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CASE REPORT

Community Acquired Pneumonia in a 66-Year-Old Male Patient with Mild Hipoxia

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Abstract: Community-Acquired Pneumonia (CAP) remains a significant cause of morbidity and mortality among geriatric patients in primary care settings due to atypical presentations and rapid progression. A 66-year-old male presented with a 2-day history of worsening shortness of breath, high fever, productive cough, and nausea. Physical examination revealed tachypnea (24 breaths/min), mild hypoxia (SpO_2 91% on room air), dry oral mucosa, and bilateral coarse crackles. He was diagnosed with CAP accompanied by mild hypoxia and risk of dehydration. Standard management at the emergency unit included oxygen supplementation via nasal cannula, intravenous fluid resuscitation, bronchodilator nebulization, and antipyretics. Prompt identification using clinical criteria and risk stratification, such as the CURB-65 score, is essential in primary care to guide appropriate treatment levels and empiric antimicrobial therapy for elderly patients with CAP

Keywords: Pneumonia, geriatric, primary care.

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INTRODUCTION

Community-acquired pneumonia (CAP) is an acute infection of the lung parenchyma acquired outside of a hospital setting and remains an important cause of morbidity and mortality worldwide. The clinical burden is particularly substantial among older adults, in whom age-related physiological changes, impaired host defenses, and multiple comorbidities may increase susceptibility to pneumonia and the risk of adverse outcomes. In Indonesia, CAP remains an important clinical problem encountered across healthcare settings, including primary healthcare facilities, where early recognition, appropriate severity assessment, and timely initiation of treatment are essential to prevent clinical deterioration (Perhimpunan Dokter Paru Indonesia [PDPI], 2022; Metlay et al., 2019; Faverio et al., 2014; Chong & Street, 2008).

The diagnosis and initial risk assessment of CAP in older adults can be challenging because clinical manifestations may be atypical or less pronounced, with some patients presenting without high-grade fever or prominent respiratory symptoms. Such presentations may contribute to delayed recognition and treatment. Severity assessment tools, including the CURB-65 score, provide a simple and practical approach to estimating mortality risk and supporting decisions regarding the appropriate level of care (Faverio et al., 2014; Lim et al., 2003). This case report describes the clinical presentation, initial emergency management, and severity assessment of an older patient presenting with CAP and mild hypoxemia at a primary healthcare facility, highlighting the importance of systematic assessment and timely intervention before definitive hospital admission.

CASE REPORT

A 66-year-old male patient, Mr. M, was admitted to the emergency unit as a referral case with a primary complaint of worsening shortness of breath for 2 days prior to admission. The dyspnea was accompanied by a high-grade fever and a severe productive cough with thick sputum that was difficult to expectorate. The patient also reported nausea and a noticeable decline in dietary intake over the same period. He

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denied experiencing diaphoresis (cold sweats), pleuritic chest pain, abdominal pain, or lower extremity edema. Defecation and urination were reported within normal limits, and all other systemic symptoms were unremarkable. The patient's past medical history was unknown as he had no prior records of chronic illnesses or routine medical check-ups. Before being referred, the patient visited a local health facility and received a nebulized bronchodilator (Combivent) at 08:30 and two tablets of aspirin (Aspilet, 160 mg) at 09:30.

Upon physical examination, the patient appeared moderately ill but remained fully conscious (Compos Mentis, GCS E4V5M6). Vital signs revealed a blood pressure of 120/70 mmHg, a pulse rate of 93 beats per minute (regular but slightly weak), and a respiratory rate of 24 breaths per minute, indicating tachypnea. His axillary temperature at the time of the emergency examination was 36.6°C, though he had a clear history of prior febris. Oxygen saturation (SpO_2) was initially 91% on room air, which promptly corrected to 98% after the administration of 3 liters per minute (Lpm) of oxygen via a nasal cannula.

