

The Double Burden Unveiled: When Dengue Meets Malaria Co-Infection In The Heart Of Kapit District, Sarawak, Malaysia

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Introduction

Malaria and dengue are mosquito-borne infections that carry a high morbidity and mortality rates, commonly seen in endemic regions such as Southeast Asian countries. However, co-infection with both diseases in a single patient is extremely rare and likely under-reported, as they are transmitted by distinct mosquito species. Hence, effective clinical reasoning and judgment are crucial in managing such complex cases.

Case Presentation

- A 57-year-old Iban woman presented with a 4-days history of fever, generalized myalgia, arthralgia, and poor appetite. Her blood film for malaria parasites (BFMP) confirmed the presence of *Plasmodium knowlesi* trophozoites. (Figure A)
- Laboratory results revealed leukopenia and thrombocytopenia. Interestingly, she hailed from a dengue-endemic area, and her husband, who exhibited similar symptoms, was diagnosed with dengue on the same day.
- The constellation of clinical history, symptoms, and laboratory parameters heightened suspicion for dengue fever, prompting further diagnostic testing. She tested positive for the non-structural protein 1 (NS1) antigen on Day 4 of illness. Hence, a diagnosis of malaria-dengue co-infection was made. The patient was commenced on antimalarial therapy and dengue fluid management following national protocols.
- On Day 7 of illness, her dengue serology showed positive for both dengue immunoglobulin M (IgM) and dengue immunoglobulin G (IgG), consistent with the recovery phase of dengue. The patient demonstrated clinical improvement and was discharged uneventfully.
- Dengue Multiplex qRT-PCR detected *Dengue virus serotype 4* whereas Malaria PCR detected *Plasmodium knowlesi*.

Full blood count on admission	Result		
Haemoglobin	15.0 g/dL	Absolute Neutrophil Count	2.5 x 10 ² /uL
White Blood Cell Count	3.7 x 10 ⁹ /L	Absolute Lymphocyte Count	1.1 x 10 ² /uL
Platelet Count	25 x 10 ⁹ /L	Hematocrit (%)	41.6%

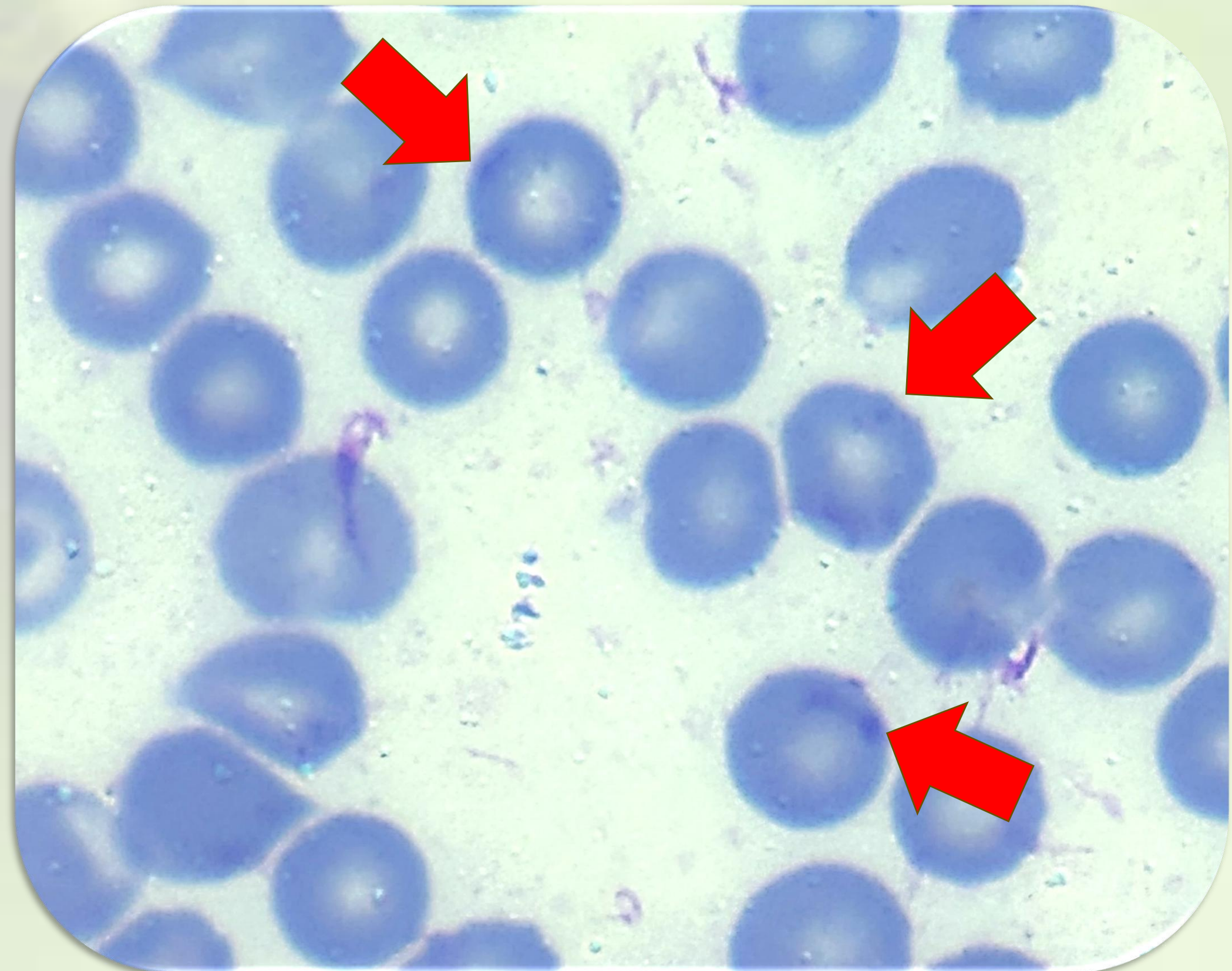


Figure A: BFMP taken on admission displayed *Plasmodium knowlesi* trophozoites (Red Arrows)

Discussion

- 1.) Dengue and malaria co-infection is uncommon and poses diagnostic challenges as the presenting symptoms often overlap.¹
- 2.) According to literature review, although malaria or dengue virus mono-infections can be severe, co-infections could be even more fatal.²
- 3.) Treatment of co-infection is more sophisticated than mono-infection.

Conclusion

Physicians should be aware that malaria and dengue co-infection is possible especially in endemic region. Early recognition and prompt treatment are essential to achieve favorable outcome.

References
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