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RESEARCH ARTICLE

HISTOPATHOLOGICAL STUDY OF LUNG LESIONS IN LUNG BIOPSY SPECIMENS IN A TERTIARY CARE CENTRE

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ABSTRACT

Lung cancer is one of the most common malignant neoplasms worldwide, accounting for more deaths than any other cancer cause¹. In our population, Lung cancer was reported to be the second most common malignancy in one hospital-based study². Hukkah smoking was found to be highly prevalent in the lung cancer patients of another small study of 25 hospitalized. **Materials and Methods:** A 2 year retrospective study was carried out in the Department of Pathology, Government Medical College Srinagar. The histopathological records were retrospectively reviewed for CT guided and Endobronchial biopsies of lung lesions between July 2018 to June 2020. There were 238 cases during this period. **Results:** A total of 238 cases were studied. 92 of these cases were reported as non-neoplastic (table 1). The age varied from 15 to 87 years. Tuberculosis was found to be the commonest non neoplastic pathology among the cases studied and constituted about (29 cases) of non-neoplastic pathology. 146 out of 238 cases were reported as neoplastic. **Conclusion:** To conclude, in our study malignancies predominated over non neoplastic lesions in incidence among young as well as in old patients. The most common histological cell type encountered in this study was Squamous Cell Carcinoma which is against the changing trend in West where Women were increasingly diagnosed with Lung cancer having adenocarcinoma. Granulomatous inflammation with Tuberculosis was the most common non neoplastic lesion followed by nonspecific inflammation.

INTRODUCTION

Lung cancer is one of the most common malignant neoplasms worldwide, accounting for more deathsthan any other cancer cause¹. In our population, Lung cancer was reported to be the second most common malignancy in one hospital-based study². Hukkah smoking was found to be highly prevalent in the lung cancer patients of another small study of 25 hospitalized patients³. Lung is also one of the most common metastatic sites of many primary cancers⁴. Tissue is often required to differentiate primary from metastasis, benign lesions from malignant lesions and furtherclassify a primary lung cancer for treatment. However, the vast majorities of patients present with eitherlocally advanced or metastatic disease and do not proceed to surgical resection so the diagnosis of lung cancer is confirmed using small biopsies/cytology.⁵ Small lung biopsies are the most common and the first lung sample obtained when a radiologic abnormality is detected and tissue diagnosis is required⁶. Both CT guided and core needle biopsies have been documented to be effective for diagnosis of peripheral lung lesions including non-neoplastic and neoplastic lesions⁴. Among malignancies, non-small cell lung carcinoma is the most common lung cancer, accounting for about 85%of all cases⁷. Among non-neoplastic lesions, Tuberculosis is the most common⁸.

The aim was to study the incidence of lung lesions in small biopsies in our institution and to classify and subclassify tumors according to WHO guidelines.

MATERIALS AND METHODS

A 2 year retrospective study was carried out in the Department of Pathology, Government Medical College Srinagar. The histopathological records were retrospectively reviewed for CT guided and Endobronchial biopsies of lung lesions between July 2018 to June 2020. There were 238 cases during thisperiod.

Inclusion criteria: All the guided biopsies of lung were included in this study irrespective of them being non neoplastic and neoplastic, benign and malignant nature including primary and metastases.

Exclusion Criteria: Pleural and mediastinal biopsies were excluded from this study. Lobectomies and pneumonectomies were also not included in this study.

The specimens were fixed in 10% formalin, subjected to routine tissue processing then paraffin embedded sections were made, followed by H&E staining and slides were prepared.

Information including age, sex, size and final diagnosis were collected from the records.

RESULTS

A total of 238 cases were studied. 92 of these cases were reported as non-neoplastic (Table 1).

