

**A Study on Incidence of Lung Malignancy at KMCH, Katihar, Bihar****Prakash Sinha<sup>1</sup>, Laxmi Niwas Tiwari<sup>2</sup>, Ritesh Kamal<sup>3</sup>**<sup>1</sup>Associate Professor, Department of Pulmonary Medicine, Katihar Medical College and Hospital, Katihar, Bihar.<sup>2</sup>Assistant Professor, Department of Pulmonary Medicine, Katihar Medical College and Hospital, Katihar, Bihar.<sup>3</sup>Professor and Head of Department, Department of Pulmonary Medicine, Katihar Medical College and Hospital, Katihar, Bihar

Received: 25-09-2023 / Revised: 28-10-2023 / Accepted: 30-11-2023

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Conflict of interest: Nil

**Abstract:****Background:** The most common cancer in men and the main cause of death for people of all ages is lung cancer. It is linked to a 13.7% death rate and makes up 11.3% of all new cancer cases in India. It is imperative that lung cancer be diagnosed early due to this tragic death rate. The purpose of the study was to assess the frequency, distribution by age and gender, and relationship between smoking and lung cancer.**Methods:** From October 2020 to September 2021, this study was conducted in the pulmonary medicine department of Katihar Medical College and Hospital, Katihar, Bihar. 52 patients with radiological and clinical suspicions of lung cancer are included in the study. Every case suffered transthoracic needle aspiration guided by USG and was sent for cytology. Histopathological analysis was performed on cases that were malignant or inconclusive in order to provide confirmation.**Results:** Of the fifty-two patients, who were suspected of having cancer, thirty-two were ultimately found to have cancer, five had benign or inflammatory lesions, six had no evidence of cancer or non-specific inflammation, and eight were unable to receive an opinion. With an incidence rate of 71.8% and 15.7%, respectively, squamous cell carcinoma and adenocarcinoma are the two most common types. The fifth decade is when lung cancers are most common in both sexes.**Conclusion:** The occurrence of lung cancers in women is on the rise, shedding light on factors other than smoking, such as exposure to biomass fuel and secondhand smoke. Of them, adenocarcinomas are the most prevalent. Moreover, lung cancers can be detected with a high degree of sensitivity using USG-guided transthoracic needle aspiration.**Keywords:** Adenocarcinoma; Transthoracic fine needle aspiration; Lung malignancy.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

With rising incidence and cancer-related mortality worldwide, lung cancer is the main oncological issue. In India, where it makes up 11.3% of all new cases of cancer and has a 13.7% fatality rate, it is more common in men [1]. In India, the incidence is still rising for both males and females, in contrast to developed countries where there is a trend of decline for men and a plateau for women [1]. Lung cancer diagnosis needs to happen early because of this heartbreaking mortality. When it comes to a less complicated initial assessment and diagnosis of lung cancer, cytology is crucial. With the development of less invasive and radiographically guided sampling techniques, cytology has become a valuable diagnostic tool for lung cancer [2]. Lesion sizes must typically be at least 20 mm for USG and 15 mm for CT guided needle aspirations; however, some research indicates that lesions as

small as 10 mm can be safely approached with solid intervening tissue when using USG guidance. The majority of lesions respond well to percutaneous fine needle aspiration using an 18G needle, particularly carcinomas [3]. Our institute carried out a study to assess the incidence, gender, age distribution, and smoking-related relationship of lung cancer.

**Material and Methods**

Following the study subjects' consent, the research was conducted in the pulmonary medicine department of Katihar Medical College and Hospital in Katihar, Bihar, from October 2020 to September 2021. Fifty-two cases in all were chosen. Included were all patients who, following standard tests such as a chest X-ray, hemogram, urine analysis, microbiological examination of

sputum, and chest computed tomography, were clinically suspected of having lung cancer.

Bleeding disorders, uraemia, and sputum microscopy-positive tuberculosis cases were excluded. (Those who have bleeding diathesis or uraemia, which increase the risk of spontaneous bleeding and complicate FNAC and biopsy procedures, were not included in the study; positive sputum microscopy cases were started on anti-tuberculosis treatment under RNTCP, while negative cases were considered for FNAC). A 20-gauge needle was used for USG-guided

transthoracic fine needle aspiration cytology to obtain the samples. Using a Bard Gun biopsy needle (16-gauge), cytological specimens that are inconclusive and suggestive of malignancy were further subjected to histopathological examination. A person who has smoked fewer than 100 cigarettes in their lifetime is considered a non-smoker in the current study. Everyone else is considered a smoker. We documented his/her smoking habits (counting the number of pack years smoked, regardless of the kind of nicotine used).

