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When Malaria Takes Your Breath Away; The Deadly Link to Pulmonary Edema

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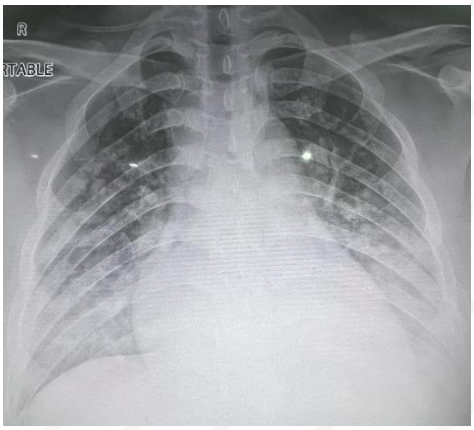
Introduction

Malaria remains a diagnostic challenge in non-endemic settings, complicating its management. Severe falciparum malaria (SFM) carries high mortality and fluid administration is vital to correct dehydration, improve organ perfusion and tackle hyperlactatemia. Without proper hemodynamic assessment, fluid administration may lead to complications, with the most severe respiratory manifestations being acute respiratory distress syndrome (ARDS) and pulmonary edema.

Case Description



This is a case of 23-year-old male with no known medical illness with a history of employment in a durian orchard in Raub presented to Emergency Department with one week history of fever, cough, and lethargy. He was normotensive but tachycardic and febrile (38.9°C). Lung auscultation was initially unremarkable. Blood gas analysis showed mild lactic acidosis (pH 7.312, lactate 3.2mmol/L). He received oral paracetamol and intravenous fluid bolus of 1L (15mls/kg). Subsequently, he developed dyspnea with respiratory rate of 32. Lung auscultation revealed crepitations up to mid zones bilaterally. NIV was initiated and he was admitted to ICU with a diagnosis of severe malaria with multiorgan involvement. His oxygen requirements were gradually reduced, and he was transferred to the general ward. BFMP result revealed Plasmodium Falciparum with an asexual parasitemia of 640/µL.

Discussion

Malaria is still an endemic infection especially in East Malaysia and some parts of West Malaysia, particularly Pahang. Lung involvement in SFM can range from mild respiratory symptoms to life-threatening pulmonary edema, the most severe manifestation. This complication, usually rare, is well documented and attributed to microvascular dysfunction resulting from the sequestration of red blood cells due to the parasites according to Thomas et. al[1]. Liberal fluid use should be avoided in patients with severe malaria as shown on the PRISM trial as it does little to reverse renal function and lactate level while exacerbating the pulmonary complications[2]. In patients with respiratory complications, both invasive and non-invasive ventilation may be started. However, despite ICU care and ventilatory support, these cases often carry a high mortality risk.

Conclusion

Judicious fluid use in severe malaria should be initiated, and point care ultrasound can be used to evaluate and assess patient's hemodynamic status. Care must be undertaken to avoid further aggravating the patient's lung.

Keywords: Malaria, Fluid use

References

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