



Case Study On Right Lower Lobe Pneumonia

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ABSTRACT:

Pneumonia is a common acute respiratory infection that affects the alveoli and distal airways. Pneumonia is broadly divided into community-acquired pneumonia or hospital-acquired pneumonia. A large variety of microorganisms can cause pneumonia, including bacteria, respiratory viruses and fungi, and there are great geographical variations in their prevalence. Individuals with pneumonia often present with respiratory and systemic symptoms, and diagnosis is based on both clinical presentation and radiological findings. Pneumonia occurs more commonly in susceptible individuals, including children of <5 years of age and older adults with prior chronic conditions. Development of the disease largely depends on the host immune response, with pathogen characteristics having a less prominent role. Individuals with pneumonia often present with respiratory and systemic symptoms, and diagnosis is based on both clinical presentation and radiological findings. It is crucial to identify the causative pathogens, as delayed and inadequate antimicrobial therapy can lead to poor outcomes. A 71 yrs male patient was admitted in a Multispeciality hospital due to cough with mucoid expectoration, fever for 4 days & breathlessness for 2 days. On examination of his vitals, it's shown that his temperature, pulse rate, respiratory rate, SPO₂ are not within the normal limit and on further investigation he was diagnosed

as Right Lower Lobe Pneumonia. After starting the treatment, all his vitals remained stable & discharged after 5 days with in the instruction to follow-up the medication.

KEYWORDS

Right Lower Lobe Pneumonia, Tazobactam, Patient Counselling.

INTRODUCTION

Pneumonias are currently divided into “community” and “hospital acquired”. While the “hospital acquired” pneumonias are mainly caused by such agents as Pseudomonas, Klebsiella, Staphylococcus and Candida, community acquired pneumonias are, commonly, due to infections with Streptococcus pneumoniae or pneumococcus. In the United States the number of pneumococcal pneumonia cases is estimated to be approximately 500,000 per year, and worldwide more than a million deaths are annually ascribed to this disease. This makes it to one of the leading infectious causes of mortality. Sir William Osler, therefore, called Streptococcus pneumoniae “the captain of the men of death” [1].

Morphologically pneumonias traditionally have been classified as lobar (“croupous”) or lobular (“focal”) pneumonia. The latter type is also known as bronchopneumonia. Lobar pneumonia is characterized by acute development and rapid involvement of an entire lobe by the inflammatory process. The main morphological change of the lung is called “hepatization”, an alteration of the pulmonary tissue that is histologically characterized by a dense fibrinous-neutrophilic infiltration of the alveoli. In contrast to lobar pneumonia that may be fatal without antibiotic therapy, focal pneumonia shows a much slower development and usually a non-fatal course in adults. It is also usually noted that the fatal outcomes mainly occur in infants and elderly persons. In the modern literature and pulmonology classifications the term “croupous” pneumonia disappeared. [2]

CASE PRESENTATION

PATIENT DESCRIPTION:

A 71-years male was brought to Multispeciality hospital in the southern part of Kerala on 15-05-2025. He presented with complaints of cough with mucoid expectoration, fever for 4 days, breathlessness for 2 days then he went to the hospital. He has Diabetic & Hypertension and was on oral medication.

PHYSICAL EXAMINATION:

On examination he had a temperature 100-degree F, SPO₂ – 92%, pulse rate – 72 bpm, Blood pressure – 180/80 mmHg & heart sounds S₁, S₂. And examination on Respiratory system shows that he had bilateral wheezing and crackles heard in the lungs along with Neurocognitive Function Non-Derive (NFND). Inspection, Palpitation, Percussion, Auscultation, Rectal examination, Proctoscopy and Pelvic examination are within the normal limit.

INVESTIGATIONS:

- CRP (C – Reactive Protein) showed normal range.
- ESR (Erythrocyte Sedimentation Rate) report an increase from normal range to 34 mm/hr.
- TC (Total Cholesterol) level increases from normal range to 14580 cells/ μ L.
- HB (Haemoglobin) level decreases to 8.6 gm/dL from normal range.
- Chest X-Ray detected a consolidation in Right Lower Lobe Pneumonitis.

LABORATORY PARAMETERS	OBSERVED VALUES	NORMAL VALUES
CRP	1.8 g/dl	Less than 3 mg/L
ESR	34 mm/hr	Below 20 mm/hr
TC	14580 cells/ μ L	4000 – 11000 cells/ mm^3
HB	8.6 gm/dl	13.5 to 17.5 g/dL

DIAGNOSIS:

Based on Chest X-Ray finding was diagnosed having Right Lower Lobe Pneumonitis.

TREATMENT:

His treatment includes injection and inhalation.

- LIBACT INJ – Contains Piperacillin and Tazobactam that are used to treat serious bacterial infections, particularly those that are resistant to other antibiotics of 4.5gm was given twice a day.
- METHYLPRED INJ – Contains Methyl Prednisolone which is used to treat number of different conditions such as inflammation, severe allergies etc of 40mg was given twice a day.
- T. PANTOP – Contains Pantoprazole which is primarily used to treat acid related stomach issues such as GERD, ulcers etc of 40 mg was given once daily.
- NEB.DUOLIN – Contains Levosalbutamol & Ipratropium Bromide are used to treat or prevent shortness of breath, coughing etc was given through inhalation every 6 hours.
- NEB.DERINIDE – Contains Budesonide which is used to treat inflammatory conditions, primarily affecting the airways and GIT given through inhalation every 8 hours.

