Case Report

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Triple Co-Infection with Influenza A, SARS-CoV-2, and Streptococcus Pneumoniae: A Case Report

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ABSTRACT

Background: Viral respiratory infections can predispose patients to secondary bacterial pneumonia. It is rare for an infection to occur concurrently with Influenza and SARS-CoV-2; adding Streptococcus pneumoniae is a rare but serious clinical entity that is associated with significant morbidity and mortality.

Case Presentation: A 58-year-old male patient, without significant comorbidities, presented with high-grade fever, productive cough, dyspnea, and altered sensorium in emergency department of Jinnah hospital, Lahore. RT-PCR performed on nasopharyngeal swabs showed positivity for Influenza A and SARS-CoV-2. Blood culture revealed the growth of Streptococcus pneumoniae. Chest imaging showed features of bilateral multilobar pneumonia. He received a therapeutic course of antivirals, broad-spectrum antibiotics, corticosteroids, and supportive care, culminating in clinical improvement.

Conclusion: This case highlights the consideration of bacterial co-infection in patients with dual viral respiratory infections and the need for early microbiological testing and appropriate, timely antimicrobial therapy. COVID-19, Influenza, Streptococcus pneumoniae, co-infection,

KEY WORDS: COVID-19, Influenza, Streptococcus pneumoniae, co-infection, pneumonia

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INTRODUCTION

Respiratory viral infections, particularly Influenza and SARS-CoV-2 (COVID-19), are leading causes of global morbidity. Both pathogens disrupt respiratory epithelial integrity and impair innate immune defenses to promote bacterial superinfection, in which Streptococcus pneumoniae is often involved.[1,2] Though well characterized with influenza, bacterial co-infections have been less frequently described with COVID-19. When they do occur, they portend poor clinical outcomes.[3] Triple co-infection between influenza, SARS-CoV-2, and S. pneumonia has rarely been documented.

Case Presentation

A 58-year-old male was admitted to the emergency department with a history of fever (up to 39.5 °C), productive cough, dyspnea, and confusion for 5 days. He denied recent travel or contact with known tuberculosis exposure. Immunization history was negative for influenza and pneumococcal vaccines. On examination, the patient presented with fever, tachycardia (112 beats/min), hypotension (90/60 mmHg), tachypnea (28 breaths/minute), and hypoxemia (SpO_2 86% on room air). Bilateral coarse crepitations were heard on auscultation. Laboratory examination showed leukocytosis (18×10^9/L) with neutrophilia, elevated C-reactive protein (186 mg/L), and elevated procalcitonin (8.2 ng/mL). The nasopharyngeal swabs were positive for SARS-CoV-2 and Influenza A by RT-PCR. The blood cultures grew Streptococcus pneumoniae, which was susceptible to both penicillin and ceftriaxone. Chest radiography revealed bilateral patchy consolidations. High-resolution CT showed multi-lobar ground-glass opacities with superimposed dense consolidations. Management comprised oseltamivir, remdesivir, intravenous ceftriaxone, azithromycin, dexamethasone, and supplemental oxygen. The patient responded slowly and was discharged after 14 days with complete resolution of symptoms.

DISCUSSION

Co-infection with Influenza and S. pneumoniae is well established, often culminating in serious pneumonia and sepsis.[4] SARS-CoV-2 exaggerates this relationship by promoting immune dysregulation, endothelial injury, and cytokine release.[5] The combination of dual viral infection with pneumococcal bacteremia significantly increases disease severity and the risk of death. Early detection of co-infections by multiplex PCR and blood cultures is imperative. It would be reasonable to consider empirical antibacterial treatment in severe viral pneumonia, especially when there is a significant rise in inflammatory markers.[6] Immunization against influenza and pneumococcus remains a crucial precautionary measure, particularly in the COVID-19 era.[7]

CONCLUSION

This case also points to the clinical relevance of triple

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respiratory pathogen co-infection. Severe influenza and COVID-19 should raise a high index of suspicion for bacterial super infection among clinicians. Early diagnosis and aggressive intervention are lifesaving.

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Authors' Contributions:

TM: Conceptualization & study design.

ZA: Data Collection an manuscript drafting& proofreading.

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