## Results

**Table 1: Age and gender wise distribution**

Age (in years)	Males	Females
< 40	0	0
41 – 50	2	3
51 – 60	10	9
61 – 70	2	2
>70	1	3
Total	15	17

According to our study, the male to female ratio was 0.8:1, indicating that lung carcinoma incidence is higher in females than in males. In addition, it was noted that there was no incidence of cases under 40 years old in our study, with the majority of presentations occurring in the fifth decade in both sexes.

**Table 2: Gender distribution of different types of cancer**

Type	Males	Females	Total
Adenocarcinoma	10	13	23
Squamous cell carcinoma	3	2	5
Metastatic	1	2	3
Small cell carcinoma	1	0	1
Total	15	17	32

Adenocarcinoma is the most common type found in 23 (71.8%) patients, 13 of whom were female and 10 of whom were male. Squamous cell carcinoma is found in 5 (15.7%) patients, 2 of whom were female and 3 of whom were male. Ultimately, three patients (9.3%) had metastatic adenocarcinoma diagnosed, and one patient had a small cell neuroendocrine tumor, which was verified by typing.

**Table 3: Typing of lung cancer basing on smoking habit**

Type	Smoker	Non-smoker	Total
Adenocarcinoma	9	14	23
Squamous cell carcinoma	5	0	5
Metastasis	2	1	3
Small cell carcinoma	1	0	1
Total	17	15	32

The study found that only 9 out of 23 cases with an adenocarcinoma diagnosis were smokers, whereas nearly all cases with squamous cell carcinoma (n=5) were smokers.

## Discussion

In the current study, ultrasonography-guided procedures were used to diagnose lung cancer in 76.9% of cases. With an incidence of roughly 71.8% and 15.7%, respectively, squamous cell carcinoma and adenocarcinoma are the two most common types of carcinoma. The fifth decade of life has the highest incidence of malignancy. Similar to most Asian and Western countries, adenocarcinoma was present in the majority of the

patients in our study (71.8%). Part of the reason for this change in the trend from squamous cell carcinoma to adenocarcinoma is smoking habits and the rise in the use of filtered cigarettes. Prior research conducted in India primarily focused on squamous cell carcinoma as the most common type; however, more recent research indicates a shift in the trend from squamous to adenocarcinoma [4]. One known risk factor for lung cancer is tobacco use [5]. According to our research, there are marginally more female lung cancer cases than male cases. The rising incidence of lung cancer in women worldwide, including in India, can be attributed to exposure to biomass fuels and an increase in the proportion of female

smokers[1]. To effectively reduce the death rate from lung cancer in India, robust public health initiatives aimed at curbing tobacco consumption are required. Thankfully, the government is starting to acknowledge this more and more [6].

In the Mehta M et al study, the mean age of onset was found to be in the fifth decade for males and the sixth decade for females; the male to female ratio was 5.1:1, whereas in our study, the mean age of onset was found to be in the fifth decade for both sexes. Additionally, the male to female ratio was 0.8:1, indicating that a higher number of female cases with lung malignancy at our institute had radiologically confirmed non-resolving pneumonia. It also makes us more aware of the rising trends in the onset of lung cancer in women and the causes of lung cancer besides smoking, especially in nations like India where the majority of the population still uses biomass fuel. One of the main reasons why lung cancer is not diagnosed in India until much later is that the majority of cases are misdiagnosed as tuberculosis, and empirical treatment with anti-tubercular medications before being referred to a higher center [1]. Primary care physicians find it difficult to differentiate lung cancer due to the high prevalence of tuberculosis in India. A high index of suspicion and early lung cancer diagnosis can help to minimize this.

**Conclusion:** In India, lung cancer is a leading cause of cancer-related death. We are concerned about the increase in female cases that we have observed and are looking into potential causes such as exposure to biomass fuels. Early detection of lung cancer can be aided by simple USG-guided

transthoracic fine needle aspiration cytology, which requires less technical knowledge and is typically available in minimal care facilities.

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