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Patterns of Presentation of Lung Cancer in Aswan University Hospital

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ABSTRACT

Background: globally, lung cancer is the most common cancer among males in terms of both incidence and mortality and among females has the third highest incidence, and comes after breast cancer in mortality.

Aim of the Work: to recognize the lung cancer presentation pattern in Aswan University Hospital involving different clinical, radiological and bronchoscopic pattern.

Patients and Methods: this retrospective study included 30 patients with lung cancer in Aswan University Hospital, all these data were recorded; complete clinical examination, full laboratory investigations, imaging modalities, bronchoscopy and histopathological analysis of tissue samples.

Results: the mean age in lung cancer patients was (59.33 ± 8.6) years, mass lesion and collapse were the main radiological presentations and endobronchial mass lesion was the main presenting bronchoscopic finding.

Conclusion: endobronchial mass was the most frequent bronchoscopic finding in lung cancer patients in our study.

Keywords: lung cancer, smoking, bronchoscopy.

INTRODUCTION

Lung cancer is considered the principal cause of cancer deaths worldwide, with over a million deaths annually [(1)]. In 2012, there were 1.82 million new cases globally, and 1.56 million deaths due to lung cancer, representing 19.4% of all deaths caused by cancer [(2)]. According to the newest WHO data published in May 2014, Deaths related to lung cancer in Egypt reached 4,429 or 0.96% of total deaths, Egypt orders 111 in the world [(3)]. Cigarette smoking is a substantial risk factor for lung cancer, especially squamous and small cell lung cancer, with more than 80 % of all lung cancer cases can be attributed to cigarette smoking [(4)]. The most common presenting symptoms are coughing, hemoptysis, weight loss, dyspnea, and chest pain [(5)]. Lung carcinomas can besubdivided according to the dimension and shape of the malignant cells into two main classes: non-small cell lung carcinoma (NSCLC) and small-cell lung carcinoma [(6)].

Adenocarcinoma, squamous-cell carcinoma and large-cell carcinoma are the three commonest subtypes of NSCLC. Although most cases of adenocarcinoma are linked with tobacco smoking, adenocarcinoma is also the most abundant subtype of lung cancer among the non-smokers. Squamous-cell carcinoma constitutes about 30% of all lung cancers subtypes and nearly, 9% of lung cancer cases are large-cell carcinoma [(7)].

AIM OF THE WORK

To recognize the pattern of presentation of lung cancer in Aswan University Hospital regarding symptoms, signs, radiology and bronchoscopic Finding.

PATIENTS AND METHODS

This retrospective study was done in Aswan University Hospital. It included 30 patients with lung cancer during the period of October 2016 to June 2017 (diagnosis depending on clinical, radiological, bronchoscopic and histopathological studies).

Inclusion criteria

All patients with lung cancer with age more than 18 years.

Exclusion criteria

1. Metastatizing lung cancer.
2. Patients with any organ cancer other than lung cancer.

All these data obtained from patients files included:

1- Full history taking.
2- Full Clinical Examination.
3- Imaging Modalities including Plain Chest x- ray P-A view and CT chest with contrast.
4- Invasive investigations including:

- Fiberoptic bronchoscopy and sampling with Endobronchial biopsy using forceps, Bronchial brush for histopathological study and Bronchial wash for cytological study.
- One patient had CT guided percutaneous true cut needle biopsy from peripheral lung mass.

5- Routine Laboratory investigations.
6-

Ethical statement

The study was conducted according to considerations of the ethical committee of Aswan university hospital and informed consent was taken from the patients.

Statistical analysis

Analysis was done by SPSS version 21. Means, standard deviations, medians and percentages were calculated. Test of significances were used to compare the variation in distribution of frequencies among the study population.

Independent t-test analysis was carried out to compare the means of normally distributed data.

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RESULTS

The demographic data of the study population showed that the mean age of the patients included was 59.33±8.6 years. Males were 76.7% and females were 23.3% with substantially significant difference, where (p = 0.005).

Regarding the smoking parameters, two thirds of the patients were cigarette smokers, with substantial difference. On the other hand, current lung cancer smokers were 16(53.4%) and 7(23.3%) were ex-smokers with statistically major variation (p=0.005) as shown in (table 1).

Fig (1) show presenting symptoms of patients where dyspnea was the most common presenting symptoms followed by cough then hemoptysis and lastly expectoration in and the least presenting symptoms were chest wheezes and chest pain.

Local chest examination findings of the studied patients were shown in (Table 2) and the most abundant localized presentation was collapse, followed by space occupying lesion.

Regarding, the radiological findings, more than 80% of patients presented with mass and 40% with collapse, less common radiological presentation include involve consolidation, effusion, nodules while one patient presented with mediastinal lymph nodes and the other one with malignant lung abscess as shown in (Fig 2). Moreover, some cases presented with more than one of the abovementioned radiological data.

