Original Article

Pattern of clinical presentation of bronchial carcinoma

Md.Shahen[1], Ashraful Alam Khan[2], Md. Mashukur Rahaman Chisty[3], Mohammad Asaduzzaman Khan[4], Md.Faysal Khan[5], Nasrin Alam[6], Jiban Nesa[7]

[1]Associate Professor(c.c), Department of Respiratory Medicine, Dhaka National Medical College, [2]Medical Officer, National Institute of Diseases of the Chest and Hospital, [3]Senior Lecturer, Department of Anatomy, Dhaka National Medical College, [4]Assistant Professor(c.c), Department of Medicine, Dhaka National Medical College, [5]Registrar, Department of Medicine, Dhaka National Medical College, [6]Registrar, Department of Obstetrics & Gynaecology, Dhaka National Medical College, [7]Assistant Professor, Department of Respiratory Medicine, Khulna Medical College.

Abstract:

Background : Lung cancer is most common cancer world –wide, accounting for 1.2 million new cases annually in 2000, and causing 18% of all cancer deaths. The prevalence of lung cancer is second only to prostate cancer in men and breast cancer in women. The disease caused more than 158,000 deaths –more than colorectal, breast, and prostate cancers combined.

Objective : The study was carried out to evaluate the clinical presentation of bronchial carcinoma.

Methods: This observational study was carried out in the Department of Medicine (Respiratory wing), Bangabandhu Sheikh Mujib Medical University (BSMMU) and National Institute of Chest Disease (NIDCH) during the period of september 2011 to February 2012. A total of 60 admitted patients with a clinical, radiological and histological diagnosis of bronchial carcinoma were enrolled in the study. Complete sociodemographic characteristics, smoking status, radiological, and histopathological characteristics of the tumor were recorded in the study. CT scan of the chest was done in the majority of the patient. CT-guided FNAC and US guided FNAC tissue sampling from lung lesions followed by histopathological examination was done to diagnose the appropriate tumor type. After collecting the data, the statistical analyses were performed using the licensed version of Statistical Package for the Social Science Version 23 (SPSS-23).

Results: Out of 60 cases, majority 27 (45.0%) patients were belonged to age 51 to 60 years with mean age was 58.4±10.2 years Male: female ratio was 4.1. Three fourth (75.0%) of the patients were smoker. Cough (90.0%) was the most frequent pulmonary symptoms of bronchial carcinoma followed by dyspnoea (55.0%), wheeze (40.0%), chest pain (20.0%) and haemoptysis (15.0%). Loss of weight (90.0%) was the most frequent extra pulmonary symptoms of bronchial carcinoma followed by loss of appetite (85.0%), fever (70.0%), face & neck swelling (10.0%), horseness (5.0%) and dysphagia (5.0%). Physical findings of the patients were anaemia (35.0%), clubbing (70.0%), features of pleural effusion (50.0%), features of consolidation (25.0%), features of collapse (10.0%), palpable lymph node (10.0%) and features of SVC obstruction (10.0%). Squamous cell carcinoma (50.0%) was the most common histological pattern of bronchial carcinoma followed by adenocarcinoma (45.0%) and small cell carcinoma (5.0%). Diagnostic procedure of bronchial carcinoma was bronchoscopy & biopsy (15.0%) followed by CT guided FNAC (50.0%), US guided FNAC (5.0%), pleural biopsy (5.0%), lymph node biopsy (20.0%) and pleural fluid study (5%).

Conclusion: Thus, our analysis suggests that most of the patients were elderly and males were predominant with smoking as the principal risk factor. Squamous cell carcinoma still remains the commonest histological subtype. CT guided FNAC was most detected of bronchial carcinoma.

Keywords: Bronchial carcinoma, Clinical presentation, Histopatholgoical findings.

