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CLINICO-PATHOLOGICAL PROFILE OF BRONCHOGENIC CARCINOMA IN A TERTIARY CARE HOSPITAL IN BANGLADESH

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Summary

The present study was done to explore clinico-pathological profile of bronchogenic carcinoma. Transthoracic FNAC was done in consecutive clinically suspected patients of bronchogenic carcinoma of Indoor and Outdoor Departments of Medicine of Chittagong Medical College Hospital. Of them, 59 patients were found to suffer from bronchogenic carcinoma. The average age of the malignant patients were 60.14 years, 6.8% were less than 40 years of age. The ratio of male to female patients was 5.5:1. 35.6% of the sufferers were farmers and 93.8% were smokers, most of them were chain smokers. The most common cytological types were squamous cell carcinoma (66.1%), followed by adenocarcinoma (25.20%) with increased prevalence of squamous cell carcinoma in male and adenocarcinoma in female.

Introduction

Bronchogenic carcinoma is the most common organ malignancy in the world, accounting for 7% of all death in men and women[1,2]. It is the leading cause of cancer deaths in industrialized countries and also rising at alarming rates in developing countries[3,4]. Exact incidence of lung cancer in Bangladesh is not known due to lack of nation-based survey or cancer registration. However, several regional studies showed that bronchogenic carcinoma ranked top in case of male and 3rd or 4th position in case of female[5,6,7]. Tobacco consumption is the the leading riskfactor of bronchogenic carcinoma in Bangladesh[8]. Significant differences in clinico-pathological features have been observed in different geographic areas. Studies from developing countries, like India have reported such differences in clinico-pathological profile of primary bronchogenic carcinoma[9]. The aim of this study was to evaluate clinico pathological features of bronchogenic carcinoma in a tertiary care hospital in south-east zone of Bangladesh.

Key words: bronchogenic carcinoma; transthoracic FNAC; cytopathology

Materials & methods

It was a cross-sectional study. The study was carried out in the department of pathology and medicine, Chittagong Medical College during the period from November, 2004 to August, 2005. A total of 70 clinically suspected patients of bronchogenic carcinoma admitted into Medicine ward or attended into Outpatient Department of Medicine of Chittagong Medical College Hospital, irrespective of age and sex, were included in the study. Patients having any clinical feature suspicious of lung cancer (i.e. persistent cough, haemoptysis, chest pain, weight loss, fever, clubbing etc) with non-resoluting shadow in the chest x-ray, in spite of adequate antibiotic treatment were included in the study.

Patients having positive (+ve) sputum for AFB, advanced COPD, unconscious or very much debilitated patient, history of bleeding diathesis, unco-operative patient, lesion suspicious of aneurysm or arterio venous malformation or hydatid cyst were exclued from the study.

A brief history was taken from each patient with particular reference to the age, sex, occupation, smoking habit, symptoms of pulmonary diseases and history of any bleeding episode clinical informations were recorded in a preformed proforma. Chest x-ray postero-anterior and lateral view, bleeding time, clotting time, platelet count, complete blood count, sputum for AFB and malignant cells were done. Transthoracic FNA were done in all 70 patients. Smear were prepared, stained by papanicolaou's stain and seen under microscope.

All necessary and relevant data regarding patients were recorded methodically and meticulously.

Written consent was taken from each patient or patient's guardian after explaining the study purpose

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and procedur. The study was approved by the departmental committee.

Results

The study was carried out on 70 patients. Of them, 58 (82.86%) were male and 12 (17.14 %) were female. Male-female ratio was 4.8:1. Among 70 patients, 59 were diagnosed as malignant, of them male were 50 and female were 09 and Male-female ratio was 5.5:1. One patient's cytopathology was suspicious, which was excluded in our statistical procedure. There was increased prevalence of squamous cell carcinoma in case of male and adenocarcinoma in case of female in the study.

