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ORIGINAL RESEARCH

Histopathological assessment of lung biopsies

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***ABSTRACT*:**

Background: The lungs are involved in various kinds of inflammatory, neoplastic and other lesions. The present study was conducted to evaluate various lung biopsies. **Materials & Methods:** The present study was conducted on 135 lung biopsies. The patients were thoroughly examined for general physical examination with a detailed clinical examination of the respiratory system. All the biopsy specimen submitted were grossed meticulously and sections were stained routinely with H & E. **Results:** Age group 20-40 years had 30 males and 10 females, 40-60 years had 38 males and 26 females, >60 years had 17 males and 14 females. The difference was significant (P< 0.05). Common findings were cough in 120, fever in 90, expectoration in 45, haemoptysis in 68, breathlessness in 71, hoarseness of voice in 35 and chest pain in 75. The difference was significant (P< 0.05). Histological diagnosis was SCC seen in 6, small cell carcinoma in 7, adenocarcinoma in 5, granulomatous inflammation in 22, non-specific inflammation in 65 and mod to severe dysplasia in 30. The difference was significant (P< 0.05). **Conclusion:** Lung lesions are common in age group 40-60 years of age with males predominance. Common lesion was moderate to severe dysplasia.

Key words- Dysplasia, Histopathology, Lung lesions

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INTRODUCTION

The lungs are involved in various kinds of inflammatory, neoplastic and other lesions, but they are secondarily involved in almost all form of terminal events due to cardio vascular causes. Hundreds of millions of people around the world suffer from preventable chronic respiratory diseases.[1] A large number of conditions that involve the parenchyma of lung which may be associated with inflammation, fibrosis or granulomatous reactions.[2] The clinical and radiological findings in pulmonary diseases are nonspecific and prompt pathology investigation and diagnoses are essential to improve patient survival, to avoid the rapid progression of the disease and to spare the patient from more invasive procedures.[3]

The clinical features of carcinoma lung result from the local growth and regional growth of the tumor as well as lymphatic invasion, haematogenous distant metastatic spread and remote para-neoplastic effects from tumour products or immune cross- reaction with tumour antigens.[4] More interest has been developed in the histological characterisation of lung cancer in recent years in view of newer histology guided therapeutic modalities and genomic classification of lung carcinoma. At present more than 50% of lung adenocarcinomas and about a third of squamous cell carcinomas can be characterised based on the mutation profile. Epidermal growth factor receptors (EGFR) mutation explain the therapeutic importance of molecular classification.[5] The present study was conducted to evaluate various lung biopsies.

MATERIALS & METHODS

The present study was conducted in the department of General pathology. It comprised of 135 lung biopsies.

Ethical approval was obtained from institute prior to the study. All patients were informed regarding the stiudy and written consent was obtained.

General information such as name, age, gender etc. was recorded. Detailed medical history of the patient regarding the onset and progression of the disease and smoking habits and other risk factors was taken. The patients were thoroughly examined for general physical examination with a detailed clinical examination of the respiratory system.

All the biopsy specimen submitted were grossed meticulously and after proper tissue processing sections specimens obtained were of 4-5 micron thickness were prepared from the specimen submitted. The sections were stained routinely with H & E. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age groups (Years)	Males	Females	P value
20-40	30	10	0.01
40-60	38	26	
>60	17	14	
Total	85	50	

Table I, graph I shows that age group 20-40 years had 30 males and 10 females, 40-60 years had 38 males and 26 females, >60 years had 17 males and 14 females. The difference was significant (P< 0.05).