Table 1. Non-neoplastic pathology on lung biopsy specimens

Diagnosis	No. of cases
Tuberculosis	29
Inflammation	07
Squamous Metaplasia	07
Hydatid Disease	03
Bronchial fistula	03
Lymphomatosis	02
Non-specific/reactive	41
Total	92

Malignancy	No. of Cases	% age	Males	Females	Mean Age
SCC	82	56.16	67	15	65
Adenocarcinoma	33	22.60	18	15	60
Small cell carcinoma	21	14.38	17	4	60
Neuroendocrine ca	03	2.05	3	0	68
NHL	01	0.60	1	0	42
Plasmacytoma	01	0.60	0	1	30
Carcinosarcoma	01	0.60	0	1	50
Adenocarcinoma in situ	03	2.05	2	1	43
Mets Adenocarcinoma	01	0.60	1	0	60
total	146	100	109	37	53

The age varied from 15 to 87 years. Tuberculosis was found to be the commonest non neoplastic pathology among the cases studied and constituted about (29 cases) of non-neoplastic pathology. Tuberculosis was found between 25 and 60 years of age. There were 7 cases of non-specific inflammatory pathology, 7 cases of squamous metaplasia, 2 cases of lymphomatosis, 3 cases of Hydatid disease and 3 cases of bronchial fistula. There were 41 biopsies that were unremarkable or showed reactive changes only. 146 out of 238 cases were reported as neoplastic (table 2). SCC was more common in males (67) than in females (15) with the age range of 35-95 years, the mean age being 65 years. Adenocarcinoma was found in 18 females and 15 males with the age range of 39-70 years, mean age of 60 years. Small cell carcinoma was more common in males (17 cases) than in females (4). Age varied from 24-70 years with the mean age of 60 years.

DISCUSSION

There were a total of 238 cases during the study period of 2 years, majority of them were seen in 4th to 6th decade, comparable to study done by B.Garima. (9) whereas in studies done by Agarwal A (10) and Malik PS *et al.*, (7) 5th to 6th decade was the common age group affected. The male to female ratio in the present study was 2.8:1 and in studies done by Garima *et al.* (9) Agarwal *et al.*, (10) Malik PS *et al.* (7) and Mandal SK *et al.* (11) *et al.* the ratios were, 5.3:1, 4.7:1, 4.6:1 and 1:1 respectively. In our study malignancies were more common than non-neoplastic lesions accounting to 167 cases out of 259, similar to study done by Garima *et al.* (9) And in contrast to a study done by Kul Shrestha R *et al.* (12) where non-neoplastic lesions were more common constituting to 506 non neoplastic lesions out of 916 cases. The lung malignancies were common in age group 51-70 years and mean age was 61 years which was comparable to studies done by Koul PA *et al.* (1) Noronha V *et al.* (8) Dey A *et al.* (13) where 57.6, 56. Respectively were the mean age. In our study, Squamous cell carcinoma was found to be the most common type of cancer followed by Adenocarcinoma. This is comparable to the study conducted by Sheikh *et al.* (13) Whereas, in contrast, studies done by Agarwal A *et al.*, (10) Malik PS *et al.*, (7) Krishnamurthy *et al.*, (14) Sundaram *et al.*, (15) Li Liang *et al.*,

(4) documented Adenocarcinoma as the most common. Among females, Adenocarcinoma was the most common type of malignancy in our study. Women were increasingly diagnosed with Lung cancer having adenocarcinoma as the commonest histological type Kumar *et al.* (16) Small cell cancer was the third most common lung cancer overall and was second most common in males comparable to study done by Sarfaraz *et al.* (17). Less common malignancies found were Neuroendocrine cancer, NHL, Plasmacytoma and Carcinosarcoma.

CONCLUSION

To conclude, in our study malignancies predominated over non neoplastic lesions in incidence among young as well as in old patients. The most common histological cell type encountered in this study was Squamous Cell Carcinoma which is against the changing trend in West where Women were increasingly diagnosed with Lung cancer having adenocarcinoma. This could be explained by less prevalence of smoking among women in our study. There may also be racial/ethnic differences in disease pattern. The cell type pattern also varies with smoking habits, age and sex. In the present study, Granulomatous inflammation with Tuberculosis was the most common non neoplastic lesion followed by nonspecific inflammation.

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