

MIDWIFERY CARE MANAGEMENT FOR A NEONATE WITH CONGENITAL MALARIA AT PMB NIAR, MEDAN AMPLAS DISTRICT, 2026

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ABSTRACT

Background: Congenital malaria is a rare neonatal infection caused by vertical transmission of Plasmodium parasites from mother to fetus during pregnancy or delivery. The disease remains a significant health problem in malaria-endemic countries because its clinical manifestations often resemble neonatal sepsis, resulting in delayed diagnosis and treatment. Early detection and comprehensive management are essential to prevent severe complications and improve neonatal outcomes. According to the World Health Organization, (2024), malaria continues to contribute substantially to maternal and neonatal morbidity worldwide. **Objective:** This case report aimed to describe the implementation of comprehensive midwifery care management for a neonate with congenital malaria at PMB Niar, Medan Amplas District, in 2026. **Methods:** This study employed a descriptive case report design using a Continuity of Care approach. Data were collected through interviews, observation, physical examination, review of medical records, and laboratory findings. Midwifery care was provided using Varney's Seven Steps of Midwifery Management and documented through the SOAP method. **Results:** A male neonate aged seven days presented with fever, lethargy, decreased breastfeeding frequency, mild jaundice, and reduced activity. Maternal history revealed recurrent fever during pregnancy, suggesting possible transplacental transmission of malaria parasites. Laboratory examination confirmed Plasmodium vivax infection. Midwifery interventions included comprehensive neonatal assessment, monitoring of vital signs, breastfeeding support, maternal education regarding neonatal danger signs, infection prevention measures, collaborative management with physicians, and regular follow-up visits. The neonate showed progressive clinical improvement characterized by normalization of body temperature, increased feeding frequency, and improved activity. **Conclusion:** Comprehensive midwifery care through a Continuity of Care approach contributed to the early identification, monitoring, and successful management of congenital malaria. Collaboration among midwives, physicians, and family members played an important role in improving neonatal health outcomes and preventing complications.

Keywords: Congenital Malaria, Neonate, Midwifery Care, Continuity Of Care, Case Report.

INTRODUCTION

Malaria remains one of the most significant infectious diseases worldwide and continues to pose a major public health challenge, particularly in tropical and subtropical countries. According to the World Health Organization (WHO), approximately 263 million malaria cases and 597,000 malaria-related deaths were reported globally in 2023. The burden of malaria remains highest among vulnerable populations, including pregnant women, infants, and children, due to their increased susceptibility to infection and complications (World Health Organization, 2024).

In Indonesia, malaria continues to be an important health problem despite ongoing prevention and control efforts. Although several provinces have successfully reduced malaria transmission, cases are still reported in endemic areas. Malaria during pregnancy is particularly concerning because it not only affects maternal health but also contributes to adverse fetal and neonatal outcomes. Maternal malaria infection has been associated with maternal anemia, placental insufficiency, spontaneous abortion, intrauterine growth restriction, preterm birth, low birth weight, and neonatal morbidity and mortality (World Health Organization, 2023). One of the neonatal complications associated with maternal malaria infection is congenital malaria. Congenital malaria is defined as malaria infection transmitted from mother to fetus through the placenta during pregnancy or during the delivery process. Although considered relatively uncommon, congenital malaria remains clinically important because its manifestations are often nonspecific and resemble neonatal sepsis, leading to delayed diagnosis and treatment (Uneke, 2011). The actual incidence of congenital malaria may be underestimated due to difficulties in diagnosis and the overlap of symptoms with other neonatal infectious diseases.

The pathophysiology of congenital malaria is closely related to placental malaria. During pregnancy, *Plasmodium*-infected erythrocytes may accumulate within placental tissues and interfere with normal placental function. This condition increases the possibility of parasite transmission into fetal circulation. Placental malaria has been identified as a major risk factor for congenital malaria and is associated with adverse neonatal outcomes, including anemia, jaundice, hepatosplenomegaly, feeding difficulties, and low birth weight (Menendez et al., 2021).

Clinical manifestations of congenital malaria generally appear during the first days or weeks of life. Common symptoms include fever, lethargy, irritability, poor feeding, jaundice, anemia, vomiting, hepatomegaly, splenomegaly, and failure to thrive. Because these symptoms are similar to those observed in neonatal sepsis, healthcare providers should maintain a high level of suspicion when evaluating neonates born to mothers with a history of malaria infection or febrile illness during pregnancy (World Health Organization, 2023). Laboratory confirmation through peripheral blood smear examination or rapid diagnostic testing remains essential for establishing the diagnosis.