Head and neck examination revealed dry oral mucosa, while conjunctival pallor and scleral icterus were absent. Chest examination demonstrated symmetrical chest expansion during respiration with mild intercostal retractions. Pulmonary auscultation revealed bilateral vesicular breath sounds with prominent coarse crackles (rhonchi) over both lung fields; no wheezing was noted. Cardiac auscultation revealed normal first and second heart sounds (S1, S2) without murmurs or gallops. The abdomen was soft (supel), with normal bowel sounds, no tenderness, and good skin turgor. Peripheral extremities were warm with a capillary refill time (CRT) of less than 2 seconds and no pitting edema.

The provisional primary diagnosis was established as Community-Acquired Pneumonia (CAP) with Mild Hypoxia in a geriatric patient with a risk of dehydration. The differential diagnoses considered were Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) and Congestive Heart Failure (CHF) exacerbation, although the lack of wheezing and peripheral edema rendered them less likely. Supporting diagnostic investigations were immediately initiated and remain pending, including a complete blood count (to check for leukocytosis), random blood glucose, serum creatinine (for renal adjustment of medications), an electrocardiogram (EKG) to rule out acute coronary syndrome following the pre-hospital aspirin intake, and a posterior-anterior chest X-ray to confirm the location and extent of pulmonary infiltrates.

Complementary diagnostic investigations performed on the day of admission (August 2, 2026) revealed the following objective results:

Routine Hematology Evaluation: A complete blood count showed mild leukocytosis (WBC: 12.03 × 10^3/µL; reference range: 4.30–11.30) with a relative neutrophilia (NEUT%: 73.4%; reference range: 50.0–70.0) and an elevated absolute neutrophil count (NEUT#: 8.83 × 10^3/µL; reference range: 1.50–7.00). Hemoglobin levels (HGB: 15.2 g/dL), hematocrit (HCT: 45.3%), and platelet counts (PLT: 196 × 10^3/µL) were all within their respective normal limits.

Serum Biochemical Profile: Random blood glucose (RBG) was measured at the upper limit of normal (186 mg/dL; reference range: < 200 mg/dL). Renal function parameters demonstrated a serum creatinine level strictly within the baseline range (1.2 mg/dL; reference range: 0.8–1.3 mg/dL).

Radiological Assessment (PA Chest X-ray): The posteroanterior chest radiograph demonstrated adequate inspiratory effort and a symmetrical position. It revealed increased bronchovascular markings accompanied by patchy, ill-defined pneumonic infiltrates distributed bilaterally across the perihilar zones and lower lung fields. Both costophrenic angles remained sharp, the diaphragmatic contours were smooth, and there was no definitive evidence of cardiomegaly or pleural effusion. These findings confirmed the presence of multifocal, bilateral pneumonia.

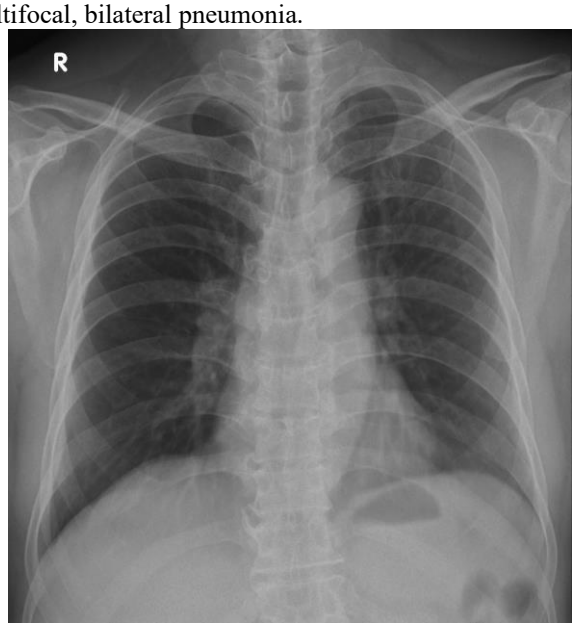


Figure 1. Posteroanterior Chest X-Ray (multifocal bilateral pneumonia)

