


Original Article

An Observational Study on Lung Abscess

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ABSTRACT

Background: Lung abscess is a common problem in developing countries. It is the time to reevaluate lung abscess for the rapid development of antibiotic resistance.**Objective:** This study was done to determine the clinical pattern of lung abscess. **Methods & Materials:** A prospective non-randomized observational study was done in the department of pulmonary medicine & internal medicine for one year in SSMCH. Patients > 16 years of age with clinical features of lung abscess were included in this study. All diagnostic & clinical data were analyzed statistically with SPSS 20.0. **Results:** patients were with a mean age of 41.9 years. Male to female ratio was 6.14:1. Fifty cases of lung abscess were included in this study. The most common predisposing factor was Diabetes mellitus (33%), an unhygienic oral cavity (27%). The most common organism was Klebsiella pneumoniae and they were sensitive to Levofloxacin. **Conclusion:** Mellitus should be

considered as a risk factor for lung abscesses. Klebsiella pneumoniae is an important organism in community-acquired lung abscesses & sensitive to Levofloxacin.

Keywords: Lung abscess, Levofloxacin, Cavity with fluid level, Klebsiella pneumonia.

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INTRODUCTION

A suppurative pneumonia may cause necrosis of lung tissue, which can lead to the creation of a cavity with an air-fluid level. This is what is known as a lung abscess. There are two possible types of lung abscess: single and multiple. Abscesses on the lungs may be contracted

in the community or in a hospital. Either the primary or the secondary.

Since antibiotics were discovered, the etiological pattern has undergone significant shifts. Infection of the lung parenchyma may be caused by anaerobes and gram-positive organisms. The infection can be caused by aspiration of

oropharyngeal material, blood disseminated by intraabdominal or pelvic sepsis. [1,2]. There are a lot of potential dangers. The absence of qualified medical professionals to perform bronchoscopic and transthoracic lung aspiration makes it difficult to arrive at an etiological diagnosis of lung abscess. Evaluations need to be done on significant situations. Abscesses in the lungs may form at any location on the lungs. It is still not quite known if there is some kind of etiological link with the location of the lung abscess. Antibiotic resistance renders penicillin ineffective as a therapy for community-acquired lung abscess, a condition that was previously treated with the antibiotic. In order to provide more effective treatment, it is necessary to do a clinical evaluation of the lung abscess.

METHODS & MATERIALS

The study was done on 50 cases of lung abscess for one year. Patients were selected from outdoor and indoor of the department of pulmonary medicine & Internal medicine. This study was approved by the Institute ethical committee. It was an observational & prospective study. Clinical history of aspiration, unconsciousness, anesthesia, dental sepsis, diabetes mellitus, CVD, pneumonia, alcohol intake, sinusitis, epilepsy, and head injury were taken. Clinical examination was done thoroughly. Complete blood picture, X-ray chest, sputum for AFB& gram stain, sputum culture and sensitivity & blood culture were done. Bronchoscopy, CT of chest, CT guided FNAC, serological and immunological investigations were done if needed. All data were analyzed with SPSS version 20.0.

Inclusion criteria

Patients having cough, purulent sputum; cavity, and air-fluid level in chest X-ray with fever ($> 37.8^{\circ}\text{C}$), were included in the study.

Exclusion criteria

Patients less than 17 years of age and with bronchiectasis, malignancy excluded from the study.

RESULTS

Majority of the patients were above 40 years (72%). Out of 50 cases of lung abscess, 43 cases were males (86%). M: F 6.14:1

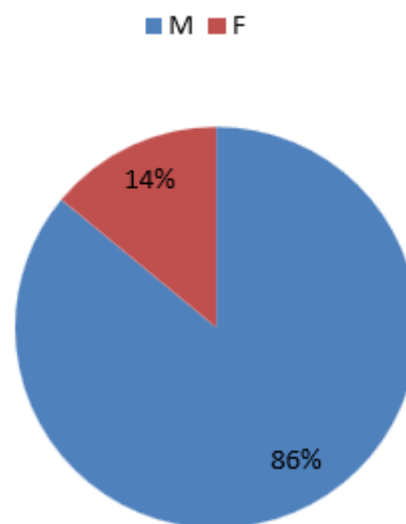


Fig -1 Sex distribution of patient

Table 1 shows Mean age 41.9 years. Age range 16 to 65 year

Table-1 Age distribution of patient.