The management of congenital malaria requires comprehensive and multidisciplinary care. Midwives play a crucial role in identifying maternal risk factors, assessing neonatal conditions, providing health education, supporting breastfeeding, monitoring treatment progress, and facilitating collaboration with physicians. Comprehensive midwifery care contributes significantly to early detection and prevention of complications among neonates with infectious diseases. Therefore, strengthening the role of midwives in neonatal care is essential for improving health outcomes.

The Continuity of Care (CoC) approach is one of the fundamental concepts in midwifery practice that ensures continuous and comprehensive care from pregnancy through childbirth, postpartum, and neonatal periods. This approach enables healthcare providers to identify complications early, provide timely interventions, and monitor patient progress effectively. A study conducted by Zai et al. (2025) at STIKes Mitra Husada Medan reported that the implementation of Continuity of Care improved the quality of maternal and neonatal services through systematic assessment and continuous monitoring. Similarly, Barus et al. (2025) found that comprehensive midwifery care facilitated early identification of complications and improved health outcomes among mothers and newborns.

Furthermore, Siregar et al. (2025) emphasized that Continuity of Care strengthens communication between healthcare providers and families, increases maternal knowledge, and promotes adherence to healthcare recommendations. Family involvement is particularly important in neonatal care because parents are responsible for recognizing danger signs and seeking healthcare services when needed. Therefore, the Continuity of Care model provides an effective framework for managing neonatal health problems, including congenital malaria. In the present case, a seven-day-old neonate presented with fever, lethargy, decreased breastfeeding frequency, mild jaundice, and reduced activity. Maternal history revealed recurrent fever during pregnancy, suggesting possible transplacental transmission of malaria parasites. Laboratory examination confirmed *Plasmodium vivax* infection, supporting the diagnosis of congenital malaria. Considering the potential severity of congenital malaria and the importance of early intervention, comprehensive midwifery management was implemented through a Continuity of Care approach.

Therefore, this case report aimed to describe the implementation of comprehensive midwifery care management for a neonate with congenital malaria at PMB Niar, Medan Amplas District, in 2026. The findings are expected to contribute to evidence-based midwifery practice, improve healthcare providers' awareness regarding congenital malaria, and support the development of effective strategies for preventing neonatal complications associated with malaria infection.

METHOD

This study employed a descriptive case report design using a Continuity of Care (CoC) approach. The case report method was selected to provide a comprehensive description of midwifery care management for a neonate diagnosed with congenital malaria, including assessment, diagnosis, intervention, implementation, and evaluation of care. The Continuity of Care approach enabled continuous monitoring and management of the neonate's condition from the initial assessment until clinical improvement was achieved.

The subject of this case report was a seven-day-old male neonate diagnosed with congenital malaria who received care at PMB Niar, Medan Amplas District, in 2026. The inclusion criteria included a neonate aged less than 28 days with confirmed congenital malaria based on laboratory examination and maternal history suggestive of malaria infection during pregnancy. Exclusion criteria included incomplete medical records and refusal of parental consent.

Data collection was conducted using both primary and secondary data sources. Primary data were obtained through interviews with the mother and family members, direct observation, physical examination, and monitoring of the neonate's condition. Secondary data were obtained from maternal and neonatal medical records, laboratory examination results, maternal health records, and supporting healthcare documentation.

The assessment process was carried out according to Varney's Seven Steps of Midwifery Management, which include data collection, identification of actual diagnoses and problems, identification of potential problems, identification of immediate needs, planning of care, implementation of interventions, and evaluation of outcomes (Varney, 2022). Documentation of care was completed using the Subjective, Objective, Assessment, and Plan (SOAP) format to ensure systematic recording and continuity of care.

Subjective data included maternal health history, pregnancy history, history of fever during pregnancy, delivery history, breastfeeding patterns, neonatal sleeping patterns, elimination patterns, and maternal observations regarding the infant's condition. Objective data included measurements of body temperature, heart rate, respiratory rate, body weight, skin color, neonatal reflexes, activity level, hydration status, and physical examination findings. Laboratory examination results confirming *Plasmodium vivax* infection were also reviewed as supporting diagnostic evidence.

The primary variable observed in this case report was the implementation of comprehensive midwifery care management for congenital malaria. Evaluation indicators included improvement in neonatal clinical condition, stabilization of vital signs, normalization of body temperature, improvement in breastfeeding frequency, increased neonatal activity, reduction of jaundice, parental understanding of neonatal danger signs, and adherence to treatment recommendations.

