World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(CASE REPORT)

Postpartum severe malaria in Tanzania; outcomes of gaps in antenatal screening and prevention: A Case Report

John Deogratias Tilubuzya Lawi [1,*], Alfred Mwakalebela Laison [1], Metranus Asifiwe Rwabina [2], Nashiru Bakari Mzengo [2], Noel Sostenes Mapunda [2] and Richard Isack Tengeneza [2]

[1] *Department of Obstetrics and Gynaecology, Iringa Regional Referral Hospital, Tanzania.*
[2] *School of Medicine and Dentistry, Department of Obstetrics and Gynaecology, University of Dodoma, Tanzania.*

World Journal of Advanced Research and Reviews, 2026, 31(01), 590–594

Publication history: Received on 30 May 2026; revised on 06 July 2026; accepted on 08 July 2026

Article DOI: https://doi.org/10.30574/wjarr.2026.31.1.1854

Abstract

Background: Malaria in pregnancy exposes both the woman and the foetus to a high risk of morbidity and mortality. Good antenatal care services can prevent malaria in pregnancy, but inappropriate ones like late booking and incomplete uptake of malaria preventive interventions, such as Intermittent Preventive Treatment for malaria in pregnancy with sulphadoxine–pyrimethamine (IPTp-SP), are common in many countries with ongoing efforts to prevent malaria in pregnancy and increase the risk of severe infection. Most infections may be asymptomatic during pregnancy and only become symptomatic after delivery when they pose a life-threatening risk.

Case presentation: A 22-year-old woman was admitted two days after giving birth presenting with fever, jaundice, haemodynamic instability, heavy parasitaemia (850 trophozoites per 200 white blood cells), and pancytopaenia. She had attended antenatal care only once at 31 weeks of gestation and had received a single dose of IPTp-SP prophylaxis for malaria. She was managed with intravenous artesunate, broad-spectrum antibiotics, and blood transfusion. The patient was treatment-responsive with parasite clearance, and clinical symptoms as well as haematological recovery were achieved within seven days of treatment. She remained symptom-free during the follow-up period.

Conclusion: The antenatal malarial preventive measures which include antenatal screening and intake of Intermittent Preventive Treatment for malaria in pregnancy with sulphadoxine–pyrimethamine (IPTp-SP), must be strengthened to avert severe postpartum malaria and its associated maternal and perinatal morbidity and mortality.

Keywords: Postpartum Malaria; Severe Malaria; Pancytopaenia; Antenatal Care; Plasmodium Falciparum.

1. Introduction

Antenatal care is one of the steps to improving maternal health outcomes. There are inequities in the African region between the number of women who attend initial antenatal contacts and those who complete the recommended antenatal contacts and intermittent preventive treatment regimens. These missed opportunities for prophylactic intermittent preventive treatment for malaria regimens increase maternal risk to severe Plasmodium falciparum malaria and adverse obstetric outcomes [1,2]. The recommended strategy in preventing malaria among pregnant women is still intermittent preventive treatment with sulfadoxine–pyrimethamine; however, its efficacy is increasingly threatened by widespread Plasmodium resistance, posing a significant obstacle in malaria control in endemic regions [3]. The antenatal care contacts in themselves are not likely to have a significant impact on pregnancy outcomes. Hence, the focus on improving the delivery of adequate antenatal care services, including essential packages, has a direct impact on maternal and foetal morbidity and mortality [4].

* Corresponding author: John Deogratias Tilubuzya Lawi

Postpartum malaria cases have been reported in areas where the first malaria screening during ANC fails to detect subclinical malaria parasitaemia, leading to a delayed diagnosis and, therefore, manifestation of severe malaria diseases at delivery [5]. The global prevalence of postpartum malaria is estimated to be highly variable, typically between 15–30% for most endemic sub-Saharan regions [6,2]. Consequently, postpartum malaria remains an under-recognizable cause of maternal and perinatal morbidity. This, therefore, underscores the need to clear reservoir malaria parasites during the antenatal period and promote diagnostic surveillance at a critical immunological transition state of pregnancy to puerperium [2]. In sub-Saharan Africa, the prevalence of postpartum malaria is influenced by socio-economic factors such as educational level, household income, and the efficacy of antenatal preventive measures for malaria in pregnancy [6].

Maternal mortality secondary to puerperal malaria is often associated with severe systemic infections. Postpartum severity is believed to result from both an overactive maternal immune response against high-density parasites and an ineffective immune response to clear sequestered placental infections during pregnancy. Typical presenting features include high fever, marked parasitemia, anaemia, and sometimes pancytopaenia. For these reasons, in all settings where there is risk of rapid progression of postpartum malaria to severe disease in non-immune or semi-immune individuals, neurological symptoms, jaundice, acute kidney injury, or respiratory distress syndrome should be considered as clinical indicators that require immediate diagnostic confirmation and parenteral artesunate to save the mother's life [5,10].

