

REVIEW ARTICLE

Clinical, Tomographic and Histopathological Features of Lung Cancer Patients

Julio Ernesto Rodriguez Serret*, Odalis García Gómez, Sahily Salcedo Quintero, Ileana Rosell Nicieza, Laura Pons Porrata

“Dr. Juan Bruno Zayas Alfonso” Teaching General Hospital, Santiago de Cuba, Cuba

Abstract: In 2015, 61 patients diagnosed with lung cancer treated at the Radiology Service of “Dr. Juan Bruno Zayas Alfonso” Teaching General Hospital in Santiago de Cuba, were observed and conducted descriptive and cross-sectional studies to characterize them according to the variables of interest. The results were organized into frequency distributions and single-input and two-input tables were compiled to establish certain relationships between the variables. Male (55.7%), 60–69 age group (39.3%), history of chronic bronchitis in male and female (75.4%), cough as the main symptom (63.9%), peripheral localization (78.7%) and adenocarcinoma as the histological type (57.4%). At the time of diagnosis, most patients are at the last stage of the disease, so studies are recommended for all patients at risk.

Keywords: Lung cancer, Computed axial tomography, Lung neoplasia, Radiology service

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***CORRESPONDING AUTHOR**

Julio Ernesto Rodriguez Serret
E-mail: jserrret@infomed.sld.cu

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1. Introduction

Lung cancer, one of the most common cancers in the world, is a disease caused by the malignant growth of respiratory cells, especially lung tissue^[1].

Lung cancer was not considered an important disease until 1791, but in 1819 the features became published, when it was difficult to distinguish from tuberculosis^[2].

In 1878, the malignant findings of lung cancer accounted for only 1% of the cancers observed in autopsy. In 1912, there were 374 cases in the medical literature^[3].

Currently, it accounts for 15% of total cancer diagnoses and is the leading cause of cancer death worldwide. Overall 5-year survival generally does not exceed 15% despite new treatments are adopted.

In 2012, it occurred in approximately 1.8 million patients and caused an estimated 1.6 million deaths. It is worth noting that most cases are detected in stages III and IV of the disease^[4].

In the United States, it occurs in about 225,000 patients, causing approximate 160,000 deaths per year, more than colon, breast, and prostate cancer combined^[5].

Cuba is not exempt from this disease, as shown by the fact that it is the leading cause of death in the country. In addition, by the end of 2016, 5,535 people had died of this disease.

In particular in Santiago, Cuba, it is the second leading cause of death just after cardiovascular disease, with 443 deaths died from lung cancer in 2015, accounting for 42.07% of total cancer deaths aged 30 to 69 years^[6].

At the end of the same year, the Juan Bruno Zayas Alfonso General Hospital had diagnosed 203 lung cancer patients and 36 deaths (annual report of chronic noncommunicable diseases), Provincial Health and Epidemic Prevention Statistics Center, Santiago de Cuba, Cuba, 2015).

Lung cancer is a heterogeneous disease at the clinical, biological, histological and molecular levels. Traditionally, it is divided into two categories according to different disease types and treatment strategies: non-small cell or non-small cell lung cancer and small cell or small cell lung cancer^[7].

On the other hand, there are four basic types of invasive lung tumors: squamous cell carcinoma or epidermoid carcinoma, adenocarcinoma, large cell carcinoma and small cell carcinoma^[8].

The symptoms will depend on the location of the tumor, that is, if the patient has ineffective cough, mucopurulent sputum, hemoptysis, dyspnea and wheezing, which are central symptoms. If it is peripheral, inhalation chest pain and dysphonia. Other symptoms will depend on the presence of metastasis and paraneoplastic tumors^[9].

Today, the detection methods of lung cancer are based on new imaging techniques, tumor markers and biopsy procedures^[10].

Despite the use of new imaging research techniques, the disease is still in the late stage of diagnosis due to

the high morbidity and mortality in Cuba. At present, it is a major health problem, which is the motivation of this study.

2. Methods

In 2015, 61 patients with lung cancer diagnosed by histopathology and CT axial scanning treated at the Radiology Service of “Dr. Juan Bruno Zayas Alfonso” Teaching General Hospital in Santiago de Cuba, were observed and conducted descriptive and cross-sectional studies.

The variables analyzed included age, history of chronic respiratory diseases, signs and symptoms, as well as the location and size of tumors.

Using the SPSS 11.5 operating system, the results were organized by frequency distribution. The percentage was also used as a summary indicator and one- and two-entry tables were prepared to establish some relationships between variables.

3. Results

Among the patients diagnosed with lung cancer during the study period, 55.7% were male and 39.3% were 60–69 years old.

As shown in **Table 1**, patients with a history of chronic bronchitis (75.4%) were common in both men and women, followed by emphysema (63.9%).

