



A Study of Fiberoptic Bronchoscopy in Nonresolving Pneumonia

KEYWORDS

Fiberoptic bronchoscopy, non-resolving pneumonia

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ABSTRACT

Slow or incomplete resolution of pneumonia despite adequate antibiotic treatment is a common clinical problem estimated to be responsible for approximately 15 percent of inpatient pulmonary consultations & 8 percent of bronchoscopies. Fiber optic bronchoscopy (FOB) has been traditionally used to evaluate non resolving pneumonia. This study aimed to access the patients of non-resolving or slowly resolving pneumonia with special emphasis on comparison of efficacy of BAL through FOB and Sputum C/S for pyogenic organism in diagnosis. Present study is a Retrospective, observational study conducted in a tertiary care institute over a period of one year. After fulfilling the definitions of non-resolving pneumonia by clinical and radiological parameters, patient were evaluated by FOB with relevant microbiological, cytological, histopathological investigations was sent. Thirty Four patients were enrolled in the study mean age was 40-50 years with male to female ratio 2:1. Right lung was more commonly involved (60%), and right upper lobe was the commonest site (30%). Pyogenic infection was the commonest etiology (55.88 %) bronchogenic carcinoma (23.52%) and tuberculosis accounted for (17.64 %) cases. Highest incidence of lung cancer seen in labourer accounts for 50% cases, farmers 32.35% of cases. FOB is (87%) useful for etiological diagnosis of non-resolving pneumonia. Procedures were safe and no major complication was observed. Because of the high yield of FOB. It is very useful and safe diagnostic tool for evaluation of non-resolving pneumonia. Routine flexible bronchoscopy technique continues to have a high diagnostic yield in current clinical practice in common lung conditions like pneumonia, pulmonary tuberculosis and lung cancer.

INTRODUCTION

Fiberoptic bronchoscopy (FOB) – is a diagnostic and therapeutic procedure for various respiratory diseases, that permits direct visualization of the tracheobronchial lumen with the help of the specialized optical device. It is a very useful and safe procedure. Fiberoptic bronchoscopy frequently helps to diagnose the cause of non resolving pneumonia.

MOST COMMON INDICATIONS

Suspected infective etiology

- Chest x-ray (Inhomogenous soft tissue opacity which is not resolved by the adequate antibiotic course)
- Suspected opportunistic lung infection
- Unexpected cough of >6weeks duration
- Suspected lung malignancy

Non-resolving pneumonia is defined as pneumonia with a slow resolution of radiologic infiltrates or clinical symptoms despite adequate antibiotic therapy. [1]

Causes of non resolution

- Delayed radiological recovery
- Presence of resistant organisms & unusual organisms
- Diseases mimicking pneumonia

THE STUDY DESIGN

TYPE OF STUDY: Retrospective, observational study

AIMS & OBJECTIVES:

To study the clinical and radiological presentation of non resolving pneumonia.

To study and compare yield of fiberoptic bronchoscopy in diagnosis patient of non resolving pneumonia.

DURATION : 1 year

PLACE:

- PULMONARY MEDICINE DEPARTMENT
- B.J.MEDICAL COLLEGE, AHMEDABAD

TOTAL PATIENTS : 34

INCLUSION CRITERIA:

Clinical history, physical examination, laboratory investigations, chest X ray and CECT thorax compatible with non-resolving pneumonia.

Patient had no contraindication to bronchoscopy procedure

EXCLUSION CRITERIA:

- Poor general condition
- Unwilling for Bronchoscopy procedure
- Diagnosed lung cancer
- Smear positive pulmonary TB
- Recent myocardial infarction & Blood dyscrasias

Methodology

The present study was carried out on **34 patients of non resolving** pneumonia clinical history taken and physical examination done.

sputum examination for

- acid fast bacilli (AFB) staining
- gram & KOH staining
- culture/sensitivity for pyogenic organism
- chest radiography
- ECG

- Hematological examination and coagulation profile.
- CT scan thorax was performed in some cases.

All the patients were then subjected to **Flexible FOB**. It was performed with fiberoptic scope through transnasal route under topical anesthesia (2% lignocaine).

Oxygenation was monitored throughout the procedure with pulse oximetry.