Midwifery interventions included comprehensive neonatal assessment, monitoring of vital signs, promotion and support of exclusive breastfeeding, maintenance of hydration and thermoregulation, maternal education regarding neonatal danger signs, counseling on infection prevention and mosquito control measures, collaboration with physicians for antimalarial treatment, and regular follow-up visits to monitor neonatal recovery. Family participation was encouraged throughout the care process to improve treatment adherence and support optimal health outcomes.

Data analysis was performed descriptively by comparing clinical findings with existing theories, current guidelines, and previous studies related to congenital malaria and neonatal care. The interpretation focused on evaluating the effectiveness of midwifery interventions and the contribution of the Continuity of Care approach in improving neonatal health outcomes.

Ethical principles were maintained throughout the study. Informed consent was obtained from the neonate's parents prior to data collection. Confidentiality and anonymity were preserved by excluding personal identifiers from the report. This case report was conducted in accordance with ethical standards for health research and professional midwifery practice.

RESULTS

A seven-day-old male neonate was brought by his mother to PMB Niar, Medan Amplas District, in March 2026 with complaints of fever, decreased breastfeeding frequency, lethargy, and reduced activity. The mother reported that the baby had become increasingly sleepy, difficult to awaken for feeding, and less responsive compared to previous days. The symptoms had been observed for approximately two days prior to presentation.

The neonate was born at 39 weeks of gestation through spontaneous vaginal delivery. The birth weight was 3,100 grams, body length was 49 cm, and Apgar scores were 8 and 9 at the first and fifth minutes, respectively. No birth trauma or congenital abnormalities were identified at delivery.

Maternal history revealed recurrent episodes of fever accompanied by chills during the third trimester of pregnancy. The mother reported that she had not undergone specific malaria screening during antenatal care visits. This history raised suspicion of possible transplacental transmission of malaria parasites, which was later supported by laboratory findings in the neonate.

Subjective Findings

Information obtained from the mother included:

- The baby had experienced fever for two days.
- Breastfeeding frequency had decreased.
- The baby appeared lethargic and slept more frequently.
- Crying activity was reduced.
- Mild yellow discoloration of the skin was observed.
- The baby was difficult to awaken for feeding.

The mother expressed concern regarding the infant's decreased activity and poor feeding behavior.

Objective Findings

Physical examination was performed comprehensively upon admission.

Table 1. Physical Examination Findings

Variable	Findings
Age	7 days
Sex	Male
Body Weight	3,000 g
Body Length	49 cm
Temperature	38.2°C
Heart Rate	148 beats/minute
Respiratory Rate	46 breaths/minute
Skin Color	Mild jaundice
Activity	Decreased
Sucking Reflex	Weak
Moro Reflex	Present
Muscle Tone	Slightly decreased
Hydration Status	Adequate
Capillary Refill Time	< 3 seconds
Hepatomegaly	Mild
Splenomegaly	Mild

The neonate appeared lethargic with decreased spontaneous movement. Mild pallor and jaundice were observed. No signs of severe respiratory distress, cyanosis, seizures, or severe dehydration were noted during the examination.

Laboratory Findings

Further investigations were conducted through collaborative referral services.

Table 2. Laboratory Examination Results

Examination	Result
Hemoglobin	11.2 g/dL
Hematocrit	34%
Leukocyte Count	10,500/mm ³
Platelet Count	140,000/mm ³
Rapid Diagnostic Test (RDT)	Positive
Peripheral Blood Smear	Plasmodium vivax detected

The positive rapid diagnostic test and peripheral blood smear confirmed malaria infection caused by *Plasmodium vivax*. Considering the onset of symptoms during the first week of life and the maternal history of febrile illness during pregnancy, the diagnosis was consistent with congenital malaria.

Midwifery Diagnosis

Based on subjective data, objective findings, and laboratory examination results, the midwifery diagnosis was established as:

A seven-day-old neonate with congenital malaria characterized by fever, lethargy, decreased breastfeeding frequency, mild jaundice, weak sucking reflex, and laboratory-confirmed *Plasmodium vivax* infection.

Potential problems identified included:

- Risk of dehydration related to inadequate feeding.
- Risk of worsening anemia due to hemolysis.
- Risk of hypoglycemia caused by decreased nutritional intake.
- Risk of neonatal complications secondary to infection.
- Risk of impaired growth and development if the condition persisted.