Table I: Age group and malignancy

Age (years) group	FNAC Malignant		Non Malignant	
	Number (59)	%	Number (10)	%
31-40	4	6.8%		
41-50	15	25.4%	4	40.0%
51-60	14	23.7%		
61-70	18	30.5%	4	40.0%
71-80	7	11.9%	2	20.0%
81-90	1	1.7%		

Table II: Smoking and malignancy in the series

Smoking habit	Malignant		Non Malignant		
	Number	%	Number	%	p-value
Smoker	55	93.2%	6	60.0%	<0.001
Non smoker	4	6.8%	4	40.0%	

Table III: Clinical feature and malignancy

Symptoms		Malignant Number	%	Non Malignant Number	Suspicious Number
Cough	Present	53	89.8%	10	1
	Absent	6	10.2%	-	-
Chest Pain	Present	37	62.7%	3	1
	Absent	22	37.3%	7	
Haemoptysis	Present	25	42.4%	3	-
	Absent	34	57.6%	7	1
Clubbing	Present	26	44.1%	1	-
	Absent	33	55.9%	9	1
Dyspnoea	Present	23	39.0%	3	1
	Absent	36	61.0%	7	-
Fever	Present	26	44.1%	7	1
	Absent	33	55.9%	3	
Weight Loss	Present	28	47.5%	1	-
	Absent	31	52.5%	9	1

Table IV : Radiological features related with malignancy

Chest x-ray Opacity	Malignant		Non Malignant	
	Number	%	Number	%
Right	32	54.2%	9	90%
Left	27	45%	1	10%

Table I shows the age distribution of patients. The lowest age was 35 years and highest age was 85 years in this series. The mean age was 60.14 years. The highest number of patients were found in seventh decades. Most of the patients (67.8%) belonged to above 50 years of age. 6.8% patients were under 40 years of age.

In this series, 23 (32.86%) patients were farmer, 16 (22.86%) were businessman, 6(8.57%) were office workers, 9(12.86%) were housewives, drivers were 2(2.86%) Others (20%) included tailors, motor mechanics, carpenter, unemployed, prisoner etc. Among 59 malignant patients, farmers (35.6%) comprised the highest.

Table II shows the smoking habit of patients. Among the 59 malignant cases, 55 (93.22%) were smokers, most of them were heavy smokers. The commonest habit was cigarette smoking followed by bidi smoking. Some patients smoked bidi and cigarette or bidi and hookah in combination. 25 (32.37%) patients smoked 11 to 20 sticks/day, 22 (37.29%) smoked 21-30 sticks/day, and 10 (16.95%) smoked 0 to 10 sticks/day and 2 patients (3.38%) smoked highest, 31-40 sticks/day (for minimum one year, in all cases). Most of the patients had the history of smoking for more than 20 years. 4(6.8%) patients were non-smokers. There was a positive relation of malignancy with smoking ($p<0.001$).

Table III shows clinical features of the patients with bronchogenic carcinoma. 53 (89.8%) patients had cough, which was the major symptom in the series; Chest pain was the next common symptom; 37(62.7%). 25 (42.4%) patients presented with haemoptysis. 23(39.0%) patients presented with dyspnoea of various grades. Clubbing were present in 26(44.1%) patients. Fever were present in 26 (44.1%) cases and weight loss in 28(47.5%) patients. Supra-clavicular lymph node were palpable in 3 (5.08%) cases only. FNAC of these lymph nodes were done and metastatic deposit were found in all 3 cases.

ESR in 1st hour (Westergren method) were recorded in 39 patients, of them 34 were malignant. 10 (29.41%) of malignant patients had ESR less than

Table V : Cytopathological Typing of Bronchogenic carcinoma

Type of investigation (No of malignant pt.)	Squamous cell carcinoma		Adenocarcinoma		Small cell carcinoma		Large cell carcinoma		Poorly differentiated carcinoma	
	No	%	No	%	No	%	No	%	No	%
FNAC (59)	39	66.1%	15	25.4%	02	3.4%	02	3.4%	01	1.7%

50 mm in 1st hour. 17 (50%) patients had ESR value between 50-100 mm in 1st hour and 7(20.59%) patients had ESR value above 100 mm in 1st hour. There was significant relationship between raised ESR value and malignancy (p<0001).

Chest x-ray P/A view were done in all 70 cases and opacities were found at right lung in 42 cases and at left lung in 28 cases (Table IV). Among 59 malignant cases, 32 (54.2%) had shadows at right lung and 27 (45.8%) malignant cases at left lung. The commonest 32 (54.24%) radiological finding were dense mass shadow followed by collapse-consolidation in 16 (27.12%) cases. 5(8.47%) patients presented with pleural effusion; all of them had peripheral mass and four of them were adenocarcinoma. Among 10 non-malignant cases, which comprise non-specific and inflammatory diseases, 9 (90%) cases were found at right lung and 1(10%) at left lung.