EQUIPMENTS

- Flexible video bronchoscope
- TBLB forceps
- Brush biopsy forceps & TBNA
- Sterile container & Suction tube
- Sterile saline & Vaccuum source
- Syringe & Lidocaine 2%



Appropriate samples

- bronchoalveolar lavage
- brushing
- biopsy, were obtained depending on the lesion after thorough evaluation of endobronchial tree.

Samples were subjected to

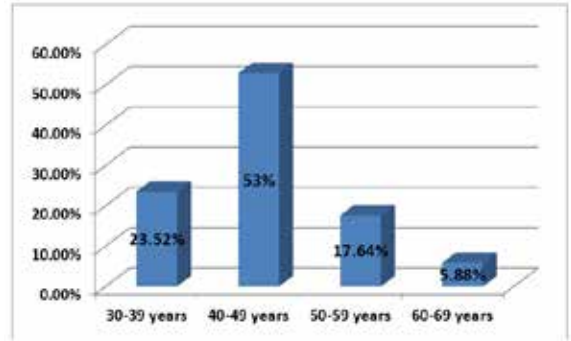
- AFB staining, gram staining, fungal (KOH) staining and culture/sensitivity
- Cytology, Histopathology as required, depending upon the clinical diagnosis and bronchoscopic findings.

CLINICAL PRESENTATION

Clinical presentation	No. Of cases	Percentage(%)
Cough with expectoration	29	85.29%
Fever	23	67.64%
Chest pain	18	52.94%
Dyspnea	25	73.52%
Hemoptysis	7	20.58%
Anorexia	27	79.41%
Weight loss	22	64.70%
Pallor	9	26.47%
Clubbing	5	14.70%
lymphadenopathy	2	5.88%

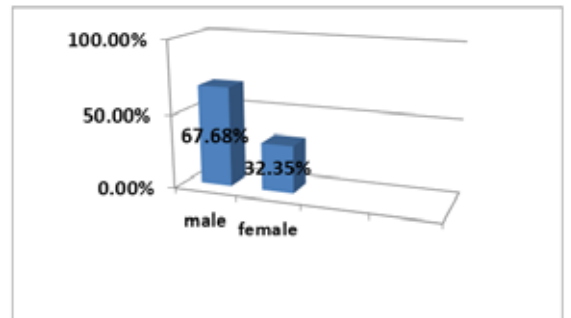
- **Cough with expectoration, chest pain, dyspnea and fever were the major complaints.**
- Cough with expectoration was present in 85.29% of cases. chest pain usually dull aching and present in 52.94% cases.
- Hemoptysis was present in 20.58% cases.
- Non specific symptoms like anorexia & weight loss was present in 79.41% and 64.70% of cases.

AGE INCIDENCE



From the table it is now apparent that highest incidence of non resolving pneumonia was between **40-49 yrs** which included **18 (52.94%)** cases of total cases.

SEX INCIDENCE



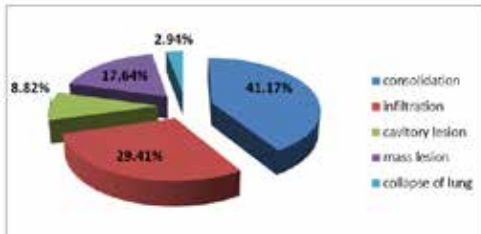
Out of those 34 patients 23 were males(67.68%) and 11(32.35%).

OCCUPATIONAL PROFILE

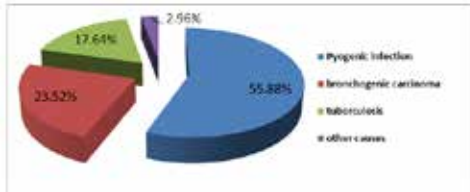
Occupation	No. cases	Percentage
labourer	17	50.00%
Farmer	11	32.35%
Housewife	2	5.88%
Miscellaneous	4	11.76%

Past H/O	No. Cases	Percentage(%)
Pulmonary tuberculosis	8	23.52%
COPD	7	20.5%
Bronchiectasis	2	5.8%
Interstitial lung disease	1	2.9%