Age	No of cases
>40 years	36
<40 years	14

Figure 2 shows that 23 cases (46%) had predisposing factors and the most common predisposing factor was diabetes mellitus 16 cases (32%) an unhygienic oral cavity in 5 cases (10%) followed by dental sepsis in 2 cases (4%). 22 cases had associated risk factors and the most common risk factor was alcohol ingestion in 6 cases (12%) and smoking in 16 cases (32%).

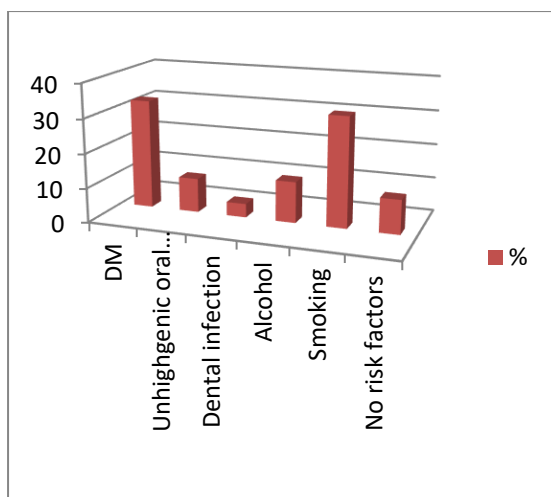


Fig 2. Risk factors

The most common symptom was a cough in 46 cases (92%). Fever was present in 43 cases (86%)

Table 2- Symptoms of lung abscess.

Symptom	No. of cases	Percentage
Cough	46	92%
Fever	43	86%
Expectoration	39	78%
Chest pain	11	22%
Breathlessness	6	12%
Loss of appetite	13	26%
Hemoptysis	7	14%

Figure 3 Majority of lung abscess was located on the right upper lobe (RUL) in 26 cases (52%) followed by right lower lobe (RLL) in 11 cases (22%). Lung abscess was also present on left lung; left upper lobe (LUL) was the common site- 7 cases (14%).

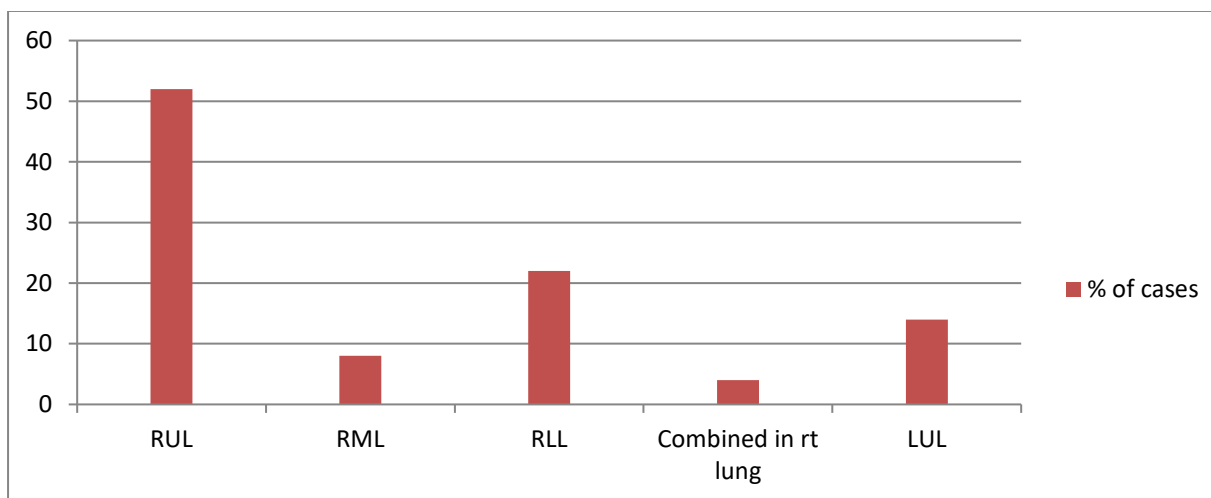


Fig- 3 Radiological site of lung abscess

Figure 4 shows that Majority of lung abscess presented with a cavity and fluid level. 39 cases (78%) represented a cavity

with a fluid level while 11 cases (22%) were empty cavity.

