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CLINICOPATHOLOGICAL CORRELATION IN DIAGNOSIS OF LUNG LESIONS BY USING BRONCHIAL BIOPSY

Pathology

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ABSTRACT

Background: Bronchoscopic Lung Biopsy is one of the most important applications of flexible bronchoscopy. Lung biopsy is required for appropriate diagnosis and management of a variety of pulmonary diseases. The present study aimed to assess the clinicopathological correlation in diagnosis of lung lesion by bronchoscopic bronchial biopsy.

Material and methods: The study was conducted on 100 bronchoscopic biopsy specimens received in the department of pathology, Geetanjali Medical College and Hospital, Udaipur in a two year period from December 2015 to December 2017. The clinical history was taken from the case file of patient from pulmonology department. Histopathological examination of biopsy done and findings were correlated with clinical history and other demographic data of the patients.

Results: 86 patients included in present study were male and 14 were female. Maximum numbers of cases (39%) were of age group 61-70 years of age followed by 51-60 years age group (31%).

77 cases included in present study were chronic smokers for more than 10 years. On histological examination, 79% cases were of malignancy and 21% were benign. Squamous cell carcinoma was most common malignancy (52%) followed by Adenocarcinoma (16%). Chronic inflammatory lung disease was most common benign lesion(13%) followed by tuberculosis (5%).

Conclusion: Bronchoscopic procedures are a valuable, safe and economical tool in the diagnosis of various lung lesions. Wisely use of diagnostic tools is necessary for early diagnosis of lung diseases and for better treatment outcome.

KEYWORDS

Introduction

Bronchoscopic Lung Biopsy (BLBx) or Transbronchial Lung Biopsy (TBBx) is one of the most important applications of flexible bronchoscopy. A diagnostic BLBx may obviate the need for an open lung biopsy. Lung biopsy is required for appropriate diagnosis and management of a variety of pulmonary diseases. The most common indication of BLBx is to obtain biopsy specimen from peripheral lung masses. The diagnostic yield of BLBx for peripheral lung cancer depends on the size of the tumor and the presence or absence of bronchus sign. While doing bronchoscopy, the entire tracheobronchial tree can be examined and lesions can be seen under direct vision as well as it can provide histological confirmation. The various abnormalities include growth, abnormal mucosa with areas of inflammation, easy bleeding, granularity, nodularity and areas of bronchial stenosis. Location of tumor with extension to carina or trachea is helpful for staging of lung cancer. Performing bronchoscopy and subjecting the bronchoscopic secretions (BAL, brushing)/ trans bronchial biopsy material to conventional diagnostic methods of AFB smear, culture and histopathology is helpful in the diagnosis of various lung lesions. TBBx is useful in evaluation of patients with suspected tuberculosis, fungal infection, unexplained lung in filtrates in immunocompromised hosts and in post-lung transplant patients, both for surveillance as well as evaluation of rejection or opportunistic infections. Among noninfectious diseases, TBBx is most useful in diagnosis of sarcoidosis, lymphangitic carcinomatosis, and in some cases of pulmonary langerhans cell histiocytosis (PLCH) and Lymphangioleiomyomatosis (LAM). Brochoscopic lung biopsy is not useful for histological diagnosis of idiopathic pulmonary fibrosis or for distinguishing histological subtypes of idiopathic interstitial pneumonia. The diagnostic yield is also suboptimal in lung nodules smaller than 2–3 cm in diameter.[1]

The present study aimed to assess the clinicopathological correlation in diagnosis of lung lesion by bronchoscopic bronchial biopsy.

Material and Methods:

From December 2015 to December 2017, a total of 100 cases were studied.

Fibreoptic broncoscopy was done and simultaneously biopsy was taken for different signs and symptoms at Tuberculosis and Chest department of Geetanjali Medical College and Hospital, Udaipur (Rajasthan).

The clinical, radiological and bronchoscopic data was completed by the pulmonologist on first examination of patient and at the time of bronchoscopy. Two to four biopsy specimens were taken from suspected abnormal areas within bronchoscopic range. The specimens were fixed with 10% formal saline for 1 day & processed in automated tissue processor and sections were prepared and stained with haematoxylin & eosin stain.

Results:

The study was conducted on 100 bronchoscopic biopsy specimens received in the department of pathology in a two year period from December 2015 to December 2017. The clinical data of all the cases obtained from Tuberculosis and Chest department. Out of 100 cases included in the study, 86 were male and 14 were female. Maximum numbers of cases (39%) were of age group 61-70 years of age followed by 51-60 years age group (31%), 71-80 years age group (17%), 41-50 years age group (7%), 81-90 years age group (3%) and 31-40 years age group (3%).

77 cases included in present study were chronic smokers for more than 10 years.

Clinical symptoms of patients are shown in Table. 1

Table.1 Clinical symptoms of the patients included in present study

S.No.	Symptoms	Percentage
1.	Cough	87%
2.	Hemoptysis	41%
3.	Fever	31%
4.	Shortness of breath	55%
5.	Weight loss	41%
6.	Hoarseness of voice	14%
7.	Chest pain	11%

Histopathological findings found on biopsy are depicted in table no. 2

Table.2 Histopathological lesions found on biopsy

S.No.	Type of lesion	Percentage
Malignant lesions (Total=79%)		
1	Squamous cell carcinoma	52%
2.	Adenocarcinoma	16%

3.	Small cell carcinoma	7%
4.	Undifferentiated carcinoma	4%
Benign lesions (Total=21%)		
1.	Chronic inflammatory pathology	13%
2.	Tuberculosis	5%
3.	Squamous metaplasia	3%

Discussion:

Histopathology is valuable tool in the diagnosis of lung malignancies and other lung lesions. Fibreoptic bronchoscopy was introduced in1968 as a diagnostic procedure [2]. Since then apart from sputum, different methods for obtaining satisfactory specimens have become available. The present study was therefore undertaken to ascertain the role and diagnostic utility of bronchial biopsy in diagnosing and subsequent management of patients with various lung lesions.