Midwifery Care Management

Comprehensive midwifery care was implemented using the Continuity of Care approach and included:

1. Conducting a comprehensive neonatal assessment.
2. Monitoring body temperature, heart rate, respiratory rate, and general condition.
3. Assessing breastfeeding effectiveness and nutritional intake.
4. Providing breastfeeding support and counseling.
5. Educating the mother regarding neonatal danger signs.
6. Monitoring hydration status and elimination patterns.
7. Promoting environmental hygiene and mosquito control measures.
8. Collaborating with physicians regarding antimalarial therapy.
9. Conducting regular follow-up assessments to monitor recovery.

The mother was actively involved in the care process and received education regarding medication adherence, infection prevention, and appropriate neonatal care practices.

Evaluation of Care

Following collaborative treatment and continuous monitoring, gradual improvement in the neonate's condition was observed.

Table 3. Evaluation of Neonatal Progress

Clinical Indicator	Initial Assessment	Follow-Up Assessment
Body Temperature	38.2°C	36.8°C
Breastfeeding Frequency	Decreased	Adequate
Neonatal Activity	Lethargic	Active
Crying Response	Weak	Strong
Sucking Reflex	Weak	Improved
Jaundice	Mild	Reduced
General Condition	Fair	Improved

The neonate demonstrated a positive response to treatment and supportive care. Body temperature returned to normal limits, feeding behavior improved, activity levels increased, and signs of jaundice gradually decreased. The mother also demonstrated improved knowledge regarding neonatal danger signs, treatment adherence, infection prevention, and follow-up care requirements.

These findings indicate that comprehensive midwifery management combined with multidisciplinary collaboration contributed positively to the recovery and stabilization of the neonate with congenital malaria.

DISCUSSION

Congenital malaria is a rare but clinically significant neonatal infection caused by the vertical transmission of Plasmodium parasites from the mother to the fetus during pregnancy or at the time of delivery. Although the incidence of congenital malaria is lower than that of malaria in older children, this condition remains an important contributor to neonatal morbidity, particularly in malaria-endemic regions. The diagnosis is often challenging because its clinical manifestations closely resemble neonatal sepsis and other infectious diseases occurring during the neonatal period. Consequently, early recognition and comprehensive assessment are essential to prevent delayed treatment and adverse outcomes (World Health Organization, 2023).

In the present case, the neonate presented with fever, lethargy, decreased breastfeeding frequency, mild jaundice, and reduced activity. These findings are consistent with the common clinical manifestations of congenital malaria described in previous studies. Fever is one of the most frequently reported symptoms and occurs as a result of inflammatory responses triggered by the destruction of parasitized erythrocytes. The release of malaria antigens and inflammatory mediators into circulation stimulates the hypothalamic thermoregulatory center, resulting in elevated body temperature. Similar findings have been reported in several studies indicating that fever is often the initial symptom leading families to seek healthcare services. The maternal history obtained in this case revealed recurrent episodes of fever during pregnancy. This finding is particularly important because maternal malaria infection is the primary risk factor for congenital malaria. Malaria parasites may accumulate within placental

tissues and interfere with placental circulation, a condition known as placental malaria. Through this mechanism, infected erythrocytes can cross the placental barrier and enter fetal circulation, resulting in congenital infection. Therefore, comprehensive antenatal assessment and early treatment of malaria during pregnancy play a crucial role in preventing neonatal complications.

The occurrence of lethargy and decreased breastfeeding frequency observed in this neonate can be explained by the pathophysiology of malaria infection. Destruction of erythrocytes reduces oxygen delivery to body tissues and contributes to metabolic disturbances. As a result, affected neonates frequently demonstrate weakness, excessive sleepiness, poor feeding behavior, and decreased activity. These symptoms should not be underestimated because prolonged feeding difficulties may lead to dehydration, hypoglycemia, nutritional deficiencies, and delayed recovery. Therefore, continuous monitoring of feeding effectiveness is a fundamental component of neonatal care.

Mild jaundice was also observed during the physical examination. This finding is consistent with the hemolytic process associated with malaria infection. Destruction of parasitized red blood cells increases bilirubin production, which may contribute to neonatal jaundice. Although the jaundice observed in this case remained mild, close monitoring was necessary to prevent severe hyperbilirubinemia and potential neurological complications. The reduction of jaundice during follow-up assessments indicated that the interventions and collaborative management were effective in supporting recovery.

