing site of lesion.

out the clinical and radiological characteristics along with bronchoscopic findings of endobronchial aspergilloma. They found hemoptysis to be the most common clinical feature, mass-like lesions to be the most common radiological finding followed by consolidation or ground glassing, and most of the patients had previous underlying lung disease like pulmonary tuberculosis. Our patient also, a 34-year-old male with old treated pulmonary tuberculosis and diabetes mellitus, presented with complaints of blood in the cough. The CT scan showed basal ground glassing (Figure 6A). On bronchoscopy, there was fungating endobronchial growth in the right lower lobe superior segment (Figure 6B), which in histopathology showed Aspergillosis.

Similarly, Husari *et al*. [26] published one case report of endobronchial invasive mucormycosis mimicking an endobronchial tumour with a background of uncontrolled diabetes mellitus. Our patient also, with known diabetes, presented with complaints of SOB, cough and haemoptysis. Their patient, on the other hand, had complete collapse consolidation with abrupt bronchus cut off. On bronchoscopy there was fleshy vascular growth, which on biopsy revealed mucormycosis. Infarction with cavity lesion and air crescent sign is unusual and rarely reported in the literature, but the main radiological finding in this case was multiple cavitary lesions (Figure 7). These cavitary lesions might mimic tuberculosis, which is common in India, but a keen observation of endobronchial findings can prompt for pulmonary mucormycosis, as we did in this case. On biopsy from the abnormal mucosa, which on histopathology showed mucormycosis (Figure 8). Another 45-year-old patient who presented with cough and haemoptysis was subjected to a CT scan which showed a right hilar mass encasing pulmonary vessels was found to have globular growth in the right lower lobe bronchus with widened carina revealed small cell carcinoma on histopathology. After discussing with the tumour board, immunohistochemistry was done, which was positive for CD 99 and vimentin, which was suggestive of high-grade sarcoma favouring Ewing's sarcoma PNET. Certain types of findings have been reported in the literature as well. Carcinoid is a very rare tumour, representing only 0.5% to 2.5% of pulmonary neoplasms [27]. In our study, a patient was symptomatic with cough and breathlessness for 2 months. The patient was a non-smoker, and also in the literature, no evidence has been found of a relationship between tobacco and carcinoids. Patients may present with atelectasis, recurrent pneumonia due to obstruction, but in our case, CT showed a right hilar mass, and on bronchoscopy the lesion was present in the right intermedius bronchus but not completely occluding the bronchus. The patient had no evidence of carcinoid syndrome, which can be a presenting feature in 5% of cases, evident by the presence of flushing, wheezing, anxiety, vomiting due to production of 5-hydroxytryptamine, bradykinin, prostaglandins, *etc*. [28].

In our study, we have diagnosed a case of endobronchial tuberculosis. Endobronchial tuberculosis is a well-known entity and has also been published by Talha *et al*. [29] and similarly in several other case reports. A 32-year-old patient presented with chest pain and cough for 1 month's duration. The CT scan showed consolidation and cavity (Figure 9). On bronchoscopy, right upper lobe distorted anatomy with mucosal inflammation with necrotisation was seen (Figure 10). Histopathology showed acute necrotizing inflammation consistent with tubercular pathology.

A 34-year-old female patient presented with shortness of breath, dry cough, and joint pains for 3 months' duration. CT showed

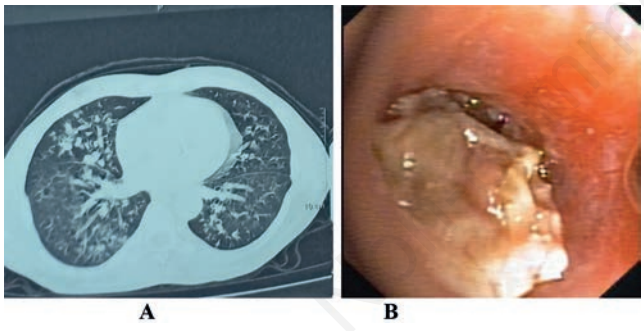

Figure 6. A) CT scan with right lower lobe ground glassing in patient with aspergillosis. B) Fungating growth.