Graph I Distribution of patients

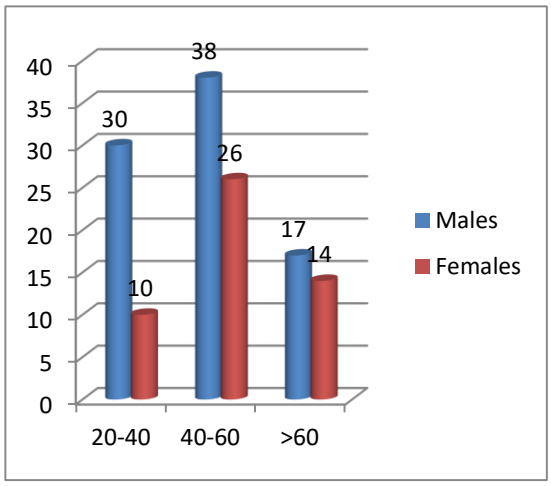


Table II Clinical features of patients

Clinical features	Number	P value
Cough	120	0.01
Fever	90	
Expectoration	45	
Haemoptysis	68	
Breathlessness	71	
Hoarseness of voice	35	
Chest pain	75	

Table II, graph II shows that common findings were cough in 120, fever in 90, expectoration in 45, haemoptysis in 68, breathlessness in 71, hoarseness of voice in 35 and chest pain in 75. The difference was significant (P< 0.05).

Graph II Clinical features of patients

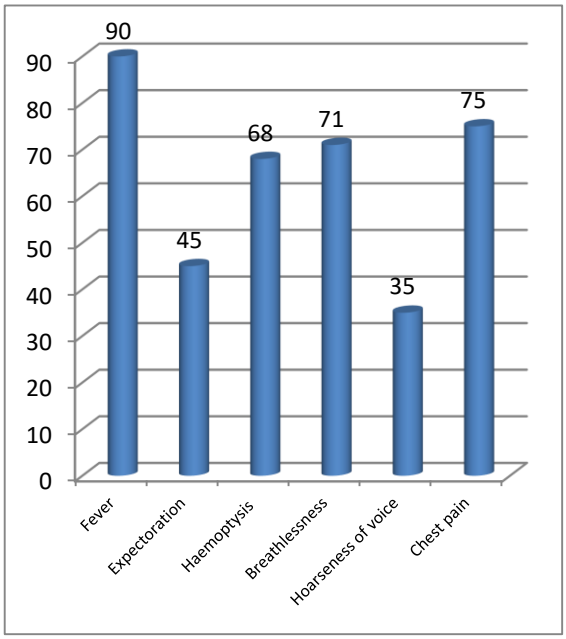
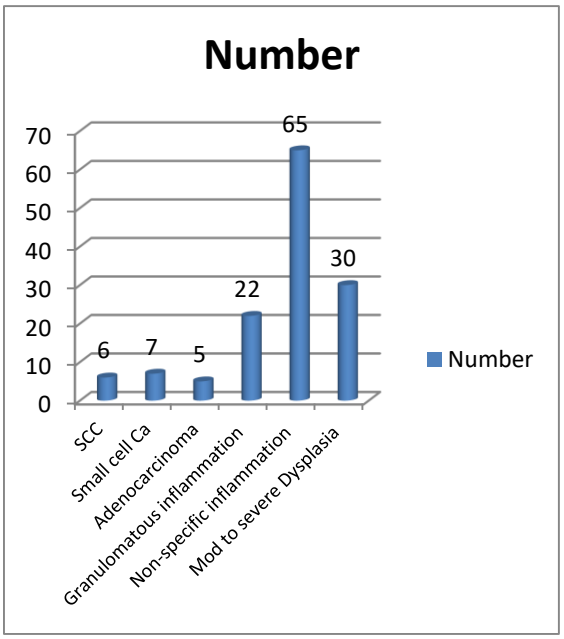


Table III Histologic diagnosis

Histologic diagnosis	Number	value
SCC	6	01
Small cell Ca	7	
Adenocarcinoma	5	
Granulomatous inflammation	22	
Non-specific inflammation	65	
Mod to severe Dysplasia		

Table III, graph III shows that histological diagnosis was SCC seen in 6, small cell carcinoma in 7, adenocarcinoma in 5, granulomatous inflammation in 22, non-specific inflammation in 65 and mod to severe dysplasia in 30. The difference was significant (P< 0.05).

