

Septicaemia and Severe Malaria: A Case Report of Coinfection in a Splenectomised Beta Thalassaemia Major Patient

Chin Wen Mei^{1*}, Idris Siti Nur Izzati², Zulbadrisham Nur Hazwani¹

¹*Microbiology Unit, Department of Pathology, Hospital Queen Elizabeth, Ministry of Health Malaysia*

²*Department of Transfusion Medicine, Hospital Queen Elizabeth, Ministry of Health Malaysia*

*Corresponding author's email: wenmeichin@gmail.com

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Abstract: *Staphylococcus aureus* (SA) is a common cause of life-threatening sepsis, with hospital mortality rates ranging from 15% to 40%. This bacterium has a propensity for metastatic infection. Once detected, the focus of investigations often shifts to ruling out deep-seated infections. Co-infections are rarely suspected once SA is identified. Here, we present a rare case where SA septicaemia caused a delay in diagnosing a coexisting malaria infection. A 24-year-old gentleman with underlying transfusion-dependent beta thalassaemia major, who had undergone splenectomy, presented with fever for two days and hypotension. Rapid tests of Dengue NS-1, IgM and IgG, Leptospirosis IgM and blood film for malaria parasite were negative. A blood culture and sensitivity test revealed methicillin-sensitive *Staphylococcus aureus* (MSSA), and he was treated for septic shock secondary to MSSA bacteraemia. Despite being started on cloxacillin, his condition deteriorated. There was a substantial drop in haemoglobin, a peripheral blood film, intended to rule out acute haemolysis, identified malaria. A blood film for the malaria parasite, revealed hyperparasitaemia of *Plasmodium knowlesi* (PK). Despite the immediate initiation of artesunate and subsequent clearance of the parasite from the blood, he succumbed to cardiogenic shock secondary to cardiac failure. PK causes a spectrum of conditions in humans ranging from asymptomatic to life-threatening severe disease. Co-existent malaria and bacteraemia are uncommon. Among gram-positive bacteria co-infections, SA is the most common infecting agent. Septicaemia and severe malaria share similarities in the challenging diagnosis of co-infection. There are two possible routes of malaria transmission for this patient: via vector or through blood transfusion. Despite no evidence of malaria infection among donors, the possibility of transfusion-transmitted malaria cannot be excluded. In malaria-endemic areas like Sabah, physicians should strongly suspect a potential co-infection of malaria and bacteraemia especially in patients with beta thalassaemia major who have a higher risk of contracting malaria.

Keywords: Co-infection, Malaria, *Plasmodium knowlesi*, *Staphylococcus aureus*, Beta thalassaemia Major