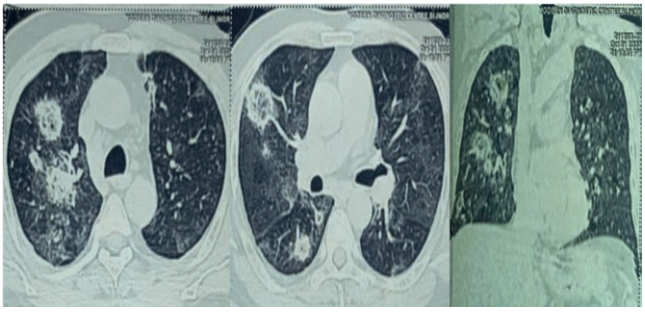

Figure 7. CT scan showing multiple cavities with consolidation.

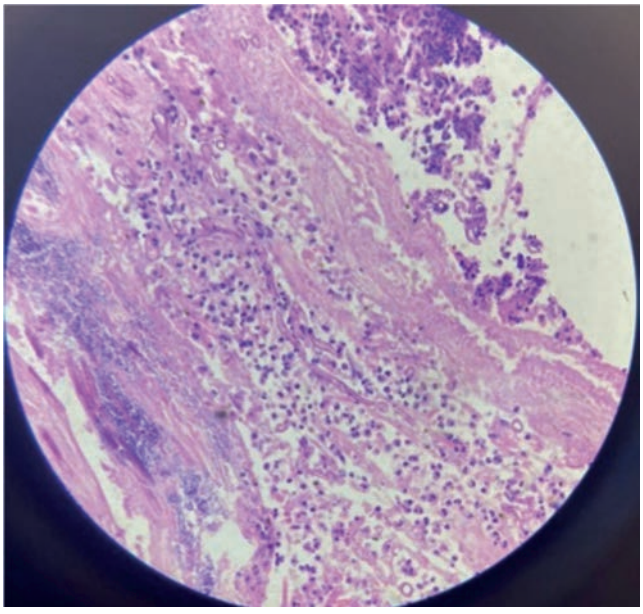

Figure 8. Histopathological examination showing mucormycosis.

mediastinal lymphadenopathy. Her Mantoux was 8 mm by 10 mm and her serum ACE was raised. Serum calcium was 9.44 with deranged LFT and hepatomegaly. With high suspicion of sarcoidosis, the patient was taken up for bronchoscopy and a mucosal biopsy was done from cobblestone mucosa. But the biopsy came out to be normal.

One patient with peripheral eosinophilia with maxillary sinusitis and lingular collapse presented with increased SOB and wheezing at night. CT was suggestive of lingular lobe collapse with lingular bronchiectasis. On bronchoscopy, there was lingular lobe mucosal abnormality from where biopsy was taken, which revealed lymphocytic and eosinophilic infiltrates with *differentials of Loeffler's syndrome and host response to allergen. In their similar study, Rana et* al. [17] reported such a finding in which a worm like structure was seen lying in the right lower lobe segmental bronchus, which on biopsy revealed Ascaris species. One patient who presented with haemoptysis was diagnosed to have pulmonary tuberculosis as his sputum came out to be positive for acid fast bacilli. He was then discharged on ATT but, after 10 days, presented with massive haemoptysis. The patient underwent CECT thorax but no obvious site or lesion of haemoptysis could be visualised. The patient was intubated because of hemodynamic instability and was subjected to bronchoscopy to look for active bleeders. But to our surprise, we found a globular growth in the right lower lobe bronchus from where bleeding was ongoing. The biopsy revealed squamous cell carcinoma. This case emphasises the importance of bronchoscopy performed on clinical suspicion even when a CT scan revealed no obvious lesion.