Graph III Histologic diagnosis



DISCUSSION

Lung disorders have varied and complex presentations. As a result, despite availability of modern advanced diagnostic methods, diagnosis is often challenging task for clinicians. Sometimes rapid progression of the disease leaves lesser time for thorough diagnostic workup and invasive procedures.[6] Therefore, it is a crucial to determine the leading cause of death in order to adopt correct prophylactic actions for prevention of pulmonary dysfunctions. In that matter histopathological examination of lung autopsy is of great value.[7] Even if the cause of death is established ante mortem, performing clinical autopsy help to study process in situ and enriches medical knowledge. The lungs are vulnerable for a wide range of inflammatory, infectious, neoplastic and other pathologic conditions and almost always involved secondarily by terminal events of cardiovascular disease.[8] The present study was conducted to evaluate various lung biopsies.

In present study, age group 20-40 years had 30 males and 10 females, 40-60 years had 38 males and 26 females, >60 years had 17 males and 14 females. Common findings were cough in 120, fever in 90, expectoration in 45, haemoptysis in 68, breathlessness in 71, hoarseness of voice in 35 and chest pain in 75.

Sanefuji et al[9] found that after thorough histopathological examinations, of total 649 cases, various pulmonary lesions were identified in 348(53.6%) cases while in 301(46.4%) cases no significant pathology was seen. Most commonly affected age group was 30-49 years 43.1% followed by age group of >60years 17.8%. Majority of diseased were male 285 (81.9%). Most common lung pathology found was Edema and congestion in 93 cases (26.72%), chronic venous congestion in 92 cases (26.44%) pneumonia in 65 cases (18.68%) followed by Tuberculosis/Tuberculous pneumonia in 29 cases (8.3%).

We found that histological diagnosis was SCC seen in 6, small cell carcinoma in 7, adenocarcinoma in 5, granulomatous inflammation in 22, non-specific inflammation in 65 and mod to severe dysplasia in 30. Hjorth et al[10] found that patients mean age was 59.9 years, 83.7% males and 16.3% females. The smoker to non-smoker ratio was 7.8:1. Cough was the most common presenting symptom (87.5%). The most common radiological finding was mass lesion (87.5%), followed by collapse consolidation in 36.25%. Squamous cell carcinoma presented more commonly as hilar mass (57.5%), while adenocarcinoma as peripheral mass lesion (66.7%). The most common finding on histopathological examination was Squamous cell carcinoma (50%), followed by small cell carcinoma (15%) and adenocarcinoma (3.75%).

Mandal et al[11] found that most common location of small cell carcinoma was central (50%). Adenocarcioma most commonly manifests as peripheral mass or a malignant pleural effusion. Adenocarcinoma commonly manifested as peripheral mass or a malignant pleural effusion. This could be explained because of still lower incidence of female smokers in India. Associated pleural effusion was observed in 21.8% cases most of them having squamous cell carcinoma. Squamous cell carcinoma lung was present in 9.1% cases showing evidence of metastasis to liver, bone, adrenal, ipsilateral chest wall and pulmonary metastasis.

Jindal et al[12] found that in 86 cases, in 4 cases (4.8%) the tissue was autolysed and in another 26 cases (30.1%) histopathology was unremarkable. Significant microscopic findings were found in 56 cases (65.1%). Wide spectrum of microscopic findings were seen, the commonest being oedema and congestion (28.5%) followed by changes in interstitium (11.9%). There were 9.5% cases of granulomatous inflammation and 5.9% cases each of acute pneumonia and emphysema. There were 1.2% cases each of Hyaline Membrane Disease (HMD), Meconium Aspiration Syndrome (MAS) and Acute Respiratory Distress Syndrome (ARDS) in the series. The series also had 1.2% cases of young adult having fungal colonies surrounded by necrosis and abscess formation. Possibility of mucormycosis was suggested in that case.

CONCLUSION

Authors found that lung lesions are common in age group 40-60 years of age with males predominance. Common lesion was moderate to severe dysplasia.

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