Introduction

Lung cancer is most common cancer world –wide, accounting for 1.2 million new cases annually in 2000, and causing 18% of all cancer deaths.[1,2] In 2007, primary carcinoma of lung affected 114,760 males and 98,620 female in United states, 86% die within 5 years of diagnosis, making it the leading cause of cancer death in both men and women.[3] In UK it is the 3rd most

common cause of death after heart diseases and pneumonia; about 32000 people die each year with a male to female ratio of 3:1.[4] Cigarette smoking is by far the most important cause of lung cancer. It is directly responsible for at least 90% of lung carcinomas, the risk being proportional to the amount smoked and to the tar content of the cigarettes. The death rate from the diseases in heavy smokers is 40 times than in non smokers.[3]

Lung cancer is symptomatic at diagnosis in 75 to 90% patients,[5] and may present in a number of different ways, Symptoms reflect local involvement of bronchus, spread to chest wall or mediastinum, from distant blood bone metastasis or non-metastatic syndrome.[1] The frequency of common presenting symptoms are cough (41%), chest pain (22%), haemoptysis (7%), chest infection like recurrent pneumonia or lung abscess (<5%), weight loss (<5%), no symptoms (<5%).[4]

Bronchial carcinoma fall into four major histological types: Viz. Squamous -cell carcinoma, small cell carcinoma, large-cell carcinoma and adenocarcinoma. These four types account for about 95% of all cases of primary lung cancer.[6] Common cell types of bronchial carcinoma are small cell lung carcinoma (SCLC) – (20%) and non small cell lung carcinoma (NSCLC)- (8%). Among NSCLC, Squamous -cell carcinoma (35%), large-cell carcinoma (15%) and adenocarcinoma (20%).[3] Although squamous-cell carcinoma has for many years been the most common histological type, adenocarcinoma has been increasing in incidence over last 20 years.[3]

A number of extra pulmonary manifestation have been described in association with bronchial carcinoma unrelated of the tumor. These may be the presenting finding or the first sign of recurrence. The most frequently encountered endocrine syndromes (inappropriate ADH secretion & ectopic ACTH secretion) are usually associated with small cell cell carcinoma. Hypocalcaemia due to secretion of PTH like peptides is usually caused by squamous cell carcinoma. Associated neurological syndromes may occur with any type of bronchial carcinoma.[1]

In patients with metastatic disease the diagnosis can often be confirmed by needle aspiration or biopsy of affected lymph nodes, skin lesion, liver or marrow. CT scan of brain, radio nuclide bone scanning, liver ultrasound. Bone marrow biopsy can be reserved for patients with clinical, hematological or biochemical

evidence of tmours spread to such site.[1] Our observation is to expertise about clinical presentation and different radiological and histopathological pattern of bronchial carcinoma. So that we can optimally manage the cases of bronchial carcinoma associated with high mortality and morbidity.

Materials and methods

This observational study was carried out in the Department of Medicine (Respiratory wing) Bangabandhu Sheikh Mujib Medical University (BSMMU) and National Institute of Chest Disease (NIDCH) during the period of September 2011 to February 2012. A total of 60 admitted patients with a clinical, radiological and histological diagnosis of bronchial carcinoma were enrolled in the study. Patients age >20 years both gender and clinical and histological findings of bronchial carcinoma were enrolled in the study. Age <20 years, patients present with typical features of pneumonia like abrupt onset, duration <7 days, high fever, rusty sputum, neutrofhillic leucocytosis, gm(+)ve, or gm(-) ve, organisms, on sputum examination, patients presented with clinical features of tuberculosis like low grade fever, night sweating, cough with sputum, chest X-ray P/A view–patchy opacities with or without cavitations, sputum – acid fast bacilli (+)ve, tuberculin test(+)ve and when detailed history, clinical examination and roentgenographic findings and histology raised the possibility that the lung cancer is a secondary one as opposed to primary tumor were excluded from the study. Complete sociodemographic characteristics, smoking status, radiological, and histopathological characteristics of the tumor were recorded in the study. The performance status of patients was documented using the Eastern Cooperative Oncology Group scale (ECOG). CT scan of the chest was done in the majority of the patient. CT-guided FNAC and US guided FNAC tissue sampling from lung lesions followed by histopathological examination was done to diagnose the appropriate tumor type. After collecting the data, the statistical analyses were performed using the licensed version of Statistical Package for the Social Science Version 23 (SPSS-23).