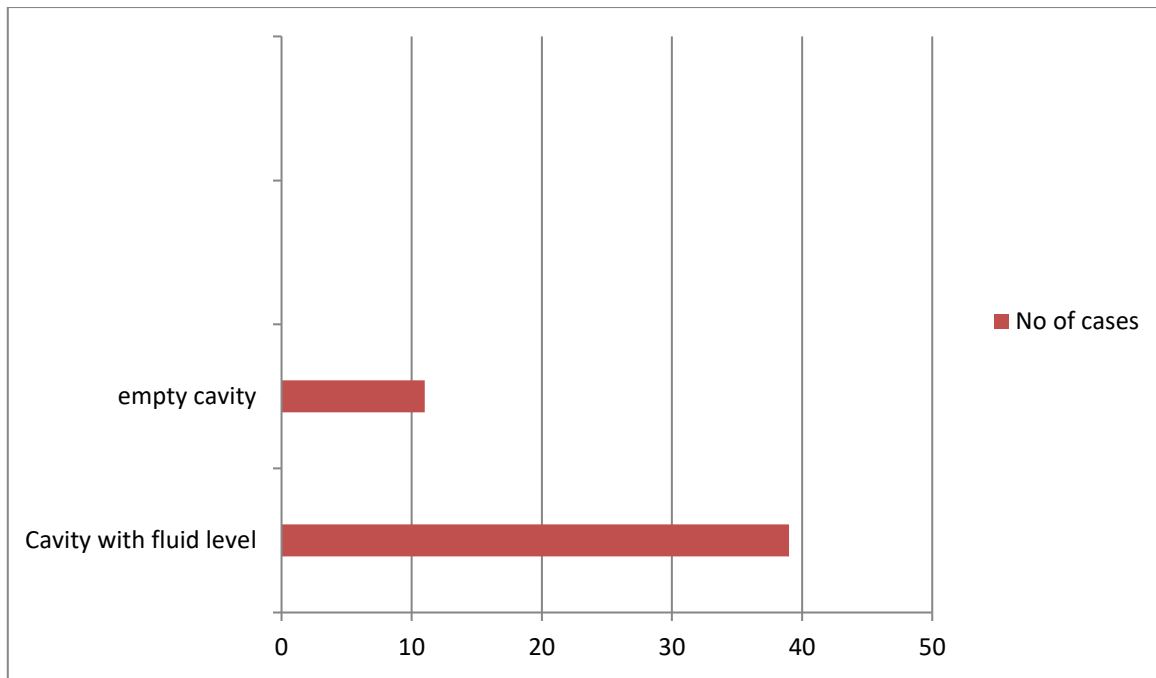


Fig 4 Radiological characteristics of lung abscess.

Figure 5 shows that Sputum gram stain was done in all patients, and 37 cases (74%) had gram-negative organism. 4

