

NAVIGATING COMPLEXITIES: A CASE STUDY ON ASPIRATION PNEUMONITIS AND SEPTIC SHOCK IN A CRITICALLY ILL PATIENT

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ABSTRACT

The 63-year-old male patient's clinical course is given in this case study. The patient initially appeared with altered sensorium, dyspnea, decreased appetite, and decreased urine output. Physical examination revealed enlarged kidneys and mild hepatomegaly accompanied by hematological abnormalities including severe anemia, leukocytosis, thrombocytopenia, and coagulopathy. Arterial blood gas analysis revealed metabolic alkalosis, while microscopic examination showed microcytic hypochromic red blood cells and neutrophilic leukocytosis. Following assessment, the patient required intubation due to respiratory distress. Despite intensive care management, the patient deteriorated rapidly, eventually succumbing to aspiration pneumonia complicated by septic shock. This case highlights the challenges in managing critically ill patients with multiple organ involvement, emphasizing the importance of early recognition and intervention in cases of aspiration events to mitigate the risk of severe complications such as septic shock. Furthermore, it underscores the need for comprehensive care strategies tailored to address both the underlying pathology and associated systemic consequences in similar clinical scenarios.

KEYWORDS: Altered sensorium, Aspiration pneumonia, Septic shock, Multiple organ involvement, Respiratory distress.

INTRODUCTION-

Septic shock-complicated pneumonia is linked to a high rate of morbidity and death. With an estimated 423,000 ER visits annually and 15.9 fatalities per 100,000 people in the USA, it is a major cause of hospitalization and mortality (1-2).

Aspiration pneumonia is an infectious lung disease that develops when oropharyngeal fluids containing a high concentration of bacteria enter the lower respiratory system. Particulate particles, stomach material, or oropharyngeal secretions may be present in the aspirated fluid. This problem mainly affects the elderly and carries a high risk of morbidity and death, especially in those with learning difficulties and gastrointestinal (GI) or neurological disorders that increase the likelihood of incorrect swallowing. There is no exact description for aspiration pneumonia, which can occur in both community-acquired and healthcare-associated types.

According to a recent assessment of Japanese clinical practice standards, patients with documented dysphagia, obvious aspiration, or a clinical condition strongly linked to aspiration or dysphagia are diagnosed with aspiration pneumonia if lung inflammation is present. Aspiration

pneumonia is caused by pathogenic germs growing and invading the pulmonary parenchyma from the inhaled fluid. On the other hand, aspiration pneumonia is a non-infectious chemical lung injury brought on by breathing in sterile fluid or stomach contents, even if it also occurs after an aspiration incident. To achieve an accurate diagnosis and prevent complications, healthcare providers need to be on the lookout for signs of aspiration pneumonia in sensitive patients. But there isn't much thorough advice on this topic in the literature that is currently available. Aspiration pneumonia is still difficult to diagnose, particularly when there have been several microaspirations.

Aspiration pneumonia empiric therapy has developed, emphasizing the necessity of training clinical professionals on the illness's common symptoms, diagnostic procedures, and available treatments.

CASE REPORT

Patient aged 63 year, male was admitted in saraimi hospital for 3 hour with complaint of respiratory distress, altered sensorium and decrease urine output then patient referred to ELMCH. There was history of taking of psychiatric medications clonafit 0.5 mg after which he developed altered sensorium. Then the patient came to Era's lucknow medical college and

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hospital with complaint of pain abdomen since 4 days, breathlessness, altered sensorium since 3 days, loss of appetite since 3 days and decrease urine output since 2 days. Patient died due to aspiration pneumonitis and septic shock.

DISCUSSION

Aspiration pneumonitis occurs when a foreign substance is inhaled into the lungs, triggering inflammation and potentially leading to pneumonia. When aspiration pneumonitis progresses, it may result in septic shock, a potentially fatal illness in which the body's reaction to an infection causes organ failure and dangerously low blood pressure.

