

BRONCHOALVEOLAR LAVAGE STUDY IN PATIENTS OF SUSPECTED LUNG CANCERChingakhm Debeshwar Singh¹, P. Wilubuibou², Thounaojam Amusana Singh³¹Associate Professor, Department of Respiratory Medicine, JNIMS, Imphal, Manipur, India.²Assistant Professor, Department of Respiratory Medicine, JNIMS, Imphal, Manipur, India.³Senior Resident, Department of Respiratory Medicine, JNIMS, Imphal, Manipur, India.**ABSTRACT****BACKGROUND**

Bronchoalveolar lavage study in Bronchoscopy is done routinely during Bronchoscopy in patients suspected of lung cancer.

The aim of the study was to find out the importance of this procedure in detecting lung cancer including the co-existence of other diseases like Tuberculosis in suspicion of lung cancer.

MATERIALS AND METHODS

It was a descriptive study of Bronchoalveolar Lavage (BAL) studies done in lung cancer suspects with negative sputum smear for Acid Fast Bacilli, presented at the Department of Respiratory Medicine of a Medical College Hospital in a remote area. The results of BAL reports recorded for all the 93 patients who presented to the department from December 2016 to May 2017 were studied. All the BAL samples were subjected to Cytology study and CBNAAT-TB (Cartridge Based Nucleic Acid Amplification Test for TB).

RESULTS

Out of the 93 BAL reports of lung cancer suspects, 21 were found to be having lung cancer alone and 3 were found to be having lung cancer with Pulmonary Tuberculosis and 2 were found to be having Pulmonary Tuberculosis.

CONCLUSION

BAL study is an important tool in detection of Lung cancer in India. It is useful for detection of Tuberculosis in patients with negative sputum smear for Acid Fast Bacilli. Our study further shows that patients presenting with symptoms and radiological findings suggestive of lung cancer are also found to be having coexisting Tuberculosis. It also reveals that TB should be a differential diagnosis of lung cancer and possibility of coexistence of both diseases should always be considered in our country.

KEY WORDS

Bronchoscopy, Bronchoalveolar Lavage, Lung Cancer, Tuberculosis.

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BACKGROUND

Bronchoscopy is indicated in patients having suspected lung cancer, having chronic undiagnosed cough, haemoptysis, focal unexplained atelectasis and post-obstructive pneumonia, undiagnosed pleural effusions, obvious mass on chest x-ray or CT-scan of thorax and localised wheeze.¹

Bronchoalveolar Lavage (BAL) is routinely done in a procedure of Bronchoscopy and subjected to cytology study, other analysis in diagnosis of infections and other non-infective studies. In India, in a general set-up the BAL fluid should be subjected to ZN stain and CBNAAT-TB if available must also be done for detection of Tuberculosis.

MATERIALS AND METHODS

It was a descriptive study. All the 93 patients suspected to be having lung cancer with ZN stain for AFB negative were subjected to Bronchoscopy and BAL study, during the period of December 2016 to June 2017, at the Department of

Respiratory Medicine of a new Medical College in a remote state of India. Alveolar contents are sampled during the procedure of Bronchoscopy. The tip of Bronchoscope was wedged at the desired bronchopulmonary segments and isotonic saline was instilled through the working channel of bronchoscope in 20 - 60 mL aliquots. A total volume of 100 and 300 mL divided in 3 - 5 aliquots were instilled. After instillation of each aliquot, fluids were recovered by suction into sterile disposable collecting traps. Normally, 40 - 70% of instillation volume is recovered as per guidelines.^{1,2,3} BAL aspiration provides material of a larger area of the bronchial mucosa.⁴

The BAL fluid was sent to Departments of Microbiology and Pathology in the same hospital and processed within 1 - 4 hours of collection. In the Department of Pathology, Cytology study was conducted and CBNAAT-TB was performed in the Department of Microbiology for detection of Tuberculosis.

Supplementation of oxygen through nasal prong was provided though the procedure to patients with COPD and pulmonary fibrosis with SaO₂ less than 90% as per guidelines.³

RESULTS

74% lung cancer suspected patients presented with lung consolidation, 9.6% presented with collapse of lung, 5% with ground glass opacities, 4% with pleural effusion, 3% with thick walled cavities and 3% with haemoptysis.

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Corresponding Author:

Dr. Chingakhm Debeshwar Singh,
Associate Professor,

Department of Respiratory Medicine,
JNIMS, Imphal, Manipur, India.

E-mail: debeshwar@gmail.com

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Clinical Presentations of Patients	Number
Air space consolidations	69 (74%)
Collapsed lung on one side	9 (9.6%)
Ground glass opacities	5 (5%)
Undiagnosed pleural effusions	4 (4%)
Cavities	3 (3%)
Haemoptysis	3 (3%)

Table 1. Clinical presentations of Lung Cancer suspected Patients

Out of the 93 BAL samples studied 21 were found to be having lung cancer alone, 3 were having lung cancer with Tuberculosis and 2 were having Tuberculosis alone, remaining 57 had other findings.

Total Patients	93
Lung cancer only in BAL	21 (23%)
Lung cancer with TB in BAL	3 (3%)
TB only in BAL	2 (2%)

Table 2. Results of BAL Study showing Detection of Lung Cancer and Tuberculosis

Age	Results				
	Adenocarcinoma Alone	Squamous Cell Carcinoma Alone	Small Cell Carcinoma Alone	Adenocarcinoma with TB	Squamous Cell Carcinoma with TB
55-65 years	1	0	0	1	0
66-75 years	5	4	2	1	1
76-85 years	4	4	0	0	0
Total	10	8	2	2	1

Table 3. Age distribution of Results of BAL reports showing Lung Malignancy and Tuberculosis

BAL Reports showing Lung Cancer	Number
Total Lung cancer in BAL	24
Lung cancer with TB in BAL	3

Table 4. Lung Cancer with TB among Total Lung Cancer Detected

DISCUSSION

BAL study is very helpful in detection of lung cancer in patients having symptoms and radiological findings suggestive of lung malignancy. This study indicates that a safer procedure like this must be carried out in bronchoscopy, subjecting to cytology study and CBNAAT-TB in our country. The differential diagnosis of TB should always be considered either as isolated illness or co-morbidity. The presence of TB can occur as the preceding illness, as occurrence of lung cancer as a result of pulmonary fibrosis leading to genetic damage happens.⁴ In our study, diagnostic yield of the procedure in lung cancer in patients with clinical suspicion for lung malignancy was 25%. Bronchoalveolar studies have been reported to be very useful in diagnosis of

adenocarcinoma and tumours with lymphangitic or lepidic growth.⁵ A yield of 35% - 69% have been observed in one study by Semenzato G and Poletti V.⁵ The overall diagnostic yield was reported in a study ranging from 35 to 69%.⁶ In another study, highest yields were seen in adenocarcinoma (59.2 percent) and alveolar cell lung cancer (80 percent).⁷ BAL was positive for malignant cells in 14 of the 30 patients (46.7%) in the study by Wongsurakiat P.⁸ The various clinical presentations in this study were lung consolidation, ground glass opacities similar to a study by Cazzato S et al.⁹

1.9% of lung cancer patients were found to be having TB in one study,¹⁰ although in our study such a co-existence was 12.5%, although our study detected TB only in BAL study in sputum smear negative for AFB.

CONCLUSION

It is observed that BAL is a valuable diagnostic tool in detecting primary, pulmonary malignant neoplasms. In a country like India, BAL should always be subjected to CBNAAT-TB study also, as TB can mimic lung cancer and coexist with pulmonary malignancy, although such co-existence is rare.

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