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Pneumology

Lung Cancer and Women

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Abstract **Original Research Article**

Lung cancer is a current public health problem, as its incidence continues to rise, especially in women. The aim of the study was to evaluate epidemiological, clinical and histological profile of women's lung cancer. A retrospective study including women patients with a confirmed lung cancer followed at the Pneumology Department of University Hospital Center Mohammed VI of Marrakesh in Morocco between January 2016 and june 2021. 34 cases were included in the study. The average age of patients was 58 years. Active smoking was present in 15.4% and passive smoking in 40% of patients. Wood smoke exposure was found in 57.7% of patients. Intraparenchymal opacities were the most frequent radiological feature in 58% of cases. Chest CT scans, performed in all women, showed an intraparenchymal mass in 78% of cases. Histological confirmation was obtained by bronchial fibroscopy (56%), trans-parietal biopsy (28%), and pleural biopsy (16%). The most frequent histological type was adenocarcinoma (56.1%), followed by squamous cell carcinoma (36.3%) and small cell carcinoma (7.6%). The stage of the disease is metastatic in 51% of cases. The most frequent metastatic locations were pleura (38.5%), bone (23%), brain (15%), and liver (7.6%).

Keywords: Lung cancer, women, adenocarcinoma, non-smoker, wood smoke.

INTRODUCTION

Lung cancer is one of the most important avoidable causes of death around the world, it is the most widespread carcinoma with a very poor prognosis, and is the leading cause of cancer death in both developed and developing countries [1]. At present more men than women die each year from lung cancer, but in recent years a rapid increase in lung cancer mortality has been observed among women in developed countries, contrasting with a levelling off or decrease among men [2-3]. While the impact of cigarette smoking has been assessed to be the overhelming cause of lung cancer among the female population of most developed countries, various types of epidemiological research have indicated a discernible role of some other factors acting either as independent risk factors or interacting with the effect of smoking [4]. However, the relative importance and contribution of environmental and lifestyle factors to the risk of cancer may vary with geographic area and socio-economic conditions. There is a controversy concerning the potential claim that women have a different susceptibility to tobacco carcinogens, which may or may not be greater than men do [2, 5].

MATERIALS AND METHODS

Retrospective study including patients with a confirmed lung cancer followed at the Pneumology Department of University Hospital Center Mohammed VI, of Marrakesh in Morocco between between January 2016 and june 2021. Collecting data was performed using a questionnaire filled in by the investigator including the following items: general characteristics clinical, radiological, and histological and stage of the disease. The statistical analysis uses the methods of descriptive analysis which consisted in the calculation of averages and standard deviations and percentages for the various quantitative and qualitative variables.

RESULTS

34 cases have been collected in the study. The average age of our patients was 58 years; a low socioeconomic level was noted in 93.9%. Active smoking was present in 15.4% of cases and passive smoking in 40% of patients. Exposure to wood smoke was found in 57.7% of patients. Table 1. Most of our patients had presented respiratory signs at the time of diagnosis; these were dominated by cough in 71% of

cases and chest pain in 68% of cases. The average time to consultation was 9 months.

Table-1: The exposures

exposures	Active smoking	Passive smoking	wood smoke
%	15.4	40	57.7

Table-2: Symptoms revealing the disease

Symptoms	Cough	Chest pain	Hemoptysis
%	71	23.5	8

Intraparenchymal opacities were the most frequent radiological feature in 58% of cases. Chest CT scans, performed in all women, showed an intraparenchymal mass in 78% of cases. Bronchial endoscopy was performed in all our patients. Histological certainty was achieved by bronchial fibroscopy (56%), CT scan (28%), and pleural biopsy (16%). The most frequent histological type was adenocarcinoma (56.1%), followed by squamous cell carcinoma (36.3%) and small cell carcinoma (7.6%) (fig 1). The stage of the disease was metastatic in 51% of cases. The most frequent metastatic locations were pleural (38.5%), bone (23%), brain (15%), and liver (7.6%) fig 2.