Managing these conditions involves addressing the underlying cause, administering antibiotics, and providing supportive care such as fluid resuscitation and mechanical ventilation. Additionally, close monitoring and timely intervention are crucial to improve outcomes, given the complex nature of both conditions. Clinical complexities associated are (1) Respiratory Complications: Acute respiratory distress syndrome (ARDS), pneumonia, and respiratory failure can result from aspiration pneumonitis, impairing oxygen exchange in the lungs and making breathing difficult. (2) Septic Shock: Septic shock can result in multiple organ dysfunction syndrome (MODS), affecting the function of vital organs such as the heart, kidneys, and liver. This can lead to organ failure and death if not promptly treated. Long-Term Complications is that survivors of aspiration pneumonitis and septic shock may experience long-term complications such as lung damage, cognitive impairment, physical weakness, and psychological distress (3). Increased Mortality Risk: Both conditions carry a high mortality risk, especially if not recognized and managed promptly. Septic shock, in particular, has a mortality rate ranging from 20% to 50%, depending on various factors such as the underlying cause and the patient's overall health (4). Quality of Life Impact: Even if patients survive, they may face a reduced quality of life due to ongoing health issues, disabilities, and the psychological impact of their ordeal. No history of fever, chest pain, loss of weight, hemoptysis, anti-tubercular drug intake, tuberculosis contact, hypertension, thyroid, alcohol or tobacco intake. History of diabetes mellitus since 4 years for which he is still on medication. There was also history of smoking since 30 yr (10 cigarette per day). On examination breathlessness was present with a mmrc grade 4. Glasgow coma score was E1V1M1, Saturation of peripheral oxygen (Spo₂) was 88% (@15L O₂) via non-breathing mask, Pulse rate was

116/min, Respiratory rate was 28/min, Blood pressure was 84/54mmhg, Temperature was 98.6f and Breath sound was normal vesicular breath sound along with bilateral crepts. Post intubation vitals were as followed, Spo₂ was 97% (@vc 100/7/30/400), Pulse rate was 146/min, Respiratory rate was 32/min, Blood pressure was 148/74mmhg (@noradrenaline 1ml/hr), Breath sound was normal vesicular breath sound along with bilateral crepts. Hematological tests were done and findings includes, Hemoglobin(HGB) 2.7 gm/dl, Total leucocyte count(WBC) 16400 cells/cum, Red blood cells(RBC) count 1.04 m/mm, Hematocrit(HCT) 10.0%, Mean corpuscular volume(MCV) 96.1 fl and Platelet(PLT) was found to be 1.5 lakh. Prothrombin time(PT) was 27.6 sec and INR was 2.44. Serum sodium(Na⁺) was 139 mmol/l, Potassium(K⁺) was 3.4 mmol/l, PH was 7.527, Po₂ was 74.8 mmol/l, Lactate was 1.2 mmol/l and Bicarbonate(HCO₃⁻) level was 33.0 mmol/l. General blood picture reveals that RBCs smear shows reduced red cell density with anisopoikilocytosis with predominantly microcytic hypochromic cells. Few toxic granules along with mild shift to left was also seen. WBCs series shows neutrophilic leucocytosis. Platelet count was adequate (1.5 lakh) on smear. No abnormal cells or hemoparasite was found. Erythropoietin (EPO) level was done but it was found to be low. When the blood oxygen is low, kidney cells release EPO, which is helpful in determining the cause of anemia. Also, change in red blood cells will affect the release of EPO, that is low RBC leads to high EPO, but in this case despite of low RBC, EPO level is less because in renal pathology very less erythropoietin is produced by kidney. The hematological findings in this case indicate a critically ill patient with severe anemia, evident by a markedly low hemoglobin level and hematocrit, suggesting impaired oxygen-carrying capacity. Concurrently, leukocytosis points towards an inflammatory response, possibly due to infection or tissue injury. Although the platelet count falls within the normal range, the presence of coagulopathy, as indicated by prolonged prothrombin time and elevated INR, highlights potential bleeding risks. Arterial blood gas analysis reveals metabolic alkalosis, suggesting a compensatory response to underlying metabolic disturbances. Microcytic hypochromic red blood cells imply chronic blood loss or iron deficiency anemia. Neutrophilic leukocytosis further underscores the acute inflammatory state. Ultrasound whole abdomen indicates slightly echogenic bilateral kidneys along with mild hepatomegaly. Cause of death was aspiration pneumonitis with septic shock.

CONCLUSION

This case underscores the urgency of early recognition and intervention in managing patients presenting with aspiration pneumonitis, as evidenced by the rapid deterioration and eventual fatal outcome despite intensive care management. The complexity of addressing multiple organ involvement highlights the need for tailored care strategies addressing both the underlying pathology and systemic consequences. Moving forward, continued research and education are imperative to enhance clinical practices and improve outcomes for critically ill patients facing similar challenges. These findings emphasize the complexity of the patient's condition and underscore the need for comprehensive management addressing both the underlying pathology and associated hematological abnormalities to optimize patient outcomes.

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