Concerning the bronchoscopic findings, there was 1case free from any findings and was diagnosed with transthoracic CT guided biopsy from peripheral lung mass, while the commonest bronchoscopic finding in our study was endobronchial mass presented in about 60%of patients followed by mucosal infiltration, broad carina and lastly extrinsic compression (Figure 3).

Based on pathological type of tumour, the adenocarcinoma was detected in 16(53.3%) of cases where squamous cell carcinoma was present in 8(26.7%), 6(20 %) of cases were found as small cell carcinoma (Figure 4).

Table (1): Socio-demographic data and smoking characteristics of the patients included in our study

parameter	No.30	%	p-value
Age in years	59.33 ± 8.6		
Sex			
Males	23	76.7%	**0.005**
Females	7	23.3%	
Smoking type			
Non-smoker	7	23.3%	
Cigarette	20	66.7%	**0.001**
Goza	3	10%	
Smoking state			
Non-smoker	7	23.3%	
Current	16	53.4%	**0.005**
Ex-smoker	7	23.3%	

Table (2): Local chest examination findings of lung cancer patients

Variable	(No.=30)	%
Clinically Free	3	(10%)
Collapse	11	(36.7%)
Effusion	4	(13.3%)
Consolidation	3	(10%)
Space occupying lesion	7	(23.3%)

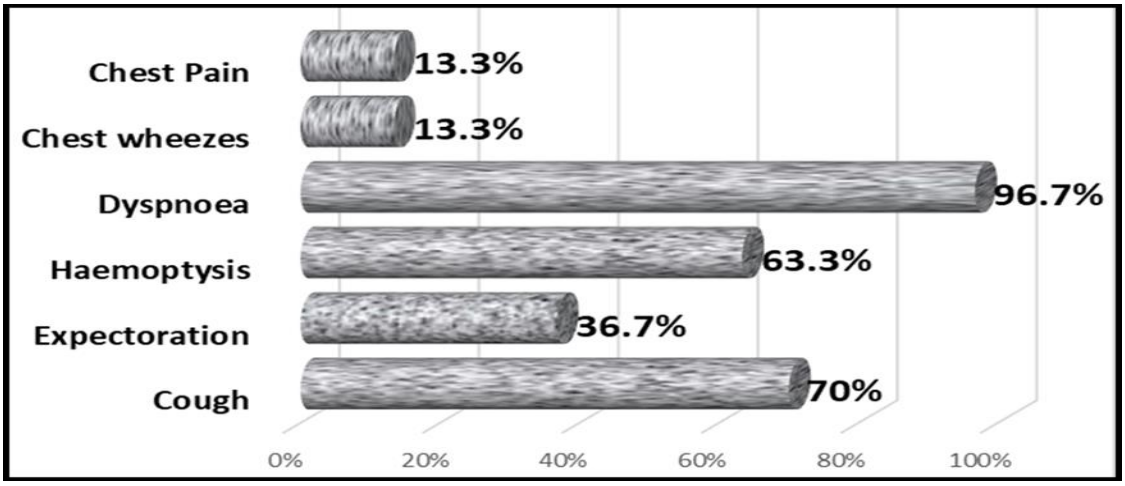

Figure (1): Presenting symptoms of lung cancer patients.

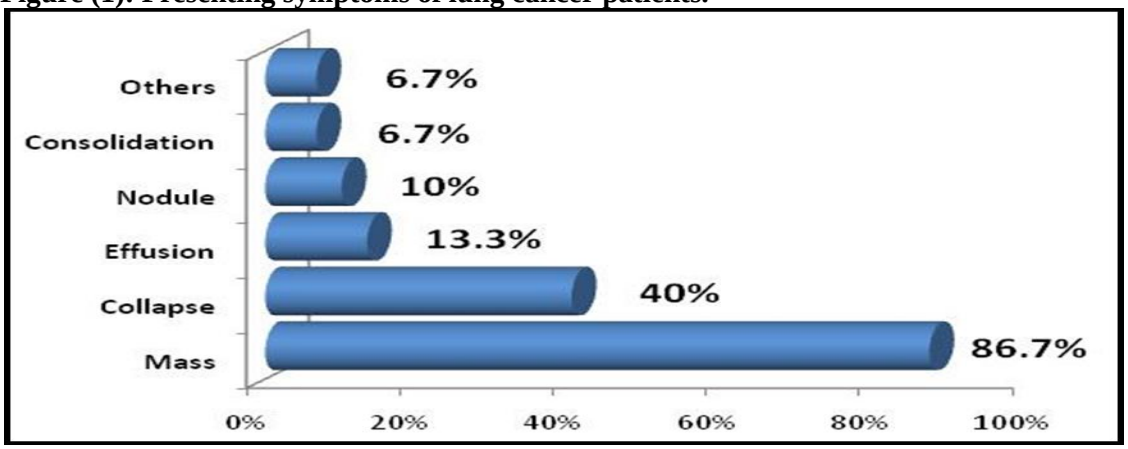

Figure (2): Radiological presentation of lung cancer patients.