cases (8%) had gram-positive organisms, in 8 cases there were no organism,

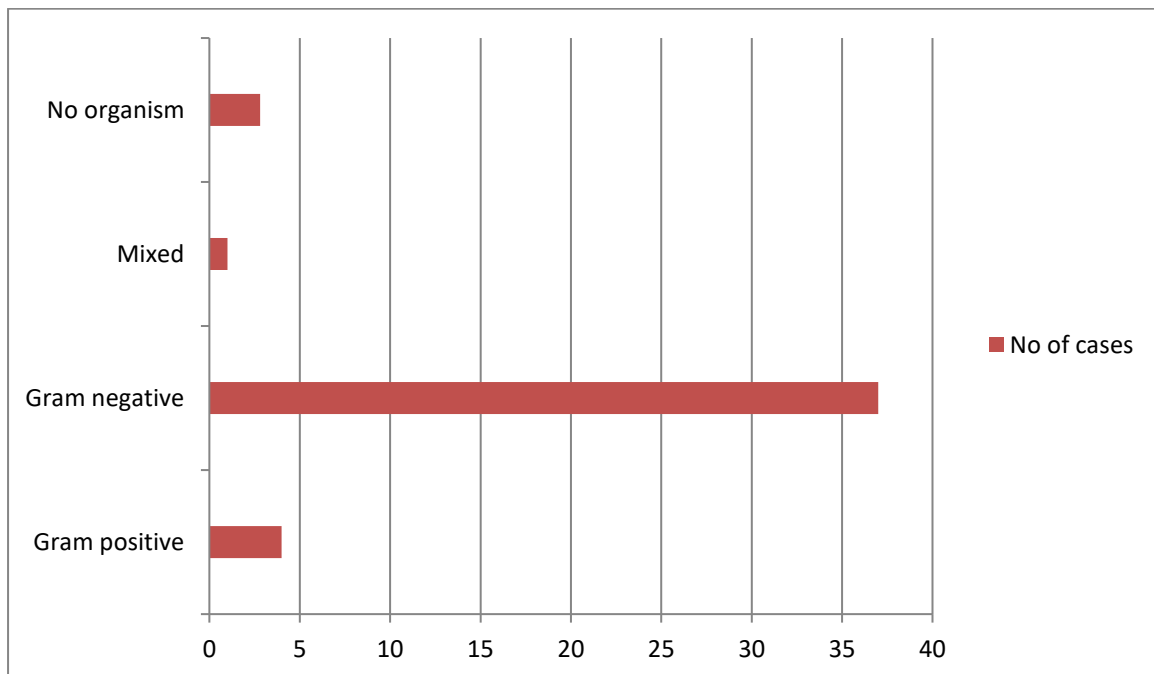


Fig- 5. Sputum gram stain for lung abscess

DISCUSSION

Mean age of the patient in this study was 41.9 years & lung abscess was more in

males (M:F=6.14:1) . Our findings correlate with the findings of MacMillan JC [3]. & of Moreira Jda S[4]The

predominant symptoms are cough (92%), fever (86%), chest pain (22%), haemoptysis (14%). Cough was associated with fetid expectoration (78%). Our findings correlate with the findings of Polson EC [5]. There are many risk factors like diabetes mellitus (32%), unhygienic oral cavity (10%), dental sepsis (4%), smoking (32%) & alcohol ingestion (12%). 5 cases (10%) had no risk factors. Unhygienic oral cavity & dental sepsis increase aspiration lung abscess during anesthesia due to aspiration of anaerobic organisms in salivary content [6] [7]. The right main bronchus is straighter than left, so lung abscess occur more in the right side. In this study the majority of the lung abscess was located on the right upper lobe (52%). This study had similar finding as was observed by Mansharamani NG [8]. Chest X-ray helps to identify lung abscess & its site. CT chest was sometimes done to differentiate lung abscess from other suspicion. Sputum for AFB; gram staining and culture sensitivity were done in all cases, 42 cases had an organism out of 50 cases. *Klebsiella pneumoniae* was the most common organism followed by *E. coli*. 5 cases had *Streptococcus pneumoniae* organism. Our findings show *Klebsiella pneumoniae* is the most common organism, findings similar to that of Wang JL et al. [9]. Culture sensitivity was done, and most of these cases were sensitive to Levofloxacin, amikacin & ceftriaxone.

CONCLUSION

The limitation of this study was that sample size was small. Effective isolation of main organism was difficult due to the prior use of antibiotics. *K. pneumoniae* should be considered as an important organism. Large studies are required to evaluate better factors for clinical outcome of lung abscess. Bronchoscopy can be practiced for collecting specimen of lung abscess.

Diabetes mellitus should be considered as a risk factor for lung abscesses. *Klebsiella pneumoniae* is an important organism in community-acquired lung abscesses & sensitive to Levofloxacin.

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