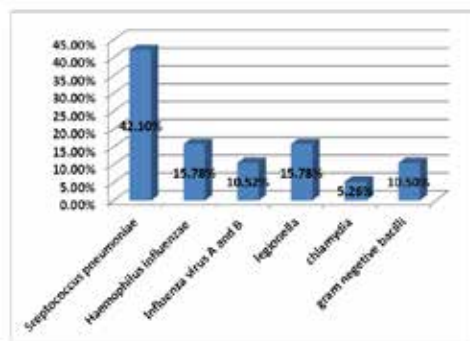
CHEST RADIOGRAPHY



BRONCHOSCOPIC OUTCOME

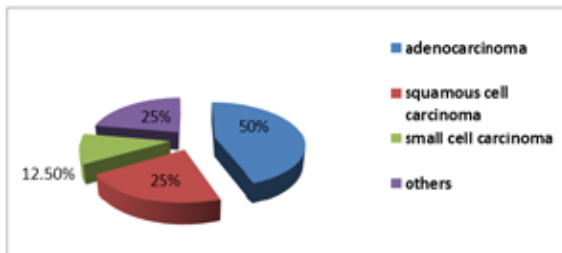


- Pyogenic infection was the commonest etiology 19 cases(55.88 %)
 - Bronchogenic carcinoma 8 cases (23.52%)
 - Tuberculosis accounted for 6 (17.64 %) in which M Tuberculosis found in 5 patients and Non tuberculas micobacterium 1 patient
- Other causes 1 (2.96%)cases.



The five most frequent pathogens were Streptococcus pneumoniae 8 patients [42.10%), Haemophilus influenzae (3patients [15.78%), Influenza virus A and B (2 patients [10.52%), Legionella sp. (3 patients [15.78%), and Chlamydia pneumoniae (1 patient [5.26%). Gram-negative enteric bacilli accounted for 2 cases (10.52%)

TYPES OF MALIGNANCY



The most common histological pattern was adenocarcinoma 4(50%) followed by squamous cell carcinoma (25%),

small cell carcinoma(12.50%),large cell carcinoma(4%) and others 25%.

DISCUSSION

- Non-resolving pneumonia is a challenging clinical problem. Incidence of non-resolving pneumonia was found to be 10% to 15% among hospitalized patients with CAP and of them 6% developed progressive pneumonia. [2]
- Mortality of un-resolving pneumonia ranges from 27 to 49%. [3]
- Approximately, 20% of presumed non-responding CAP had noninfectious etiology. [3]
- Old age, multilobar pneumonia, pneumonia severity index more than 90, Legionella pneumonia, gram negative pneumonia and discordant antimicrobial therapy were the common responsible for non-resolving pneumonia. [4]
- In a recent study from south India ,tuberculosis (TB) was the cause of non-resolving pneumonia in 35.7% cases and malignancies were responsible for another 27% cases, [5]
- Bronchoscopy plays an important role in the diagnosis of smear negative pulmonary tuberculosis. Foos et al5 found the diagnostic yield of 27% for the diagnosis of pulmonary tuberculosis by fiberoptic bronchoscopy.
- As compare to our study Bronchogenic carcinoma (23.52%) ,Tuberculosis accounted for (17.64 %) patients.
- The diagnostic yield of FOB in pneumonia was 55.88% in our study, which was comparable with that of several other studies.
- We found BAL fluid examination to be very useful in diagnosis and identification of the causative organism in patients having non-resolving, slowly resolving and hospital acquired pneumonia patients.
- Recent era is looking at the role of fiberoptic bronchoscope beyond diagnosis in intensive care units for therapeutic interventions.
- It is useful for removal of thick tenacious secretions in patients with atelectasis on mechanical ventilation as well as for difficult endotracheal intubation.

CONCLUSION

- The diagnostic yield of FOB with routine and basic procedures like endobronchial biopsy, BAL fluid analysis and brush cytology was satisfactory at our hospital.
- Routine flexible bronchoscopy technique continues to have a high diagnostic yield in current clinical practice in common lung conditions like pneumonia , pulmonary tuberculosis and lung cancer .
- We believe that the procedure is more useful in diagnosis when combined with a sound clinical judgment and appropriate supportive investigations.

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