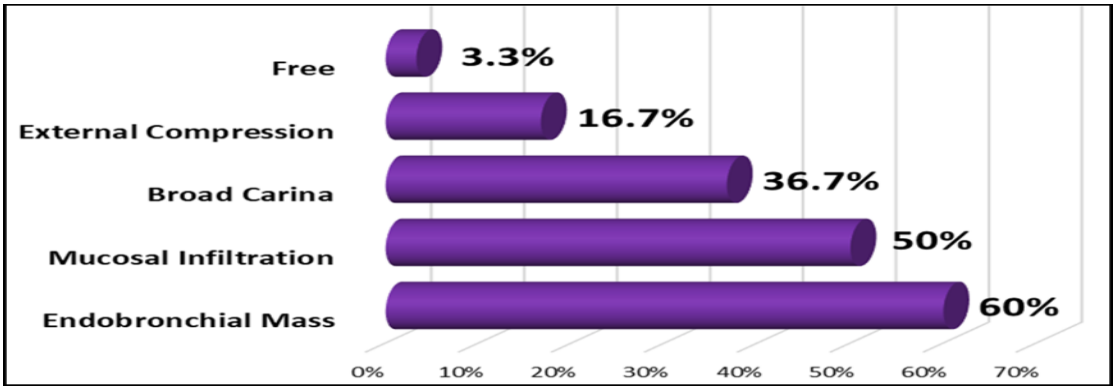

Figure (3): Bronchoscopic finding in lung cancer patients.

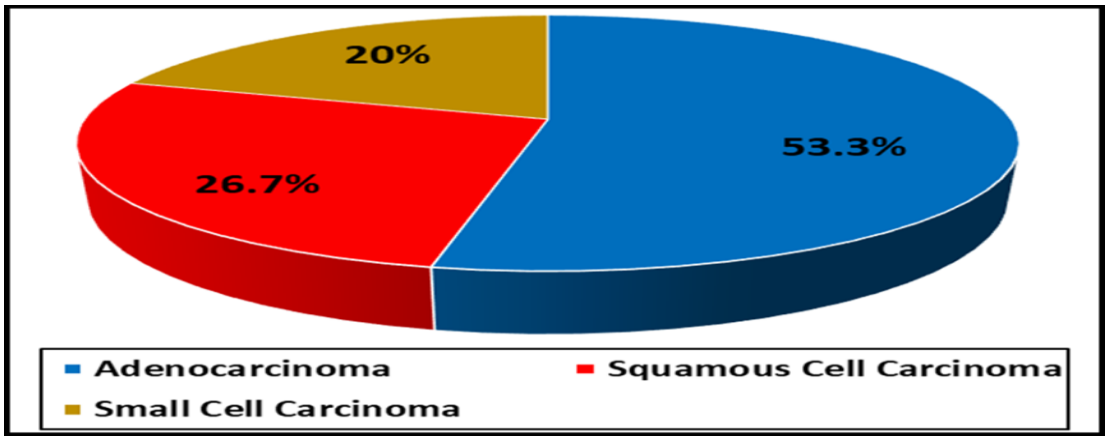

Figure (4): Pathological types of lung cancer of the studied patients

DISCUSSION

Lung cancer represents one of the significant prominent etiologies of cancer deaths globally, with over a million deaths every year [1]. Lung cancer constitutes 2.8% of the total malignancy in Egypt documented by the national registry issued by the National Cancer Institute (NCI) in 2007 [8]. The relative lack of symptoms during the initial stages of lung cancer often results in late diagnosis [9].

The mean age of our studied patients at time of diagnosis of lung cancer was 59.33±8.6, regarding the gender variation among our study population; male patients were 76.7% while, female patients were 23.3%. This finding was concomitant with that recorded by **Ghoneim *et al*. [10]** with mean age of their study population, 57.08±11.4 and substantial male predominance 75.7%, **Scesnaite *et al*. [11]** with mean age of the cases was 63.5±0.7 and relative male predominance 60.8%, **Patil &Rujuta [12]** with mean age 59.93 years and significant male population constitutes (87.14%) of total study population, although all of the previously mentioned studies were studying lung cancer in different localities and from different point of view, but all of them gave substantially the same age and gender predominance.

The relative male predominance in lung cancer risk can be explained by the fact that males are at higher risk of exposure to smoking, air pollution and occupational hazards. It is now assumed that there is sex difference in their susceptibility to carcinogenic effects of tobacco smoke. This variation may be due to difference in DNA repair mechanisms [13].