Results:

Out of 60 cases, majority 27 (45.0%) patients were belonged to age 51 to 60 years. The mean age was 58.4±10.2 years with ranging from 38 to 82 years. Male patients were predominant 48(80.0%) and 12(20.0%)

patients were female. Male: female ratio was 4.1. Half (50.0%) of the patients were cultivator and 30(50.0%) were come from middle class family (Table-I). Three fourth (75.0%) of the patients were smoker among them 21(46.7%) patients used 5 to 10 sticks/day and 42(93.3%) patients used to smoke 31-30 yrs (Figure-I). Duration of clinical presentation was up to 1 month in 15.0%, 2-3 months in 43.3%, 3-4 months in 10% and 4-6 months 31.7% patients with bronchial carcinoma (Table-II). Cough (90.0%) was the most frequent pulmonary symptoms of bronchial carcinoma followed by dyspnoea (55.0%), wheeze (40.0%), chest pain (20.0%) and haemoptysis (15.0%). Loss of weight (90.0%) was the most frequent extra pulmonary symptoms of bronchial carcinoma followed by loss of appetite (85.0%), fever (70.0%), face & neck swelling (10.0%), horseness (5.0%) and dysphagia (5.0%) (Table-III). Physical findings of the patients were anaemia (35.0%), clubbing (70.0%), features of pleural effusion (50.0%), feature of consolidation (25.0%), features of collapse (10.0%), palpable lymph node (10.0%) and features of SVC obstruction (10.0%) (Table-IV). Squamous cell carcinoma (50.0%) was the most common histological pattern of bronchial carcinoma followed by adenocarcinoma (45.0%) and small cell carcinoma (5.0%) (Figure-II). Diagnostic procedure of bronchial carcinoma was bronchoscopy & biopsy (15.0%) followed by CT guided FNAC (50.0%), US guided FNAC (5.0%), pleural biopsy (5.0%), lymph node biopsy (20.0%) and pleural fluid (5%) (Table-V).

Table-I: Demographic characteristics of the study population (n=60)

	Frequency	Percentage
Age (years)		
30-40	3	5.0
41-50	15	25.0
51-60	27	45.0
61-70	9	15.0
>70	6	10.0
Mean±SD	58.4	±10.2
Range (min-max)	38	-82
Sex		
Male	48	80.0
Female	12	20.0
Occupational status		
Service	10	16.7
Business	8	13.3
Cultivator	30	50.0

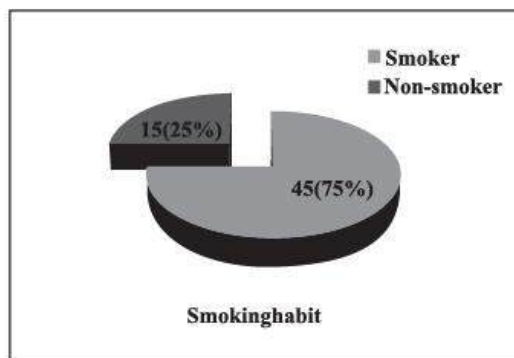|	Frequency	Percentage
Housewife	12	20.0
Socio-economic status		
Lower	27	45.0
Middle	30	50.0
Higher	3	5.0

Figure-I: Smoking habit of the study population

**Table-II: Duration of illness in bronchial carcinoma (n=60)**

Duration of illness	Frequency	Percentage
Up to 1 month	9	15.0
2.-3 months	26	43.3
3-4 months	6	10.0
4-6 months	19	31.7

Table-III: Pulmonary symptoms of bronchial carcinoma (n=60)

	Frequency	Percentage
Pulmonary symptoms		
Cough	54	90.0
Dyspnoea	33	55.0
Wheeze	24	40.0
Chest pain	12	20.0
Haemoptysis	9	15.0
Extra-pulmonary symptoms		
Fever	42	70.0
Loss of weight	54	90.0
Loss of appetite	51	85.0
Horseness	3	5.0
Face & neck	swelling	610.0
Dysphagia	3	5.0

Table-IV: Physical findings of bronchial carcinoma (n=60)