The age distribution in our study shows a wide range, i.e., from 30 years to 80 years. Mean age of presentation in our study is 57.92 years which is consistent with other Indian and international studies.[3,4,5,6] We found male: female ratio in our study population 6.14:1, which is similar to sex ratios of other Indian studies.[3] Global sex ratio was found to be much lower (2.14:1) in few studies.[7] This may be due to changing smoking pattern and more accessibility and reporting of the females to healthcare facility in western countries. In our study, squamous cell carcinoma (52%) was most prevalent followed by adenocarcinoma (16%) and small cell carcinoma (7%). This pattern is supported by other Indian studies [3]

Tobbacco smoking and environmental pollution have been found to be the main etiological factors for lung cancer. In the present study, 77 patients were smokers and rests 23 were non-smoker. The smoker to non-smoker ratio was 3.34:1. Our smoker to non-smoker ratio correlates well with other studies done in the past.[8,9]

In present study, Squamous cell carcinoma and small cell carcinoma were more associated with endoscopically visible lesions than other cell types. Adenocarcinoma were more associated with peripheral lesions thus there may be a possibility of getting less representative material by bronchial biopsy in such peripheral tumors.

A steady increase in the number of admissions to the tuberculosis hospitals of malignant disease associated with or simulating tuberculosis has accentuated the problem of accurate diagnosis of tuberculosis and malignancy. As we have seen in present study, Symptoms such as fever, cough, expectoration, hemoptysis, weight loss and shortness of breath are common to tuberculosis, lung cancer as well as other chronic inflammatory diseases of lungs. However, mediastinal symptoms such as hoarseness of voice, dysphagia and superior venacaval obstruction favour the diagnosis of lung cancer.[10]

Fever in tuberculosis is low grade with evening rise, whereas in lung cancer, it is non-specific. If the weight loss is sudden, it indicates malignancy rather than pulmonary tuberculosis in which weight loss is gradual. The commonest symptom of lung cancer at presentation are change in character of chronic cough (a cough that does not go away), hemoptysis, dyspnea, hoarseness of voice, chest pain (aggravated by deep breathing), unexplained weight loss and loss of appetite, non-resolving pneumonia and superior vena cava syndrome (localized edema of face and upper extremities, facial plethora, distended neck and chest veins).

Bronchoscopic lung biopsy permits earliest and definite diagnosis of most of lung lesions including lung cancer, tuberculosis and other inflammatory lung diseases.

Conclusion:

Bronchoscopic procedures are a valuable tool and helpful in the diagnosis of various lung lesions. It is quite safe, economical and an experienced cytopathologist is necessary for interpretation of smears. Lung cancer, tuberculosis and various inflammatory diseases of lung shares many common symptoms but careful history taking and wisely use of available resources and diagnostic tools may lead to an early diagnosis of disease and better treatment outcome in patients.'

References:

1. P. Jain (eds.), A.C.Mehta et al., Interventional Bronchoscopy: A Clinical Guide, Respiratory Medicine)
2. Basu BK, Ghosh TN. 1971. A study of bronchogenic carcinoma. Indian J Chest Dis., 13:1-9.
3. Kirmani N, Jamil K, Naidu MU. Occupational and environmental carcinogens in epidemiology of lung cancer in South Indian population. Biol Med 2010;2:1-11.
4. International Agency for Research on Cancer. GLOBOCAN 2012 Cancer Incidence and Mortality Worldwide in 2012. Available from: http://www.globocan.iarc.fr/.
5. Agarwal A, Ghotekar LH, Garbyal RS, Mittal VP, Chokhani R. 20003. Evaluation of pulmonary malignancies in Kathmandu Valley and role of bronchoscopic technique in diagnosis of such cases. J Ind. AcadClini Med., 4:127-133.
6. Sheema Sheikh, Azra Shah Aijaz Arshed, Romana Makhdoomi, Rais Ahmad. Histological Pattern of Primary Malignant Lung Tumours Diagnosed in a Tertiary Care Hospital: 10 Year Study Asian Pacific J Cancer Prev2010; 11:1341-1346.
7. Popp W, Rauscher H, Ritschka L, Redtenbacher S, Zwick H, Dutz W. Diagnostic sensitivity of different techniques in the diagnosis of lung tumors with the flexible fiberoptic bronchoscope. Comparison of brush biopsy, imprint cytology of forceps biopsy, and histology of forceps biopsy. Cancer 1991;67:72-5.
8. Rajeskaran S, TG Manickam , PJ Visanthan CS Jayachandran, R Subbaraman, V Bhanumathy, CS Vijayalakshmi, Geetha Prakash. Pattern of primary lung cancer: A Madras study. Lung India1993;XI(1 and 2):7-11
9. Gupta D, Boffeta P, Gaborieau VJindal, S.K. Vaccarella, S., Herrero, R., Nandakumar, A. Risk factors of lung cancer in Chandigarh, India. Ind J Med Res.2001;113:142-50
10. MLB bhatt et al.Pulmonary tuberculosis as differential diagnosis of lung cancer. South Asian J Cancer. 2012 Jul-Sep; 1(1): 36–42.