Severe postpartum malaria is one cause of maternal death or near miss in high malaria-endemic areas such as Tanzania [11]. Its maternal and newborn morbidities include low birth weight, severe maternal anaemia, and pancytopaenia [12]. Acute hemodynamic decompensation, exacerbated by pre-existing nutritional deficiencies and malarial haemolysis, significantly increases the risk of multi-organ failure [13]. However, clinical results as severe as those for postpartum malaria are still associated with delayed care-seeking behavior since, mainly due to socioeconomic constraints and limited awareness of the importance of postpartum screening for malaria, most women with malaria do not seek care promptly [14]. This critical intersection between failed prophylactic coverage and the subsequent high-risk presentation of pregnancy-associated malaria is known to cause severe maternal anaemia and exacerbate risks for both mother and neonate [15].

2. Case Presentation

A 22-year-old married woman, para 2 living 1 (P2L1), was referred to our hospital for the care of her newborn, who had been severely asphyxiated at birth following a vaginal delivery at a primary health facility. Two days postpartum in the ward caring for her newborn, she developed a high-grade intermittent fever with associated symptoms of headache, dizziness, general body weakness, chills, joint pains, loss of appetite, nausea, and vomiting of everything taken orally. She had eventful antenatal care by being a late booker at 31 weeks of gestation and having only one antenatal contact throughout the pregnancy. All screening tests for syphilis, malaria, HIV infection, urinalysis, and hepatitis B during booking were negative. Her booking blood pressure was 113/67 mmHg with a hemoglobin level of 11.3 g/dL. She received one dose of intermittent preventive treatment with sulfadoxine-pyrimethamine, iron and folic acid supplementation, one dose of tetanus toxoid vaccine, and deworming medication. On examination, she was acutely ill, conscious, with marked conjunctival pallor, and scleral jaundice and febrile, with a temperature of 38.7°C. Her other vital signs were as follows: pulse rate 106 beats per minute, respiratory rate 20 breaths per minute, and blood pressure 95/37 mmHg (mean arterial pressure of 56 mmHg). The calculated shock index was 1.1. She had dark brown urine on catheterization. Systemic examination was essentially not contributory. Her laboratory investigations showed a complete blood count picture of severe pancytopaenia: white blood cell count 2.03×10^9/L, neutrophil count 1.38×10^9/L, lymphocyte count 0.47×10^9/L, platelet count 19×10^9/L, red blood cell count 2.01×10^{12}/L, hemoglobin concentration 5.4 g/dL, and red cell distribution width elevated at 15.7%. The malaria rapid diagnostic test was positive. Peripheral blood smear for malaria parasite microscopy showed heavy parasitaemia: 850 trophozoites per 200 white blood cells. This confirmed severe Falciparum malaria. Hepatitis screening was negative. Renal function tests, liver enzymes, electrolytes, and urinalysis were normal. We made a diagnosis of severe malaria with haemolytic anaemia and pancytopaenia. The patient was started on intravenous artesunate, according to the national guidelines on treatment of severe malaria; broad-spectrum intravenous antibiotics were also initiated. Packed red blood cells, platelet concentrates, and fresh-frozen plasma were transfused supportively. There was clinical and laboratory improvement shortly after initiation of therapy. Within 24 hours, repeat blood smear examination showed a marked reduction in parasite density from 850 trophozoites per 200 white blood cells to 53 trophozoites per 200 white blood cells. The intravenous artesunate was continued until complete parasite clearance was achieved. In the next few days, the patient showed continuous improvement, the fever went down, and he got his appetite back. The urine output also became normal, and the dark color of urine disappeared. A repeated complete blood count which was performed after 7 days of the initiation of the treatment revealed that the WBC, Hb, and platelets counts have normalized. On full clinical recovery,

the patient was discharged in stable condition with weekly follow-up visits. Subsequent follow-up until the end of the puerperium showed no symptoms and a good recovery.

3. Discussion

Our case shows the vital role of good antenatal care in the active prevention of *Plasmodium falciparum* malaria throughout pregnancy and the reduction of risks for progression to postpartum severe malaria. On the other hand, poor antenatal care and gaps in the implementation of antenatal screening and uptake of malaria prevention strategies may contribute to postpartum severe *Plasmodium falciparum* infection among women in sub-Saharan Africa [1,2].