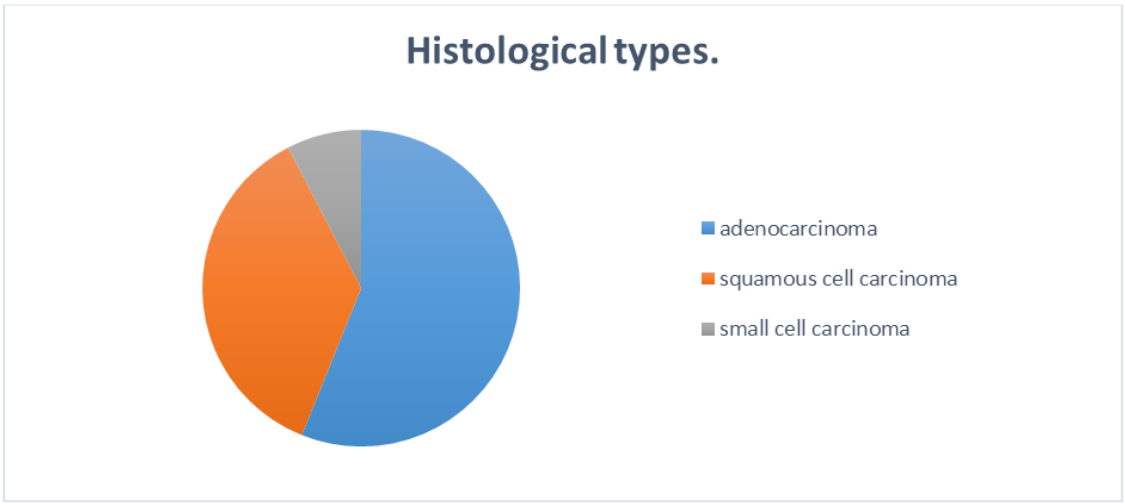

Fig-2: Histological types

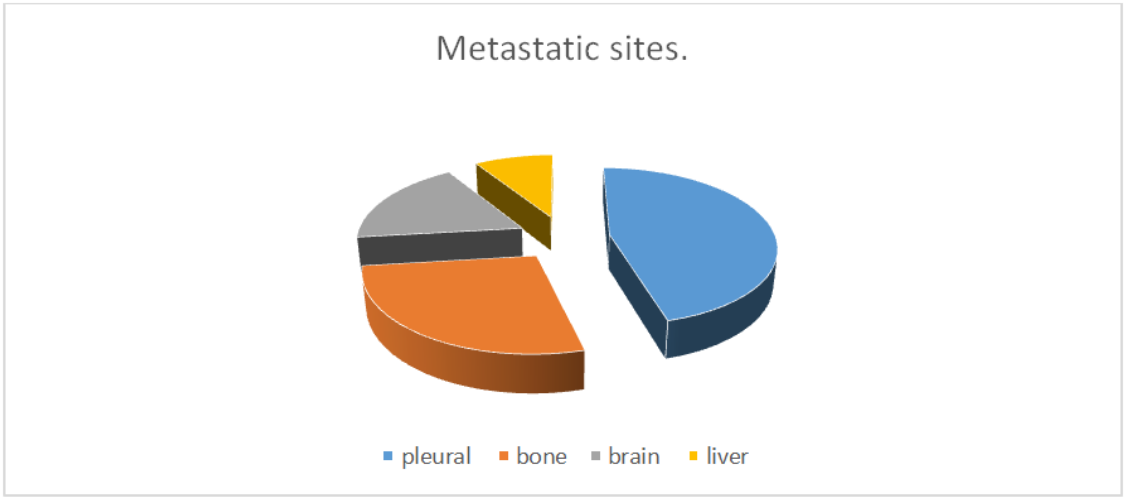

Fig-2: Metastatic sites

None of our patients received surgical treatment. The treatment proposed for these patients according to the stage of disease and performance status. Mortality at one year was 91.1%. The causes of death were dominated by thromboembolic diseases.

