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# A fulminant case of community-acquired pneumonia due to *Acinetobacter baumanii*

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**Abstract:**

We report a fulminant case of community-acquired pneumonia due to *Acinetobacter baumanii.* This pathogen is an important cause of hospital-acquired infections. In the recent years, it has gained importance as an important pathogen associated with community-acquired pneumonia. This case report highlights the clinical significance of isolating *Acinetobacter baumanii* in sputum samples.

**Keywords:**

*Acinetobacter baumanii*, chronic obstructive pulmonary disease, community-acquired pneumonia

## Introduction

*Acinetobacter baumanii* is a non-fermenting Gram-negative coccobacillus, which is commonly found in soil and water.[1] The respiratory tract is an important site of colonisation and is the most frequent site of infection.[2] It has emerged as a significant pathogen in nosocomial infections. It is a major cause of hospital-acquired pneumonia worldwide. However, it is also recognised as an important pathogen associated with community-acquired pneumonia (CAP) with predisposing factors such as chronic obstructive pulmonary disease (COPD), diabetes and smoking resulting in a fulminant course and increased mortality.[3]

## Case Report

A 78-year-old male patient presented to the emergency department with a history of difficulty in breathing and left-sided chest pain with no radiation of pain. He complained of cough which was productive in nature for two weeks. There was no history of fever and haemoptysis. History revealed that he was a known case of COPD, hypertension with parietal lobe infarct for three years, there were no symptoms of weakness of limbs. There was no history suggestive of recent hospital admission or instrumentation. On examination, the patient was conscious, oriented and dyspnoeic, his pulse rate was 128 beats/min, blood pressure was 112/60 mmHg and respiratory rate was 40/min. Chest examination revealed decreased chest movements with dull note over the left hemithorax. Bilateral rhonchi with basal crepitations were detected on auscultation. Heart sounds were normal with no murmurs. Per abdominal examination did not reveal any abnormality.

On further evaluation, electrocardiogram was normal, chest X-ray showed a non-homogenous opacity in the left lower and middle lobe suggestive of left-sided consolidation [Figure 1]. A provisional diagnosis of left-sided lobar pneumonia was made. He was empirically treated with ceftriaxone and amikacin with ipratropium bromide and budesonide nebulisation. Laboratory investigation showed a haemoglobin of 11.7 g/dl, white blood cell count of 9000 cells/mm$^3$. Sputum

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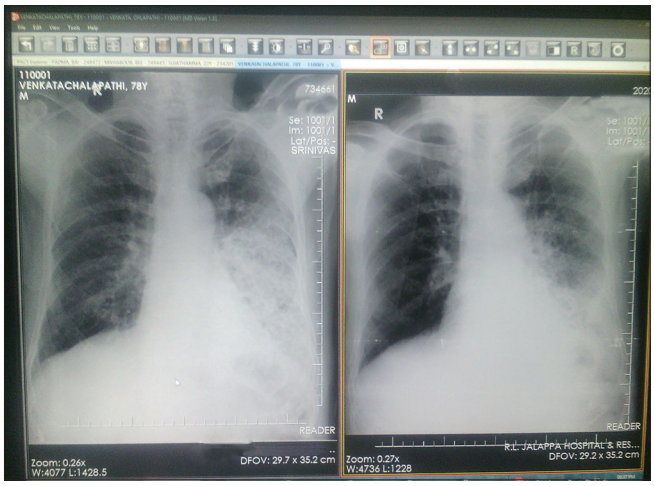


**Figure 1:** Chest X-ray shows massive consolidation of left lower and middle lobe of the lung and chest X-ray shows resolution of pnenmonic patch following treatment with levofloxacin

sample was sent for culture and antibiotic sensitivity. Gram stain of sputum showed numerous pus cells with numerous Gram-negative coccobacilli. Culture yielded a pure growth of non-lactose fermenting colonies on MacConkey agar, the organism was non-motile, asaccharolytic, utilised citrate, did not reduce nitrate to nitrite, negative for oxidase, urease and indole. It acidified 10% lactose. Based on the above characteristic features, it was identified as *Acinetobacter baumanii*.[4] Antibiotic susceptibility testing was done by Kirby Bauer's disc diffusion method as per Clinical and Laboratory Standards Institute guidelines.[5] The strain isolated from this patient was sensitive to Levofloxacin, Tetracycline, Ampicillin-Sulbactam, Piperacillin-Tazobactam, Lmipenem and Meropenem, it was resistant to Piperacillin, Gentamicin, Tobramycin, Amikacin, Ceftazidime, Cefotaxime, Ceftriaxone, Cefepime and Cotrimoxazole. The patient's condition did not improve with Ceftriaxone and Amikacin which was started empirically. He was started with 500 mg of oral Levofloxacin as a single dose for two weeks based on the sensitivity report. The patient was ambulant. The patient improved as suggested by the follow-up X-ray [Figure 1] and was discharged uneventfully. The patient did not turn up to the hospital for further follow-up.

## Discussion

We report a fulminant case of CAP caused by *Acinetobacter baumanii* (CAP-AB). As per Infectious Disease Society of America guidelines, CAP is considered, if pneumonia was acquired outside a hospital and the interval between onset of symptoms and previous discharge is 30 days. CAP-AB is defined as isolates grown from sputum or blood from CAP patients collected within 48 h of admission.[6]

CAP-AB is characterised by an acute onset of dyspnoea, pleuritic type of chest pain and fever which rapidly progress to respiratory failure and shock if intervention is delayed. The mortality rate from CAP-AB is 40% to 64%.[7] In this case, the patient was a known case of COPD which probably has resulted in repeated hospitalisation one year ago during which patient may have been colonised by *Acinetobacter baumanii* which later led to the development of invasive disease.

It is a common practice to overlook *Acinetobacter baumanii* in sputum samples as a respiratory pathogen unless it is associated with hospital-acquired pneumonia. This case report highlights the fact that in elderly patients with underlying COPD and other comorbid conditions such as diabetes and malignancies, isolation of *Acinetobacter baumanii* from sputum sample should be considered significant and reported. In addition to this the age, clinical presentation and radiological evidence contribute to the significance of *Acinetobacter baumanii* as a respiratory pathogen.

*Acinetobacter baumanii* has become increasingly resistant to antibiotics over the few years and posing a significant challenge in treatment. Antibiotic susceptibility testing plays an important role in selection of appropriate antibiotics in treating CAP due to *Acinetobacter baumanii*.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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