	Frequency	Percentage
Anaemia	21	35.0
Clubbing	42	70.0
Nicotine staining	3	5.0
Palpable lymph node	6	10.0
Features of SVC obstruction	6	10.0
Feature of consolidation	15	25.0
Features of pleural effusion	30	50.0
Features of collapse	6	10.0
Hepatomegaly	3	5.0
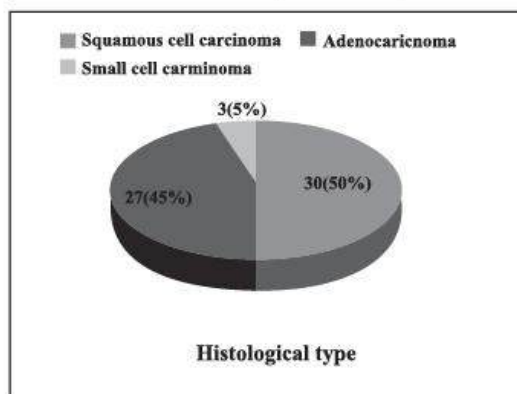
Figure-II: Histological type of the study population (n=60)

Table-V: Different methods of diagnosis of bronchial carcinoma (n=60)

	Frequency	Percentage
Bronchoscopy & biopsy	9	15.0
CT guided FNAC	30	50.0
US guided FNAC	3	5.0
Pleural biopsy	3	5.0
Lympnode biopsy	12	20.0
Pleural fluid study	3	5.0

Discussion

Lung cancer is most common cancer world –wide, accounting for 1.2 million new cases annually in 2000, and causing 18% of all cancer deaths.[1,2] The prevalence of lung cancer is second only to prostate cancer in men and breast cancer in women.[6] In 2006, the disease caused more than 158,000 deaths –more than colorectal, breast, and prostate cancers combined.[7] In 2007, primary carcinoma of lung affected 114,760 males and 98,620 female in United states, 86% die within 5 years of diagnosis, making it the leading cause of cancer death in both men and women.[3]

The age of the patients was ranging from 38 to 82 years with means age of 58.40($\pm$10.20) years (mean $\pm$standard deviation) table shows the distribution of age group., Forty -five percent of the patients were in the age group of 51 to 60 years, 25.0% were in the age group of 41 to 50 years, 15.0% were in 61-70 years, 10.0% were >70 years and 5.0% were in the age group of 30 to 40 years. In a study done by Sarfraz et al.[8] reported that the mean age of lung carcinoma patients were 59.9 years. Akl et al.[9] described that the incidence declined before the age of 40 with 5.9% of cases and after the age of 70 with 7.7% of cases, and no cases were found before age of 26 years, indicating that bronchogenic carcinoma was less common in these age groups. This showed that lung cancer mostly occur in older age. Age group in the present study is comparable to the study conducted by Mandal et al.[10] which showed that age ranged between 39 to 85 years.

In this study out of 60 patients 48 (80.0%) patients were male and 12(20.0%) patients were female. Male: female ratio was 4.1: Similarly, Sarfraz et al.[8] revealed that 67 (83.7%) were males and 13 (16.3%) were females. Male to female ratio was 5.15:1. Akl et al.[9] obtained that male patients were predominant 82.2% and female was 17.8%. The sex ratio reported in various Indian studies ranged from 4.2:1 to 7:1.[11-13]

In this study 75.0% percents of the patients were smoker and ex-smoker and 25.0% were non-smoker. Thirty –five percent of the patients used 05 to 10 sticks/day, 25.0% of the patients used 11 to 20 sticks/day, 05.0% of the patients used 21 to 30 sticks/day, 10.0% of the patients used 30 to 40 sticks/day and another 25.0% were non smoker. Sixty percents of the patients used to smoke 31-30 yrs, 20% of the patients used to smoke 11-20 yrs, 13.3% of the patients used to up to 10 years and 6.7% of the patients used 31-40 yrs. Sarfraz et al.[8] described that seventy one (88.75%) patients were smokers. The smoker to non-smoker ratio was 7.8:1. The smoker to non-smoker ratio in the study was 7.8:1 which is comparable with the study by Rawat et al.14 and Khan et al.[15]