PROGNOSIS:

The patient improved slowly and after 3 days, His vitals such as Temperature at 98.6-degree F (no fever), SPO₂ – 96%, Pulse rate – 82 bpm, Blood pressure – 130/80 mmHg remained stable.

On the fifth day of his admission, he remained stable and he was discharged on 20-05-2025 with following medication to continue;

FOLLOW-UP: He was discharged on 20-05-2025 with following medications

- T. Clarithromycin: Clarithromycin (which is used to treat certain bacterial infections, such as pneumonia (a lung infection), bronchitis (infection of the tubes leading to the lungs), and infections of the ears, sinuses, skin, and throat) of 500mg given once a day in the morning.
- T. Pantoprazole: Pantoprazole (a proton pump inhibitor, is used to reduce stomach acid production) of 40mg was given orally once daily before breakfast.
- T. Methylprednisolone: It will accelerate pneumonia resolution and improve clinical outcomes which was given once in a day of dose 4 mg.
- Neb. Levosalbutamol + Ipratropium Bromide: Their use in pneumonia is often considered as adjunctive therapy alongside other treatments, particularly for patients experiencing difficulty breathing or airway obstruction, which was given through inhalation on every 8 hours.

DISCUSSION:

Lobar pneumonia is an acute bacterial infection involving a large portion of one lobe or an entire lobe. It is infrequent today because of the effectiveness with which antibiotics abort these infections and prevent the development of full-blown lobar consolidation. Pneumonia is an infection of the gas-exchanging units of the lung, most commonly caused by bacteria, but occasionally caused by viruses, fungi, parasites, and other infectious agents. In the immunocompetent individual, it is characterized by a brisk filling of the alveolar space with inflammatory cells and fluid. If the alveolar infection involves an entire anatomic lobe of the lung, it is termed 'lobar pneumonia', and multilobar illness can be present in some instances. When the alveolar process occurs in a distribution that is patchy, and adjacent to bronchi, without filling an entire lobe, it is termed as 'bronchopneumonia'.

Pneumonia occurs when a patient's host defenses are overwhelmed by an infectious pathogen. This can happen because the patient has an inadequate immune response, often as a result of underlying comorbid illness (congestive heart failure, diabetes, renal failure, chronic obstructive lung disease, malnutrition), because of anatomic abnormalities (endobronchial obstruction, bronchiectasis), as a result of acute illness-associated immune dysfunction (as can occur with sepsis or acute lung injury), or because of therapy-induced dysfunction of the immune system (corticosteroids, endotracheal intubation). Pneumonia can also occur in patients who have an adequate immune system, if the host defense system is overwhelmed by a large inoculum of microorganisms, which can occur in a patient with massive aspiration

of gastric contents. In patients outside the hospital, a normal immune system can be overcome by a particularly virulent organism, to which the patient has no pre-existing immunity (such as certain bacteria or viruses) or to which the patient has an inability to form an adequate acute immune response.^[3]

PATIENT COUNSELLING:

- Monitoring of the patients and prognostication are very important aspect of managing pneumonia.
- Simple monitoring parameters like pulse, and respiratory rate can be done in home settings. (Oximetry available should be performed in out-patient).
- Mild pneumonia can treat at home with rest, antibiotics, (likely caused by a bacterial infection) and by drinking plenty of fluids is a one of the homes message. to avoid dehydration, and plenty of rest to help your body to recovery.
- Coughing can be relieved by drinking a warm honey and lemon drink.

CONCLUSIONS:

Community acquired pneumonia causes significant disease burden among adults, particularly among those >65 years or equal of age. Exclusion criteria (eg, those with HCAP or an immunocompromising illness) or case definitions that widely used. (For example, simply listing pneumonia as a primary diagnosis) has resulted in underestimate. The largest risk of morbidity and mortality is associated with CAP. Streptococcus pneumoniae remains the most frequent pathogen of CAP and this is true for all treatment settings. Pneumonia is also most common infectious source of adults. Pneumococcus and Haemophilus continue to be the most common bacterial causes of CAP, followed by Staphylococcus aureus and Enterobacteriaceae, according to the results of a thorough review. Pneumococcus and Haemophilus continue to be the most common bacterial causes of CAP, followed by Staphylococcus aureus and Enterobacteriaceae, according to the results of a thorough review. Studies that were confirmed to patient who provided good-quality of sputum reported substantially higher yields of bacterial causes. All patients found a respiratory virus in roughly 30% of instances, bacterial/viral coinfection is rather prevalent. Because of their efficacy against pneumococcal, haemophilic, staphylococcus aureus, and enterobacteria, as well as atypical organisms, the findings appear to support the 2019 guidelines for the initial empiric management of CAP, which recommend ceftriaxone and azithromycin as therapy for hospitalized patients. Because coinfection is widespread, the detection of virus by PCR does not negate the necessity to treat empirically for bacteria. More carefully attention to sputum gram stain and culture results should improve outcome in patients.

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