The patient had a single late antenatal booking at 31 weeks' gestation, so she missed the opportunity for effective screening and prevention of malaria. This is in deviation from a single contact with the recommendations of the World Health Organization (WHO) and the Tanzanian National Malaria Control Programme, which advocates early antenatal booking and administration of IPTp-SP at each scheduled antenatal visit in the second and third trimesters with a minimum of three doses where transmission is moderate to high [16-18]. Tanzania has seen a decline in malaria prevalence during pregnancy to approximately 6.7%, but it still leaves an estimated 1.7 million women at risk, mostly in areas where there is intense transmission. This is to emphasize the need for the health systems to sustain the delivery of good ANC as the primary way to protect pregnant women from malaria and prevent the subsequent progression to postpartum severe malaria due to sub-patent and untreated placental infections [18,19].

The patient's single dose of IPTp-SP is a testament to the persistent challenge in this region, where there is a substantial gap between the initiation of antenatal care by a woman and completion of the recommended regimen for malaria prevention [1]. In this case, the initiation of antenatal care at 31 weeks gestation further increased the susceptibility of the pregnant woman to malaria since the infection might have occurred before the commencement of IPTp-SP during the second trimester [6,2]. Early gestational infections acquired can persist as subclinical reservoirs within the placenta and manifest as severe disease postpartum [7,2].

Pregnancy-associated immune modulation and placental parasite sequestration play a role in setting the stage for rapid evolution from subclinical infection to life-threatening peripartum malaria, as in our case [9,8]. Chondroitin sulfate A-mediated placental sequestration contributes to the major component of the inflammatory and hemozoin-associated pathology, which worsens maternal anaemia and systemic disease [5,11,8]. The severe anaemia and thrombocytopenia observed in our case illustrate the haematological severity of falciparum malaria, in which rapid haemolysis can lead to hemodynamic instability and shock [13]. The occurrence of severe pancytopaenia in our case would represent extensive hematopoietic impairment and splenic sequestration rather than isolated anaemia and thrombocytopenia, typical of severe falciparum malaria [11,8]. The marked parasitemia (850 trophozoites per 200 WBC) confirms the strong association between parasite burden and severe systemic complications, including impending multi-organ failure [12,13].

Prompt treatment with intravenous artesunate and blood product replacement in our case was in line with evidence-based management of severe malaria in pregnancy. Early and timely treatment with parenteral artesunate is important since it reduces hyperparasitaemia, organ dysfunction, and death from severe falciparum malaria and has a significant impact on enhancing recovery in severe malaria [21]. The marked reduction in parasite burden observed within 24 hours and complete recovery within seven days underscore the efficacy of prompt antimalarial therapy, while blood transfusion support was essential in reversing severe haematological and haemodynamic derangements [22].

These results among women suffering from severe malaria in the postpartum period indicate the necessity to increase the application of malaria preventive coverage strategies to improve maternal and obstetric outcomes. Antenatal care utilization gaps and low intermittent preventive treatment in pregnancy with sulfadoxine–pyrimethamine (IPTp-SP) uptake persist as major factors associated with malaria-related maternal morbidity from severe anaemia and puerperal sepsis [23]. Socioeconomic disparities limit the effect of malaria control measures; complete coverage of IPTp-SP and better engagement with antenatal care will reduce placental malaria and severe maternal outcomes [24]. Our reported case emphasizes the need for increased clinical suspicion of malaria in febrile, puerperal women with haematologic anomalies, even when antenatal screening was negative [23].

4. Conclusion

The favorable outcome of early and effective artesunate-based therapy and transfusion support re-emphasizes the importance of timely diagnosis, appropriate management, and intensified antenatal malaria prevention strategies. Our

case report demonstrates how inadequate antenatal care and incomplete IPTp-SP coverage can lead to severe postpartum falciparum malaria, negative antenatal screening notwithstanding, thus underscoring the need for postpartum screening and rescreening for malaria in pregnant women in malaria-endemic areas with inadequate antenatal screening and uptake of preventive treatment for malaria.

Compliance with ethical standards

Acknowledgments

Special thanks to all authors and Iringa Regional Referral Hospital for their cooperation in managing our patients and contribution to writing and reviewing the final manuscript.

Disclosure of conflict of interest

Authors declare no conflict of interest

Statement of informed consent

Informed consent was obtained from an individual participant included in the study and patient understands that her names and initials will not be published, and her identity will be concealed.

References

[1] Berry E. Factors that affect the use of intermittent preventive treatment of malaria in pregnant women in the African region: literature review. 2017

[2] Walker PG, Cairns M, Slater H, Gutman J, Kayentao K, Williams JE, Coulibaly SO, Khairallah C, Taylor S, Meshnick SR, and Hill J. Modelling the incremental benefit of introducing malaria screening strategies to antenatal care in Africa. Nature Communications, 30 July 2020, 11, 3799.