The acute medical management provided in the emergency unit consisted of:

- Intravenous fluid resuscitation with Normal Saline (0.9% NaCl) at 500 cc per 24 hours to address the dry mucosa and poor oral intake.
- Intravenous Ranitidine 50 mg every 12 hours to mitigate the patient's nausea.
- Nebulized Combivent (1 respule diluted with 1.5 cc of Normal Saline) every 8 hours to alleviate bronchospasm and reduce chest retractions.
- A strict temperature-guided antipyretic protocol: Oral Paracetamol 500 mg every 8 hours for temperatures between 37.5°C and 38.4°C, and Intravenous Paracetamol infusion 500 mg every 4 hours for temperatures equal to or exceeding 38.5°C.

Following stabilization, the patient was prepared for transfer to the general medical ward under the national health insurance scheme (BPJS).

DISCUSSION

The presentation of CAP in this 66-year-old male aligns closely with established clinical guidelines, yet it highlights the subtle complexities often encountered in geriatric respiratory medicine. Geriatric patients frequently experience a blunted immune response, which can lead to delayed healthcare-seeking behavior or an absence of classic symptoms like pleuritic chest pain. In this case, the patient presented with prominent gastrointestinal symptoms (nausea and poor intake) alongside systemic signs like a high fever and dyspnea, which could initially obscure a respiratory focus if a thorough pulmonary exam is not performed. Previous literature has described atypical and less pronounced presentations of pneumonia among older adults, emphasizing the importance of maintaining a high index of suspicion in this population (Chong & Street, 2008; Faverio et al., 2014).

The objective findings of bilateral coarse crackles (rhonchi) and an initial oxygen saturation of 91% on room air strongly support a parenchymal lung infection causing a ventilation-perfusion mismatch. Pulse oximetry is an important component of the initial assessment of patients with suspected pneumonia because hypoxemia may be present even when respiratory manifestations are not prominent (Mandell et al., 2007). In patients with hypoxemia, supplemental oxygen should be administered and subsequently titrated according to oxygen saturation and clinical status (PDPI, 2022; O'Driscoll et al., 2017). In this case, the initial SpO_2 of 91% therefore provided a clear indication for oxygen supplementation and close monitoring.

The application of the CURB-65 risk stratification tool is highly valuable in a primary care setting. For this patient, the score was calculated as 1 point based solely on age (≥65 years), assuming stable mental status, blood pressure, and respiratory rate below the critical threshold of 30 breaths/min. A CURB-65 score of 1 indicates a relatively low-to-moderate risk group, validating the clinical decision that the patient is suitable for management within a standard inpatient medical ward rather than requiring intensive care unit (ICU) admission, provided close monitoring is maintained. Current guidance emphasizes the importance of integrating severity scores with clinical judgment, oxygenation, comorbidities, physiological stability, and other indicators of clinical deterioration when determining the need for hospitalization or higher-level care (Metlay et al., 2019).

The pre-hospital administration of aspirin at the referral site required immediate screening with an EKG to rule out silent myocardial ischemia, a well-documented mimic and occasional complication of severe systemic infections in the elderly. Emergency management correctly prioritized oxygenation to reverse hypoxemia and conservative fluid resuscitation to address mild dehydration without overloading the aging cardiovascular system. Initial supportive management appropriately prioritized correction of hypoxemia with supplemental oxygen and cautious fluid administration in the setting of poor oral intake and possible dehydration. Intravenous fluid therapy should be individualized according to the patient's fluid status, ongoing losses, cardiovascular and renal condition, and response to treatment. This consideration is particularly relevant in older adults, who may require more conservative maintenance volumes and closer monitoring to avoid fluid overload (National Institute for Health and Care Excellence [NICE], 2017). In this patient, the absence of significant renal dysfunction and the clinical evidence of reduced oral intake supported the use of carefully monitored crystalloid therapy.