In this series cough (90.0%) was the most frequent pulmonary symptoms of bronchial carcinoma, followed by dyspnoea (55.0%), wheeze (40.0%), chest pain

(20.0%) and haemoptysis (15.0%). This finding was similar to the study of Spiro et al.[16] that 60.0% patients of bronchial carcinaoma were presented as dyspnoea. Sarfraz et al.[8] study showed that the commonest symptom was cough present in 87.5% patients. This is comparable to various other studies.[13,17,18] Chest pain was present in 46.25% patients in over study. This is also comparable to various studies.[17,18] Various studies have reported haemoptysis in 11% to 24% lung cancer patients.[14,19] Akl et al.[9] reported that cough was the most common symptom (347 patients; 85.9%) and was followed by dyspnea (276 patients; 68.3%), expectoration (270 patients; 66.8%), chest pain (241 patients; 59.7%), hemoptysis (142 patients; 35.1%).

In this series loss of weight (90.0%) was the most frequent extra pulmonary symptoms of bronchial carcinoma, followed by loss of appetite (85.0%), (70%) fever, (10%) face and neck swelling, (05%) horseness and dysphagia (5.0%). Patients were anaemia (35.0%), clubbing (70.0%), features of pleural effusion (30.0%), feature of consolidation (25.0%), features of collapse, palpable lymph node and features of SVC obstruction (10.0%) each. Nicotine staining and hepatomegaly (5.0%) each. Akl et al.[9] revealed that weight loss (115 patients; 28.5%), and hoarseness of voice (85 patients; 21%) was also a frequent symptom. Other symptoms, as fever (16.3%), dysphagia (9.2%) and supraclavicular lymph node (1%) were not so frequent clinical presentations.

In this study squamous cell carcinoma (50.0%) was the most common histological pattern of bronchial carcinoma, followed by adenocarcinoma (45.0%), small cell carcinoma (5.0%) and no any large cell carcinoma was found. Sarfraz et al.[8] revealed that squamous cell carcinoma was found to be the most common type of carcinoma lung and was found in 40 (50%) patients, followed by small cell carcinoma which was present in 12 (15%) patient. Gupta et al.[13] also found that most common location of small cell carcinoma was central (50%). Adenocarcioma most commonly manifests as peripheral mass or a malignant pleural effusion. In present study adenocarcinoma constituted 45% of lung cancer, mostly present in upper zone (66.7%) and most commonly associated with pleural effusion. This is comparable with the study conducted by Rawat et al.[14] which observed that adenocarcinoma commonly manifested as peripheral mass or a malignant pleural effusion. In the cell type distribution reported by Radzikowska et al.[20] squamous cell carcinoma had the

highest cell type incidence (52.1%) followed by small cell carcinoma (20.8%) while adenocarcinoma represented only 11.3% of the cases. According to Shetty et al.[21] study, squamous cell carcinoma also presented 44.5% of cases followed by adenocarcinoma (18.5%) and small cell carcinoma (17.2%).

In this series diagnostic procedure of bronchial carcinoma was bronchoscopy and biopsy (15.0%), followed by CT guided FNAC (50.0%), US guided FNAC (5.0%), lymph node biopsy (20.0%) and pleural biopsy (50%). Akl et al.[9] reported that bronchoscopic biopsy was positive in 107 of 151 patients (70.9%) of the squamous cell carcinoma cases. The cases of bronchogenic carcinoma that was diagnosed by CT guided biopsy were 86 cases (21.3% of all cases).

This study was conducted in a tertiary hospital only and may not reflect the actual situation of the country. This was a observational study and sample size was small, may not give the actual conclusion.

Conclusion

Thus, our analysis suggests that most of the patients were elderly and males were predominant with smoking as the principal risk factor. Squamous cell carcinoma still remains the commonest histological subtype. CT guided FNAC was most detected of bronchial carcinoma. Early detection and early treatment to reduce the morbidity and mortality associated with lung cancer in addition to imparting awareness on harmful effects of smoking and how to prevent the disease in general population is the need of this region. Furthermore, a longitudinal study using large sample size should be conducted to find out the magnitude of the lung cancer in our country.

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