International Journal Dental and Medical Sciences Research
Volume 7, Issue 2, Mar - Apr 2025 pp 155-158 www.ijdmsrjournal.com ISSN: 2582-6018

Atypical Presentation of Atypical Pneumonia

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Date of Submission: 10-03-2025 Date of Acceptance: 20-03-2025

I. INTRODUCTION

Atypical pneumonia has been thought to account for 7-20% of community acquired pneumonia. The atypical presentation of the same can lead to misdiagnosis of the underlying condition, hence delaying the treatment thus increasing the morbidity and mortality.

Therefore recognition of varieties of atypical presentation of pneumonia helps us to reach the accurate diagnosis at the early stage thus prompting for early treatment.

CASE 1:

75 years old female, known case of systemic hypertension, beedi roller by occupation with history of biomass exposure but without history of any substance abuse presented to the emergency department with acute onset left side chest pain, radiating to the back associated with multiple episodes of vomiting and on and off low back ache since one day.

It is to be noted that the patient had no fever or constitutional symptoms, no autonomic symptoms, no cough/expectoration or dysnea.

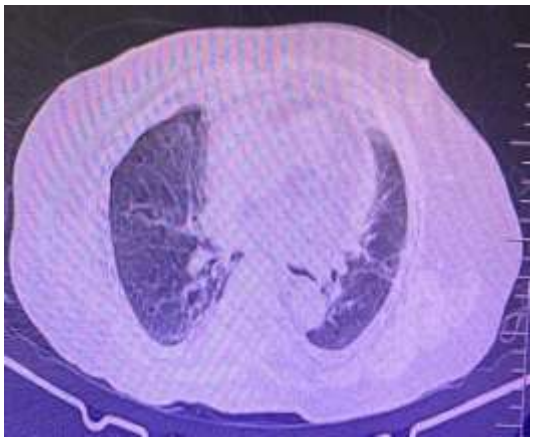
On arrival, vitals were stable. Auscultation of the chest revealed bilateral basal fine crepitations.

Cardiac evaluation(ECG, 2D ECHO, cardiac biomarkers), Serum amylase lipase(ruled out acute pancreatitis) and Chest xray were within normal limits. Xray L-S spine showed minimal osteoporotic changes.

Blood investigations revealed elevated total counts(15,000) with neutrophilic predominance, raised ESR (57) and elevated serum creatinine. Patient was started on Piperacillin – Tazobactam after sending for blood culture.

The very next day patient was shifted to MICU in view of sudden desaturation and was started on oxygen and ionotropic support. In view of sudden desaturation, HRCT thorax was immediately done which revealed minimal pericardial effusion, subpleural atelectatic bands in basal segments of bilateral lower zones suggestive of atypical pneumonia. Blood culture showed no growth. In view of financial constraints, Influenza panel could not be sent. Sputum analysis could not be done as the patient did not have any symptom of cough / expectoration. However in view of clinical deterioration, antibiotics were hiked up to Meropenem and Teicoplanin and empirically started on oseltamivir and steroids.

Within the next 24hrs patient improved. Total counts came down to 6000, with creatinine coming down to normal at the time of discharge giving us the diagnosis of atypical pneumonia with renal AKI (USG abdomen pelvis showed increased renal echotexture.)



CASE 2

52 years old male with no prior comorbidities, with habit of regular tobacco chewing and occasional alcohol consumption presented to the emergency department with severe low back ache, acute severe upper abdominal pain along with multiple episodes of loose stools, since one day.

It is to be noted that there was no history of fever or constitutional symptoms, no complaints of cough / expectoration or dysnea.

On arrival, vitals were stable. Examination revealed bilateral fine basal crepitations with reduced breath sounds over left more than right lung fields. Epigastric tenderness with guarding and rigidity present and bowel sounds were sluggish.

Cardiac evaluation (ECG, 2DECHO, cardiac biomarkers) were normal. Total counts were normal however neutrophilic predominance with raised ESR was noted. Serum amylase and

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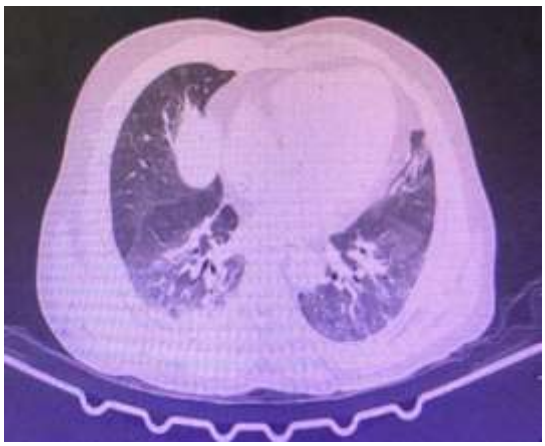
lipase(ruled outpancreatitis), serum calcium and urine analysis were normal. Chest xray was normal.

CECT thorax abdomen was done which revealed patchy consolidation with ground glass opacities in basal segments of both lobes with abdomen imaging being completely normal.

Within few hours patient was shifted to MICU in view of desaturation. Blood culture showed no growth, and again due to financial constraints Influenza panel could not be sent for. Patient was empirically started on Cefaperazone sulbactum and oseltamivir. Patient eventually improved in 24-48 hours and was discharged.



II. DISCUSSION

Pneumonia is a lower respiratory tract infection, specifically involving the pulmonary parenchyma. Viruses, fungi, and bacteria can cause pneumonia. The severity of pneumonia can range from mild to life-threatening, with uncomplicated disease resolving with outpatient antibiotics and complicated cases progressing to septic shock, acute respiratory distress syndrome (ARDS) and death. It affects all age groups, accounts for over 2 million emergency visits annually, and is a leading cause of mortality in both adults and children. Atypical micro-organisms are known to cause a disproportionate disease burden in children and adolescents. Atypical organisms are difficult to culture. They present subacutely and with progressive constitutional symptoms. While streptococcus pneumonia accounts for about 70% of cases, the rest are caused by atypical organisms.

