

Case Report

A rare occurrence of complicated plasmodium vivax malaria in a 5-month-old infant

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ABSTRACT

Malaria is less frequently documented in infants under six months due to a focus on older populations in research. Despite protective maternal antibodies and fetal hemoglobin, infants in this age group remain susceptible to malaria. This case highlights the importance of recognizing and diagnosing malaria in this vulnerable population. Recognition and appropriate management are crucial to preventing severe complications and improving patient outcomes. It presents a diagnostic dilemma in infants under 6 months when distinguishing malaria from sepsis, as both conditions present with similar symptoms.

Keywords: Anemia, Complicated malaria, Diagnostic dilemma, Hepatosplenomegaly, Infant malaria, Plasmodium vivax

INTRODUCTION

Malaria remains a significant global health concern¹. It is transmitted through the bite of an infected *Anopheles* mosquito, with *Plasmodium falciparum* being the most common and virulent species.¹

While common in older children and adults, malaria is rarely reported in infants under six months, partly due to the passive protection from maternal antibodies and the presence of fetal hemoglobin.^{2,3} Several clinical and epidemiological studies have emphasized the limited prevalence in this age group.^{3,4}

This case report presents a rare instance of *Plasmodium vivax* malaria in a 5-month-old child, highlighting the diagnostic challenges and clinical management. By sharing this case, we aim to increase awareness and contribute to the limited literature.^{4,5} Distinguishing malaria from sepsis in this age group can be challenging due to overlapping clinical features, necessitating careful

clinical evaluation, laboratory testing consideration of exposure history.^{5,6}

CASE REPORT

A 5-month-old female child presented with complaints of fever for 1 month. Upon examination, the child was irritable, moderately built undernourished.

Abdominal examination revealed hepatosplenomegaly (liver 4 cm and spleen 7 cm below the costal margin). The birth, family, immunization developmental histories were unremarkable, although the child had a history of failure to thrive.

Peripheral smear detected all forms of *Plasmodium vivax* parasites with MI<1, malarial antigen test was positive. Hemoglobin was 5.1 g/dl, PCV 12.8%, WBC 0.45, platelets 44,000. CRP was 123 mg/l, ESR 72 mm/hr, G6PD normal, LFT within normal limits. Due to symptomatic anemia, PRBC transfusion was given. The

patient was treated with Artemether-Lumefantrine combination, followed by Primaquine prophylaxis.

Follow-up

The child showed clinical improvement after receiving antimalarial therapy and a transfusion. At 2-week follow-up, hepatosplenomegaly had regressed, hemoglobin improved to 9.8 g/dl weight gain was noted. The child remained afebrile and showed developmental progression appropriate for age.

DISCUSSION

The burden of malaria in children under five is extensively studied, but malaria in infants under six months remains poorly understood.^{2,3} Infants often present with atypical or subtle symptoms and lower parasitemia, which complicates diagnosis.^{4,6} Congenital or early infant malaria may manifest with non-specific signs like fever, anemia hepatosplenomegaly. In many cases, it mimics sepsis, creating a diagnostic dilemma.^{5,6} This is especially true for *P. vivax*, which is understudied compared to *P. falciparum*.^{3,4} Protective factors in infancy include maternal IgG transferred via the placenta, breast milk factors (e.g., lactoferrin, secretory IgA), low para-aminobenzoic acid in milk high fetal hemoglobin that inhibits parasite replication.^{3,4}

However, these protections are not absolute. Our case confirms that *P. vivax* can cause significant illness in young infants, including severe anemia and hepatosplenomegaly. Therapeutic guidelines lack robust data for infants <6 months. Most ACT regimens, including artemether-lumefantrine, are extrapolated from older age groups. Evidence suggests lower plasma concentrations in this age group; however, the WHO still recommends standard weight-based dosing for infants, with close monitoring.^{1,3}

There is concern about using primaquine in infants under six months, but recent recommendations suggest careful administration post-G6PD testing.⁴ Splitting adult formulations for infant dosing increases the risk of inaccurate dosing, pediatric formulations are preferable when available.³

Final diagnosis

Complicated *Plasmodium vivax* malaria with severe anemia and hepatosplenomegaly.

CONCLUSION

This case reinforces the critical importance of maintaining a high index of suspicion for malaria in

febrile infants under six months, particularly in endemic regions. Timely recognition, comprehensive diagnostic evaluation appropriate antimalarial therapy are crucial in preventing life-threatening complications.

Clinicians should not overlook malaria in this age group due to its perceived rarity, as delayed diagnosis can lead to severe complications. They must include it as a differential diagnosis alongside sepsis in infants presenting with prolonged fever, hepatosplenomegaly or unexplained anemia. This case also highlights the urgent need for more inclusive research and pediatric-specific treatment guidelines to ensure optimal care for this vulnerable population.

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