Similarly, one patient presented to OPD with non-resolving complaints of haemoptysis, breathlessness, and decreased appetite. He was on ATT for the past 4 months on a clinic-radiological basis, but his chest radiograph was showing worsening. His CT scan showed a right upper lobe thick-walled cavity. However, he was not inducing sputum. Hence, he was taken for bronchoscopy for BAL for MDR Tb workup, but to our surprise, on bronchoscopy there was a globular growth starting from the distal third of the trachea to the right main bronchus, which on subjecting to histopathology revealed squamous cell carcinoma.

Another patient presented with hoarseness of voice, a chronic cough and one episode of seizures for more than 3 months. Chest X-ray showed a well-defined left paratracheal mass like opacity for which the patient underwent CT thorax, which also revealed a well-defined soft tissue mass on the left upper lobe. MRI of the brain was also done, which revealed well-defined lesions suspicious of tuberculoma and brain metastases. The patient was subjected to bronchoscopy, which showed a left upper lobe mass; exophytic growth and, with the suspicion of malignancy, biopsies were taken. Histopathology showed chronic granulomatous inflammation suggestive of aspergillosis. After voriconazole was started, the patient showed significant improvement both clinically and radiologically. This shows the importance of studying the histopathological profiles of patients with endobronchial growth, which rarely but may mimic malignancy.

Benign lesions are also encountered during bronchoscopy in various studies. In a study by Insler *et al*. [30], 28 cases were identified. Out of which Hamartoma was very common.

Conclusions

We conducted a descriptive study in Himalayan hospital with patients detected to have endobronchial lesions. A total of 120 patients were taken for the study. Clinical, radiological, histopathological, and endobronchial profiles were observed and noted. We observed that most patients were in the age group of 56-65 years old, with more than half being smokers, and with shortness of breath as the most common complaint. In males, poorly differentiated carcinoma and squamous cell carcinoma were most common, while in females, small cell carcinoma came out to be the most common endobronchial lesions. We also observed that the most common radiological finding was a mass lesion followed by mediastinal lymphadenopathy, and the most common endobronchial lesion detected in bronchoscopy was an exophytic lesion with nearly half of the lesions bleeding on touch. The most common lobe involved was the right upper lobe. We noticed that although malignancy seems to be the most common finding in bronchoscopy, other diseases, as we found in our study, like inflammation, aspergillosis, mucormycosis, and carcinoid, are also not uncommon, and the clinician should keep a high degree of suspicion for the same. We conclude that clinical and radiological profiles in

Figure 9. CT scan showing cavity with consolidation.

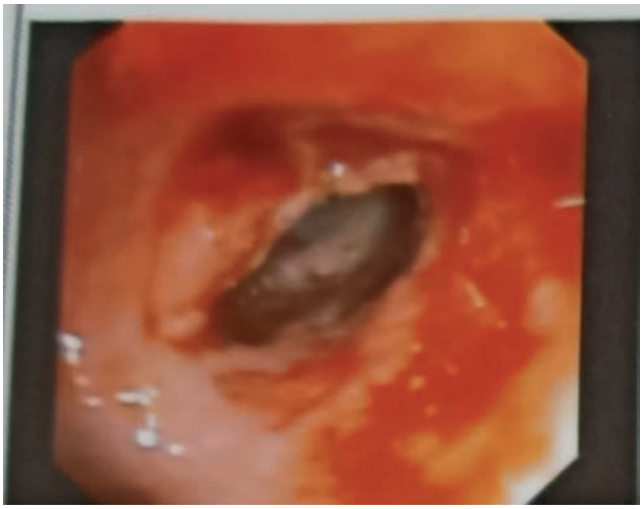

Figure 10. Distorted anatomy with mucosal inflammation and necrotization on bronchoscopy.

combination with endobronchial profiles provide various clues to clinicians as well as pathologists to reach the diagnosis, and this study re-establishes the worth of fibreoptic bronchoscopy in confirming the diagnosis of endobronchial lesions safely, as no mortality was observed. A wide variety of endobronchial lesions exist with even more varying radiological and pathological presentations. A thorough understanding of the subject can assist us in making an early diagnosis and serving our patients.

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