DISCUSSION

Internationally, lung cancer continues to be the leading cause of cancer-related deaths in men and women [1]. A breakdown by level of economic development shows no differences in cancer deaths in

men but a higher rate of lung cancer deaths in women in industrialized countries as compared with developing nations. Among females in developing countries, lung cancer deaths lag behind those due to breast cancer [6]. Lung cancer incidence and mortality are tightly linked to cigarette smoking patterns. As smoking rates peak – generally first in men, followed by women – lung cancer incidence and mortality rise in subsequent decades before declining following the initiation of comprehensive tobacco control programs [7, 8]. In the US, the incidence of lung cancer in men peaked in the 1980s, followed by a subsequent decline, with similar patterns in women following 20 years later [7]. Thun et al. found that in the 1960s, the relative risk of lung cancer death in smokers versus non-smokers was more than four times higher in men than in women. In the 40 years since, women's risk has risen markedly, becoming nearly identical to that of men [9].

Tobacco remains the largest risk factor for lung cancer in women, responsible for 80–90% of cancer-related deaths and estimated to be responsible for at least 50% of the worldwide lung cancer burden. Smoking prevalence is higher among those who are less educated and less affluent (7,8). According to the World Health Organization (WHO), 80% of the world's 1 billion smokers live in low- and middle-income countries (9), and the incidence among women in low income countries continue to rise (3). Trends in lung cancer incidence and mortality among women reflect changing trends in cigarette smoking, the prevalence of which peaked among women in the U.S. almost 20 years later than men [11]. In the 1930s, 50% of U.S. men smoked versus only 20% of women. During World War II smoking became accepted among women and prevalence peaked in the 1960s, when 30% of women smoked [11].

In the U.S. and Europe, approximately 20% of women with lung cancer have never smoked versus 2–6% of nonsmoking men. This trend is further accentuated in Asian populations, where 60–80% of women with lung cancer have never smoked, in contrast to 10–15% of nonsmoking men . This discrepancy is thought to indicate that lung cancer in nonsmokers, and specifically nonsmoking women, is different with regard to risks and pathophysiology [12]. In our series, 84.6% of patients were non-smokers; this could be explained by a lower prevalence of smoking among women in Morocco. Some studies indicate that nonsmokers are diagnosed at later stages of disease, possibly due to a higher threshold to evaluate symptoms, but this has not been confirmed [12].

Family history is an independent risk factor for the development of lung cancer regardless of smoking status, with women at higher risk than men, indicating a role for heritable factors [13].

Large epidemiological studies in the United States [14, 15] showed that squamous cell carcinoma was the most common histologic type oflung cancer in men, and adenocarcinoma was the most common cell type among women. Koo and Ho [16] summarized available studies ofnon-smoking women and concluded that adenocarcinoma accounted for the vast majority (64.5%) of cases based on 16 studies) oflung cancer cases. In a recent Czech study, adenocarcinoma accounted for 49.2% of 124 nonsmoking women, and, in contrast, for 29.3% of 280 women smokers [17]. In our series adenocarcinoma was found in 56.1%.

The incidence and mortality rates of lung cancer tend to mirror one another because most patients with lung cancer eventually die of it [11] . Despite the new diagnostic and genetic technologies that are now available and the many advances in surgical technique and biologic treatment, such as targeted treatment and immunotherapy, the overall 5-year survival rate (2005–2011) of lung cancer in the United States is still dismal (17.4%) In our series, survival is particularly low (8.9%) due to the diagnosis of the disease at late stages.

CONCLUSIONS

The study shows that the lung cancer in women, in our context, occurs more often in non-smoker patients, usually an adenocarcinoma type and discovered at late stages.

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