[3] Madanitsa M, Kalilani L, Mwapasa V, van Eijk AM, Khairallah C, Ali D, Pace C, Smedley J, Thwai KL, Levitt B, and Wang D. Scheduled intermittent screening with rapid diagnostic tests and treatment with dihydroartemisinin-piperaquine versus intermittent preventive therapy with sulfadoxine- pyrimethamine for malaria in pregnancy in Malawi: an open-label randomized controlled trial. PLoS medicine (2016) Madanitsa et al. 2016

[4] Ntegwa MJ, Pelizzo R. Estimating the impact of prenatal health care services on adverse pregnancy outcomes in Tanzania: a propensity score matching approach. Frontiers in Global Women's Health. 2025 Jul 22;6:1589721.

[5] Mace KE. Malaria surveillance United States, 2015. MMWR. Surveillance Summaries. 2018;67.

[6] Abdalla EA, Eltayeb WA, Abdalla LA. Prevalence and possible risk factors of malaria among pregnant women attending to antenatal care at Umtalha Health Centre in Gezira State-Sudan 2017.

[7] Gill J, Anvikar AR. New Strides in Prevention of Malaria during Pregnancy Present Multitudinous Opportunities. ACS Infectious Diseases. 2024 Oct 15;10(11):3721-35.

[8] Ruizendaal E, Schallig HD, Bradley J, Traore-Coulibaly M, Lompo P, d'Alessandro U, Scott S, Njie F, Zango SH, Sawadogo O, and de Jong MD. Interleukin-10 and soluble tumor necrosis factor receptor II are potential biomarkers of Plasmodium falciparum infections in pregnant women: a case-control study from Nanoro, Burkina Faso. Biomarker research. 2017 Dec 13;5(1):34.

[9] Al Khaja KA, Sequeira RP. Drug treatment and prevention of malaria in pregnancy: a critical review of the guidelines. Malaria journal. 2021 Jan 23;20(1):62.

[10] Mace KE, Arguin PM, Lucchi NW, Tan KR. May 2019. Morbidity and Mortality Weekly Report (MMWR): Surveillance Summaries. Vol. 68. No. SS-5.

[11] Mikomangwa WP, Minzi O, Mutagonda R, Baraka V, Mlugu EM, Aklillu E, Kamuhabwa AA. Effect of sulfadoxine-pyrimethamine doses for prevention of malaria during pregnancy in hypoendemic area in Tanzania. Malar J. 2020 Apr 19;19(1):160.

[12] Berhe AD, Doritchamou JY, Duffy PE. Malaria in pregnancy: adverse pregnancy outcomes and the future of prevention. Front Trop Dis. 2023 Aug 14;4:1229735.

[13] Chen I, Clarke SE, Gosling R, Hamainza B, Killeen G, Magill A, O'Meara W, Price RN, Riley EM. "Asymptomatic" malaria: a chronic and debilitating infection that should be treated. PLoS Med. 2016 Jan 19;13(1):e1001942.

[14] Musibau Ayoade Titiloye MA, Evangeline Anuli Onuosa EA, Oyedunni Sola Arulogun OS. Malaria prevention practices among pregnant women resident in two Nigeria army barracks, Ibadan, South Western, Nigeria 2017.

[15] Ifeanyichukwu MO, Okamgba OC, Amilo GI, Nwokorie EA. Peripheral parasitaemia and its association with plasma cytokines levels in malaria-infected pregnant women in Aba, Abia State, Nigeria. African Journal of Infectious Diseases. 2017;11(2):54-61.

[16] World Health Organization. World Malaria Report 2012. Geneva: World Health Organization,2012. Available at: https://www.who.int/publications/i/item/9789241564560

[17] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. Geneva: World Health Organization, 2016. Available from: https://www.who.int/publications/i/item/9789241549912.

[18] Tanzania National Malaria Control Programme. 2014. Available from: https://www.nmcp.go.tz.

[19] Tanzania National Malaria Control Programme. 2018. Available from: https://www.nmcp.go.tz.

[20] Beeson JG, Simpson JA. The potential benefit of scaling up malaria prevention to reduce low birth weight in Africa. PLoS Medicine. 2017 Feb 28;14(2):e1002244.

[21] World Health Organization. Guidelines for the treatment of malaria. World Health Organization; 2015 Aug 13.

[22] White NJ. Anaemia and malaria. Malaria journal. 2018 Oct 19;17(1):371.

[23] World Health Organization. Updated WHO policy recommendation: intermittent preventive treatment of malaria in pregnancy using sulfadoxine–pyrimethamine (IPTp-SP). WHO; 2012.

[24] Rogerson SJ, Hviid L, Duffy PE, Leke RF, Taylor DW. Malaria in pregnancy: pathogenesis and immunity. The Lancet infectious diseases. 2007 Feb 1;7(2):105-17.