Sputum examination for malignant cells were done in 46 cases (38 FNA positive and 8 FNA negative cases). Malignant cells were found in 3(6.52%) of FNA positive cases only. Two of them were squamous cell carcinoma and one was adenocarcinoma.

Table V shows types of bronchogenic carcinoma. Among 70 patients, 59 patients were malignant, 1 was suspicious and remaining 10 cases were non-malignant. Among the 59 malignant cases, 39(66.1%) cases were diagnosed as squamous cell carcinoma, 15(25.4%) cases were diagnosed as adenocarcinomas, 2(3.4%) cases as small cell carcinoma, 2(3.4%) as large cell carcinoma and 1(1.7%) was diagnosed as poorly differentiated carcinoma.

Discussion

Total number of cases in the series were 70; of them 58 (82.86%) were male and 12 (17.14%) were female. Of them, 50 (84.7%) male and 9 (15.3%) female patients were found to suffer from bronchogenic carcinoma and the male-female ratio was 5.55: 1. This finding was similar to the findings of Rahman et al (2000)[10]. In his series, male-female ratio was 5.08:1. Female cases were less, because, bronchogenic carcinoma are less in female due to less smoking among female in Bangladesh (Alam et al 1999, Khan et al 1993)[6,11]

In this study, the age of the 59 patients ranged from 35 to 85 years with mean age was 60.14 years. 40(67.8%) patients belonged to >50 years age group. This finding was similar to those of Mostafa et al (1995)[12], and Mahmuda (1999)[13]. In their series, maximum number of patients were above 50 years of age. The predominant age group affected were sixth and seventh decades, similar to Wallace et al (2002)[14]. 4(6.8%) patients were under 40 years of age. In the study of Prasad et al (2004), 9.8 % patients were under 40 years of age[4].

In this study, the lesions were found more at right lung, 32(54.2%); than those at left lung 27(45.8%). This finding was very much close to that of Mahmuda (1999)[13]. In her series, the incidence of lung carcinoma were 54.94% and 45.05% in the right and left lung respectively.

Farmers 21 (35.6%) were predominating in the present study, This may be due to that more than 60% of our population belongs to cultivator group. This findings was similar to that of Ahmad (1998)[15]. In his series, farmers were 28.6%.

In this study, Among the 59 malignant cases, 55 (93.22%) were smokers, most of them were chain smokers. 49 patients smoked more than 10 pack years (More than 10 sticks/day for 1 year). This finding was similar to the findings of Mahmuda (1999)[13]. In her series 93.6% of malignant cases were smokers.

Regarding symptoms of bronchogenic carcinoma, in this study, most of the patients presented with cough 53 (89.8%;). This finding was very close to the findings of Ahmad (1998). In his series 90% patients presented with cough[15]. Association of cough with malignancy was also statistically significant (p<0.001) in this study. Other symptoms presented in bronchogenic carcinoma included chest pain (62.7%), haemoptysis (42.4%), clubbing (44.1%), dyspnoea (39%), fever (44.1%), and weight loss (47.5%). These findings were very much similar to

those of Mahmuda (1999)[13] and Ahmad (1998)[15]. But surprisingly, none of these symptoms were significantly associated with malignancy (P>.05) in this study.

Sputum examination were possible in 46(65.71%) cases for malignant cells. But only 3(6.52%) cases revealed malignant cells in the sputum. Two of them were squamous cell carcinoma and one was adenocarcinoma. This finding was much lower than many of the published studies (Schreiber and McCrory 2003)[16]. Ideally sputum sample in 5 consecutive days should be examined for malignant ells[17]. In this study, only one sample of sputum from each patient was collected, which is the possible cause of such lower findings.

In this study, transthoracic fine needle aspiration cytology (FNAC) was done for the diagnosis of bronchogenic carcinoma, as it is an effective, safe, speedy and relatively cheap method. It can be performed on out-patient basis, requiring no or only local anaesthesia. It has wide patient acceptance as it is less traumatic and minimally invasive[18].

Conclusions

In our study cytopathologically maliglancy was found in majority (59 out of 70) of clinically suspicious patients. It has been also observed from this study that smoking is the important risk factors in the causation of bronchogenic carcinoma. Squamous cell carcinoma ranks top followed by adenocarcinoma, which is more prevalent among female patients. The other clinical and histopathological features seem to be in accordance with the results of studies from other developing countries.

Disclosure

All the authors declared no competing interestes.

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