The role of smoking as the most significant lung cancer etiology is unquestionable [14]. In our study, regarding smoking type, two thirds of the lung cancer patients were cigarette smokers, 10% were goza smokers, and 23.3% of them were non-smokers, on the other hand current smokers were more than half of the patients. This result was consistent with previous studies that stated that more than two thirds of lung cancer cases can be attributed to smoking [15,16].

We summarized that dyspnea was the most common presenting symptom of lung cancer followed by cough then hemoptysis and lastly expectoration and the least presenting symptoms were chest wheezes and chest pain. Comparable to our results, **Buccheri &Ferrigno [17]** stated that their patients at presentation, experienced two or three symptoms on average; the most predominant being cough and systemic symptoms followed by dyspnoea, chest pain and haemoptysis, similarly. ***Beckles et al.* [18]** stated that cough was the most common presenting symptom of lung cancer followed by dyspnea and hemoptysis. Moreover, ***Patil &Rujuta* [12]** summarized that the most commonly experienced symptoms in their study on 210 patients were cough, hemoptysis and dyspnea.

Regarding local chest examination of the studied patientsin our study,the commonest localized presentation of LC patients was Collapse, followed by space occupying lesion.This is in agreement with ***Omar et al.*[15]** who stated that 24.7% of patients were clinically free and 75.3% were presented with local findings in the form of space occupying lesion in 45.9%, pleural effusion in 24.7%, collapse in 9.4% and consolidation in 7.1% of the patients.The variation in the types of symptoms and clinical signs and their incidence usually depends on histopathological subtype presentation, site of tumor and the stage of lung cancer at the diagnosis time [19].

Regarding the radiological findings,more than 80% of patients presented with mass and 40% with collapse, less common radiological presentation include consolidation, effusion, nodules and other radiological findings in the form of 1 patient with mediastinal lymph nodes and the other one with malignant lung abscess Moreover, some patients have more than one of the previously mentioned radiological presentations. In agreement with our results ***Rawat et al.* [20]**stated that mass lesion was the commonest radiological presentation followed by collapse-consolidation, then pleural effusion and combined presentation . Also, ***Patil &Rujuta* [12]** reported that radiological patterns of abnormalities documented in their study were mass lesion (29.04%), hilar opacity (27.14%), collapse (segmental/lobar, 20.95%), and pleural effusion (12.38%). The variation in radiological presentation between different studies is caused by the variability in tumour stages at the time of diagnosis and the histopathological diagnosis.

In our study, concerning bronchoscopic findings, there was 1 case free from any findings, while the commonest bronchoscopic finding was endobronchial mass in about 60% of patients followed by mucosal infiltration, broad carina and the least common was external compression. This is in agreement with ***Rabahi et al.* [21]** who showed that endobronchial mass & and mucosal infiltration were the main endoscopic findings. ***Omar et al.* [15]** revealed exophytic mass in 70.9% followed by sub mucosal infiltration in 21.9% and extrinsic compression in 7.1% which is consistent with our results.

The commonest histopathological subtype of lung cancer in our study, was adenocarcinoma presented in 16(53.3%) of cases followed by squamous cell carcinoma, and lastly small cell carcinoma. ***Elgamal et al.*[16]** reported that 68% were adenocarcinoma, 12% were squamous cell carcinoma,12% small cell carcinoma, 4% lymphoma, 2% were bronchoalveolar carcinoma, 2% were anaplastic carcinoma, and ***Ghoneim et al.*[10]**found that 64% were adenocarcinoma, 10% were squamous cell carcinoma, 26% were small cell carcinoma, both studies were comparable to our results. While different figures were reported by others, ***Hamilton et al.*[22]** *f*ound that 32% of their cancer

patients had squamous carcinoma, 23% adenocarcinoma, 21% small cell carcinoma, 9% large cell carcinoma, and 11% unspecified carcinoma. ***Rabahi et al.*** [(21)] summarized that the most dominant subtypes being squamous carcinoma in 78 (39%), adenocarcinoma in 42 (21%) small cell carcinoma in 24 (12%), and large cell carcinoma in 2(1%). ***El-Sherif et al.***[(23)] included 45 lung cancer patients in their study 28(62.2%) were squamous cell carcinoma, 9(20%) were adenocarcinoma and 8(17.8%) were small cell carcinoma. This variation in the distribution of the histopathological types of the malignant cases can be atteibuted to the different number, selection, smoking habits and locality of cases in each study, but in general, adenocarcinoma constituted the main and predominant type[(14)].

CONCLUSION

The most common radiological presentation of lung cancer was mass lesion and the commonest bronchoscopic finding in lung cancer patients was endobronchial mass.

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