Histomorphological Spectrum of Diseases in Endobronchial Biopsy
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ABSTRACT

Aim: To study the histomorphological pattern of disease in endobronchial biopsy in Nepalgunj Medical College Teaching Hospital (NGMCTH), Kohalpur. Background: Study of endobronchial biopsy is mainly indicated for malignancies, however, various other conditions including inflammatory pathology can be correctly identified. Material And Methods: This is a hospital based descriptive study carried out at Department of Pathology, NGMC, Kohalpur from August 2017 to July 2018. The study included 51 cases of endobronchial biopsy. All bronchial biopsies were processed according to the standard method and the detail microscopic findings were studied and the data were analysed statistically. Result: The age of patients ranged from 20-80 years. Cough was the most common presenting symptom. Most common benign pathology was tuberculosis and among malignancies squamous cell carcinoma was common histopathological diagnosis. Conclusion: Identification of lung pathology at early stage with correct histological morphology is important to decrease morbidity and mortality related to both benign and malignant condition.

Key words: Endobronchial biopsy, Lung cancer, Tuberculosis

INTRODUCTION

Endobronchial biopsy is obtained via bronchoscopy passed through the nose or mouth to visualize the upper airway, identify any changes or lesion and collect pieces of lung tissue which allows assessment of various diseases including infectious, benign and malignant.

Lung cancer is currently the most frequently diagnosed cancer in the world and the most common cause of cancer mortality worldwide, comprising 17% of total new cases in male and 23% in female¹. The important indication for bronchial biopsy is the identification of bronchial malignancy, however, various other lesions including inflammation can be identified.

MATERIAL AND METHODS

This is a hospital based descriptive study carried out at Department of Pathology, NGMC, Kohalpur from August 2017 to July 2018. The study included 51 cases of endobronchial biopsy. All bronchial biopsies were received in neutral buffered formalin, were processed as per standard procedure. 4-5um thick sections were cut on microtome and stained with Hematoxylin and Eosin (H&E) stain and the slides were studied in details microscopically². Special stains like Periodic Acid Schiff (PAS) and Ziehl–Neelsen (ZN) were used when needed.

Data were analyzed using standard statistical method including SPSS 20.0.

RESULT

Among 51 cases included in the study, 22 (43.14%) were female and 29 (56.86%) were male with M:F ratio of 1.3:1 Table I. Age of the patient ranged from 20-84 years with mean age of 60.01. The maximum number of patients were in the age group of 51-60 years and 61-70 years (17 each; 33.33%) as shown in Table II. Cough was the most common presenting symptom. Most common benign pathology was tuberculosis and among malignancies squamous cell carcinoma was common histopathological diagnosis.

The correlation between clinical and histopathological diagnosis were done and was roughly categorized as benign or malignant and was statistically significant with a P value of <0.05(Table V). Growth/mass on imaging was most common indication for biopsy followed by mucosal irregularity and erosion with necrotic plug. Out of 40 suspected malignant cases clinically, 32 were positive for malignancy and 8 was categorized as benign condition including inadequate sampling.
Sex | Frequency | %
--- | --- | ---
F | 22 | 43.14%
M | 29 | 56.86%
Grand Total | 51 | 100.00%

Table I: Sex Distribution

| Age group (Year) | Frequency | % |
--- | --- | ---|
20-30 | 4 | 7.84%|
40-50 | 4 | 7.84%|
51-60 | 17 | 33.33%|
61-70 | 17 | 33.33%|
71-80 | 7 | 13.73%|
>80 | 2 | 3.93%|
Grand Total | 51 | 100.00%

Table II: Age group

| Clinical Presentation | Frequency | % |
--- | --- | ---|
Chest pain | 14 | 27.45%|
Cough | 17 | 33.33%|
Fever | 2 | 3.93%|
Hemoptysis | 18 | 35.29%|
Grand Total | 51 | 100.00%

Table III: Clinical Presentation

| Histopathological Diagnosis | Frequency | % |
--- | --- | ---|
Adenocarcinoma | 5 | 9.80%|
Amyloidosis | 1 | 1.96%|
Fungal-aspergillus | 1 | 1.96%|
Idiopathic pulmonary fibrosis | 1 | 1.96%|
Inadequate | 3 | 5.88%|
Small cell carcinoma | 5 | 9.80%|
Squamous cell carcinoma | 25 | 49.02%|
Tuberculosis | 7 | 13.73%|
Undifferentiated carcinoma | 3 | 5.89%|
Grand Total | 51 | 100.00%

Table IV: Histopathological diagnosis

| Histological Categorization | Total |
--- | ---|
Malignant | benign | malignant | unsatisfactory |
Clinical diagnosis | 6 | 32 | 2 | 40 | P-value <0.05|
Tuberculosis | 4 | 6 | 1 | 11|
Total | 10 | 38 | 3 | 51|

Table V: Clinical diagnosis and Histological categorization Crosstabulation

DISCUSSION

Lung cancer is one of the leading case of cancer related deaths in men and women. The increasing number of deaths is mainly due to its detection at the late stage. Thus, timely detection and management is important for long term survival of the patients. Bronchial biopsy and histopathology is a valuable tool in diagnosis of lung disease, both benign and malignant.

According to the latest World Health Organization (WHO) data published in 2017, lung disease death in Nepal reached 11.81% of total death and Nepal ranks 2nd number in the world. In fiscal year 2074/75, a total of 32,474 cases of TB was notified and registered. Among the notified cases 71% of all TB cases were pulmonary TB and Terai belt reported more than half of the cases (57%). In Province 5 alone 7036 cases were noted with highest notification rate.

Bronchial biopsy is performed through flexible fiberoptic bronchoscopy and tissue is submitted for histopathological examination. The drawback of this procedure is that the tissue may get crushed creating artifactual changes and difficulty during histopathological examination as well as the peripheral lesion may be missed. It is important to know the true histological cell type in cases of primary lung cancer as it influences the management and allow prediction of prognosis.

Males were more involved by lung disease with M:F ratio of 1.3:1 which is similar to study done by Bhat et al, Fuladi et al and Bodh et al. Cough was the most common presenting symptom, followed by hemoptysis and chest pain which is similar to study done by Okugbo SV.

Most common benign lesion in this study was Tuberculosis, similar to Okugbo SV study.

Among malignancies, SCC was the most common finding similar to Bhat et al, Rajasekaran et al and Gupta et al, followed by Small cell carcinoma and Adenocarcinoma similar to other writers.

CONCLUSION

Identification of lung lesion at early stage is important to decrease mortality and morbidity. Infectious disease like tuberculosis can be treated with correct diagnosis. Malignancy with correct histopathological typing can have correct management plan. Only drawback of endobronchial biopsy is inadequate sample or artifactual changes.

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