Table 1. Patient statistics based on the history of chronic respiratory disease and gender

History of chronic respiratory disease	Gender				Total	
	Female		Male		n = 61	
	No.	%	No.	%	No.	%
Bronchial asthma	6	9.8	4	6.6	10	16.4
Chronic bronchitis	22	36.1	24	39.3	46	75.4
Bronchiectasis	18	29.5	12	19.6	30	49.1
Emphysema	18	29.5	21	34.4	39	63.9
No criminal record	9	14.8	6	9.8	15	24.5

In the case group (**Table 2**), the main symptoms included cough (63.9%), general symptoms (57.4%) and dyspnea (50.8%). After the location analysis of these data, it was found that the symptoms of the patients with central lung cancer were mainly cough (92.3%), expectoration (84.6%) and hemoptysis (76.9%), but in the patients with peripheral lung cancer, cough (56.2%), general symptoms (54.1%) and dyspnea (47.9%).

The main sites (**Table 3**) were peripheral (78.7%) and infiltrative (75.4%). In addition, the most common histological type in the two sites (**Table 4**) was adenocarcinoma (57.4%), mainly in the central site (84.6%).

By analyzing the tumor size of patients with adenocarcinoma (**Table 5**), 3–5 cm (22.9%) was dominant and 5–7 cm (21.3%) was next. In addition, three of four tumors with less than 3 cm correspond to

tumors of this type.

4. Discussion

The possibility of lung cancer for patients with respiratory diseases has been proposed. Some factors, such as chronic bronchitis, tuberculosis, bronchiectasis, pulmonary infarction area, foreign body inclusion, idiopathic pulmonary fibrosis, scleroderma and scars of other nature, may be the cause of lung cancer^[11].

This series of results on age are consistent with that of Badui^[12], who found that the number of lung cancer patients aged 60–69 was dominant.

In a study in Chile, Saldias *et al.*^[13] confirmed that 66% of cancer patients had COPD by spirometry. Paradoxically, Yanes *et al.*^[14] concluded that 66.4% of the case group members had no history of respiratory diseases.

Table 2. Patient statistics based on symptoms, signs and tumor location

Symptoms and signs	Tumor localization				Total n = 61	
	Central n = 13		Peripheral n = 48		No.	%**
	No.	%*	No.	%*		
Cough	12	92.3	27	56.2	39	63.9
Expectorant	11	84.6	13	27.1	24	39.3
Chest pain	4	30.7	17	35.4	21	34.4
Dyspnea	8	61.5	23	47.9	31	50.8
Hemoptysis	10	76.9	3	6.2	13	21.3
General symptoms	9	69.2	26	54.1	35	57.4

*Percentage of the total number by location

**Percentage calculated from the total number of patients

Table 3. Patient statistics based on the location of the tumor

Tumor localization		No.	%
Central	Bronchitis	11	18.0
	Bronchial obstruction	2	3.3
	Subtotal	13	21.3
Peripheral	Nodular	2	3.3
	Penetrating	46	75.4
	Subtotal	48	78.7
Total		61	100.0

Table 4. Patient statistics based on the histological type and tumor location

Organization type	Tumor localization				Total	
	Central		Peripheral		No.	%**
	No.	%*	No.	%*		
Epidermoid	1	7.6	5	10.4	6	9.8
Adenocarcinoma	11	84.6	24	50.0	35	57.4
Small cell carcinoma	1	7.6	4	8.3	5	8.2
Large cell carcinoma	0	0.0	11	22.9	11	18.0
Glandular squamous	0	0.0	4	8.3	4	6.6
Total**	13	21.3	48	78.7	61	100.0

*Percentages calculated on the basis of the total by columns

**Percentage calculated based on the total number of patients

Table 5. Patient statistics based on tumor histological type and tumor size

Organization type	Tumor size (cm)								Total			
	Less than 2		2-3		3-5		5-7		More than 7			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Epidermoid					2	3.3	3	4.9	1	1.6	6	9.8
Adenocarcinoma	2	3.3	1	1.6	14	22.9	13	21.3	5	8.2	35	57.4
Small cell				0.0	2	3.3	3	4.9			5	8.2
Large cell			1	1.6	4	6.6	4	6.6	2	3.3	11	18.0
Glandular squamous							2	3.3	2	3.3	4	6.6
Total	2	3.3	2	3.3	22	36.0	25	41.0	10	16.4	61	100.0

With regard to symptoms, most authors agree that intrabronchial growth leads to cough, hemoptysis, wheezing and dyspnea. At the same time, there are surrounding tumors, chest pain, cough, dyspnea and abscess^[15].

Other researchers in the subject^[16,17] pointed out that malignant lesions spread around in the form of nodules and masses. The results are similar to the location

described in this study.

According to histology, the division of scientific standards is determined. Therefore, it is necessary to consult the classic literature of this specialty, and it is agreed that most adenocarcinoma shows peripheral lesions with increased central location^[17,18].

A recent study showed that the larger the nodule, the greater the risk of malignancy^[19]. In this regard, in a

similar study^[12], most tumors are more than 3cm, which reaffirms the delayed diagnosis of this kind of cancer.

At the time of diagnosis, most patients are in the advanced stage of the disease, so it is recommended to study all patients at risk.

Conflict of interest

Authors declared no conflict of interest.

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