Moving forward into ward management, the empirical choice of antibiotics should target the most common pathogens (such as *Streptococcus pneumoniae* and atypical agents). A combination of a second or third-generation cephalosporin (e.g., Ceftriaxone 1-2 g IV daily) combined with a macrolide (e.g., Azithromycin 500 mg PO daily) is strongly recommended by national and international thoracic societies to improve clinical clearance and reduce mortality in hospitalized CAP patients (Metlay et al., 2019).

Radiological confirmation via the posteroanterior chest radiograph demonstrated increased bronchovascular markings with bilateral perihilar and basal pneumonic infiltrates. This visual evidence strongly correlates with the physical findings of bilateral coarse crackles (rhonchi) upon auscultation, reinforcing the diagnosis of Community-Acquired Pneumonia (CAP) (Mandell et al., 2007; Metlay et al., 2019). The presence of multifocal bilateral infiltrates in a geriatric patient (66 years old) denotes a substantial infectious burden that demands immediate, empiric, broad-spectrum intravenous antimicrobial therapy, even though the patient's initial CURB-65 score was low.

Laboratorially, the systemic inflammatory response is characterized by mild leukocytosis (WBC: $12.03 \times 10^3/\mu L$) with a significant shift to the right, manifested as a neutrophil-predominant differential count of 73.4%. This hematological pattern heavily favors an acute bacterial etiology over atypical or viral pathogens. Furthermore, a random blood glucose level of 186 mg/dL in an elderly patient without a documented history of diabetes requires clinical vigilance.

The American Diabetes Association recommends obtaining an HbA1c measurement in hospitalized patients with diabetes or hyperglycemia when a recent result is unavailable, and HbA1c can help distinguish previously established dysglycemia from hyperglycemia occurring primarily during acute illness (American Diabetes Association Professional Practice Committee, 2024). Similarly, the Endocrine Society recommends assessment of HbA1c in hospitalized patients with newly recognized hyperglycemia when a recent measurement is unavailable (Umpierrez et al., 2012). While this likely represents transient stress-induced hyperglycemia secondary to severe acute respiratory tract inflammation, outpatient screening with a glycated

hemoglobin (HbA1c) test is highly recommended following discharge to rule out underlying, undiagnosed Type 2 Diabetes Mellitus, which could adversely affect long-term infection recovery.

Crucially, the preservation of baseline renal function, evidenced by a normal serum creatinine of 1.2 mg/dL, provides a distinct therapeutic advantage, allowing for full-dose empiric intravenous antibiotic treatment (such as Ceftriaxone) and adequate crystalloid fluid maintenance without the immediate necessity for emergency renal dose adjustments. Caution is advised when significant renal and hepatic dysfunction coexist (DailyMed, 2024).

CONCLUSION

This case underscores the utility of standardized clinical scoring tools in rural or primary healthcare facilities to determine the appropriate level of care. It implies that routine training in geriatric atypical presentations and rigid adherence to empirical antibiotic guidelines can significantly streamline care pathways for lower respiratory tract infections.

STRENGTHS AND LIMITATION

The primary strength of this report lies in its detailed, real-time documentation of the acute primary-care presentation and the immediate risk stratification applied in a low-resource setting. The main limitation is the absence of immediate, definitive radiological and laboratory confirmations at the exact moment of initial admission documentation, which temporarily limited the absolute confirmation of the infiltrative burden.

CONFLICT OF INTEREST

The authors declare that there are no financial or personal conflicts of interest regarding the publication of this case report.

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ETHICAL APPROVAL

Patient identity was heavily protected by omitting personal registration numbers and using clinical pseudonyms. Institutional clearance and informed verbal consent from the patient's family for the utilization of anonymized clinical data were secured prior to manuscript compilation

DECLARATION OF USING AI

The authors affirm that artificial intelligence (AI) tools were used to assist in the writing process solely for language enhancement purposes, such as grammar checking, paraphrasing, and improving clarity. No AI tools were employed to generate original content, conduct data analysis, or interpret research findings. The authors take full responsibility for the content, interpretations, and conclusions presented in this manuscript.

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