Atypical bacterial pneumonia is caused by atypical organisms that are difficult to detect on Gram stain and difficult to culture using standard methods. The most common organisms are Mycoplasma pneumoniae, Chlamydophila pneumoniae, and Legionella pneumophila. Atypical bacterial pneumonia generally is characterised by a symptom complex that includes headache, low-grade fever, cough, and malaise. Constitutional symptoms often predominate over respiratory findings. Although in most cases presentation can be in the milder spectrum of community-acquired pneumonia, some cases, especially if caused by L pneumophila, may present as severe pneumonia, necessitating intensive care unit admission. Other possible pathogens
include otherChlamydophila species, Legionella sp ecies, Coxiella burnetii (Q fever), and respiratory viruses.

Mycoplasma pneumoniae is responsible for the vast majority of atypical respiratory infections. However, only about 10% of patients who acquire mycoplasma will develop pneumonia. Mycoplasma pneumoniae infection tends to be more common with advancing age, especially the elderly. The infection can occur all year round and outbreaks in small communities is common (Eg schools, homes). The organism is transmitted from person to person and the infection usually spreads slowly. Once the organism is acquired, the symptoms may take 4-20 days to appear and include malaise, cough, myalgia and sore throat. The cough is often dry and worse at night. Most cases of Mycoplasma pneumoniae infection are mild and resolve on their own. Mycoplasma can also cause a variety of extrapulmonary symptoms like erythema nodosum, urticaria, erythema multiforme, aseptic meningitis, Guillain Barre syndrome, and cerebral ataxia. Individuals with preexisting lung disease may develop empyema, pneumothorax or even respiratory distress syndrome.

Chlamydia pneumoniae is also a common cause of infection of the lung. The organism is acquired after inhalation of contaminated aerosolized droplets. However, the incubation period is long and symptoms are usually mild. chlamydia pneumoniae infection is most common in elderly people. The infection presents with a sore throat, cough and a headache that can last for many weeks or months. The chest x-ray may show a mild infiltrative process. Death is rare but can occur in patients with comorbidities.

Legionella pneumoniae is the most pathogenic of the atypical bacteria that cause lung infection. Several serotypes exist and infection tends to occur in close quarters. Spread from other humans is rare; most cases are due to inhalation of the pathogen from water systems like humidors, whirlpools, respiratory therapy equipment, water faucets, and air conditioners. Places for water stagnates allows for the organism to proliferate.

Individuals at risk for legionella may have diabetes, malignancy, renal or liver failure and may have had recent plumbing done in the home. Once acquired, the patient may present with altered mental status, cough, fever, and respiratory distress. At least 20-40% of patients develop diarrhea. Blood work may reveal leukocytosis and the sputum gram stain may show accumulation of inflammatory cells without any organism. Of the atypical organisms, legionella has a severe course and the illness can quickly become severe if not treated promptly. While extra pulmonary symtoms are rare, many patients develop severe respiratory distress often requiring mechanical ventilation.

When the inoculating organisms overwhelm the host defenses, it causes a proliferation of the infectious agent. The pathogen replicating initiates the host immune response, and further inflammation, alveolar irritation, and impairment occur. This leads to the following signs and symptoms; cough, sputum production, dyspnea, tachypnea, and hypoxia. Atypical infections result in less lobar consolidation. Therefore, patients do not usually appear toxic; hence the common term "walking pneumonia."

Atypical organisms are an inclusive term for organisms difficult to culture and not apparent on gram stain. Given their intracellular nature, they are difficult to isolate and often challenging to treat because antibiotics must be able to penetrate intracellularly to reach their intended target. They are also grouped based on their subacute presentation and similar constitutional symptoms.

In a nontoxic-appearing patient, especially in the outpatient setting, a high clinical suspicion is all that is needed to pursue empiric treatment. In ill-appearing individuals or patients in whom the diagnosis is uncertain, a chest x-ray is the diagnostic gold standard. Lab work often complements and further serves to help risk-stratify individuals and direct treatment. Decision-making is only supplemented by lab studies. Some providers may check a complete blood count to test for leukocytosis and a left-shift, or complete a pro-calcitonin test to help differentiate viral versus bacterial etiology. Patients who are admitted to the hospital have urinary antigen tests and viral PCRs, allowing for detection of legionella, chlamydia, and mycoplasma. When patients appear toxic, it is also important to obtain blood cultures and sputum cultures, if possible, to help with antimicrobial stewardship and the de-escalation of antibiotics.

Classic imaging findings in atypical pneumonia include patchy infiltrates, sometimes bilateral in distribution, and interstitial patterns. They are less commonly associated with lobar consolidations and complicated parenchymal findings such as empyema and ARDS.

In the above presented two cases, both patients had a few common presenting symptoms like severe chest or abdominal pain and low back ache. It is to be highlighted that none of them presented with any history of fever or any constitutional symptoms, cough/ expectoration or dysnea.The investigations which could help us to pin point the exact pathogen could not be done here due to financial constraints. HRCT or CECT imaging modalities highlighted the basal atelectasis and the patchy ground glass opacities in the lower lung areas, pointing towards atypical pneumonia. Based on the clinical response to the treatment, antibiotics were optimized with added antivirals, with which patients drastically improved.

Hence identification of the atypical symptoms of atypical pneumonia, thus helping us to proceed with appropriate diagnostic(imaging) test, despite of patients financial constraints, with appropriate and prompt initial treatment was the key step to this favourable outcome.

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