Laboratory examination played a critical role in establishing the diagnosis. The positive rapid diagnostic test and peripheral blood smear confirming *Plasmodium vivax* infection provided strong evidence supporting congenital malaria. Because the clinical manifestations of congenital malaria are often nonspecific, laboratory confirmation is essential for differentiating malaria from neonatal sepsis and other infectious conditions. Early confirmation of the diagnosis allows healthcare providers to initiate appropriate treatment promptly and reduce the risk of complications.

The findings of mild hepatomegaly and splenomegaly in this case are also consistent with the pathophysiological process of malaria infection. The liver and spleen function as major components of the reticuloendothelial system and play important roles in filtering parasitized erythrocytes. Increased destruction of infected red blood cells and activation of immune responses contribute to enlargement of these organs. Similar findings have frequently been reported among neonates diagnosed with congenital malaria.

Comprehensive midwifery care contributed significantly to the successful management of this case. The role of the midwife began with the identification of maternal risk factors, comprehensive neonatal assessment, recognition of danger signs, and facilitation of collaborative management. Continuous monitoring of temperature, respiratory rate, heart rate, feeding behavior, hydration status, and neonatal activity enabled early detection of changes in the infant's condition and supported timely intervention. These findings demonstrate the importance of systematic neonatal assessment in achieving positive clinical outcomes.

The implementation of the Continuity of Care (CoC) approach in this case was highly beneficial. Continuity of Care emphasizes continuous and comprehensive healthcare services from pregnancy through the postpartum and neonatal periods. Through this approach, healthcare providers can monitor maternal and neonatal conditions more effectively, identify risk factors earlier, and provide timely interventions. A study conducted by Zai et al. (2025) at STIKes Mitra Husada Medan reported that the implementation of Continuity of Care

improved the quality of maternal and neonatal monitoring and facilitated early identification of complications. The authors concluded that continuous assessment and follow-up contribute positively to health outcomes among mothers and infants.

The positive outcome observed in this neonate is also supported by findings reported by (Barus, 2025), who described the effectiveness of Continuity of Care in managing mothers with moderate anemia through continuous assessment, intervention, and evaluation. Their study demonstrated that regular monitoring enables healthcare providers to detect health problems early and implement appropriate management strategies. Although the clinical condition discussed in their study differed from congenital malaria, the underlying principle of continuous care remains applicable and reinforces the importance of comprehensive monitoring throughout the healthcare process.

EP Siregar, (2025) emphasized that Continuity of Care strengthens communication between healthcare providers and families, promotes maternal knowledge, and improves adherence to recommended healthcare interventions. In the present case, health education provided to the mother regarding neonatal danger signs, breastfeeding practices, medication adherence, and follow-up visits contributed significantly to the successful management of the neonate. Family participation enhanced the effectiveness of care because parents were able to recognize changes in the infant's condition and seek assistance when necessary.

Another important component of care was breastfeeding support. Breast milk provides optimal nutrition and immunological protection for newborns. During infectious illnesses, adequate breastfeeding helps maintain hydration, supports immune function, and promotes recovery. Counseling regarding breastfeeding techniques and feeding frequency encouraged the mother to continue providing breast milk despite the infant's illness. Similar findings regarding the importance of continuous education and breastfeeding support have been reported in Continuity of Care studies conducted at STIKes Mitra Husada Medan.

The successful management of this case further highlights the importance of multidisciplinary collaboration. Congenital malaria requires cooperation among midwives, physicians, laboratory personnel, and family members. Collaborative management ensured accurate diagnosis, timely pharmacological treatment, ongoing monitoring, and comprehensive family education. Such an approach is consistent with current recommendations emphasizing integrated maternal and neonatal healthcare services to improve patient outcomes.

From a public health perspective, this case emphasizes the importance of strengthening malaria prevention strategies during pregnancy. Antenatal screening, prompt diagnosis, effective treatment of maternal malaria, environmental sanitation, mosquito control programs, and maternal health education should be integrated into routine maternal healthcare services. Preventing maternal malaria not only protects maternal health but also reduces the risk of placental malaria, congenital infection, neonatal morbidity, and mortality.

One strength of this case report is the detailed application of the Continuity of Care approach, which enabled comprehensive assessment and monitoring throughout the management process. However, this report is limited by its single-case design and therefore cannot be generalized to all neonatal populations. Future studies involving larger sample sizes and multiple healthcare settings are recommended to strengthen the evidence regarding effective midwifery management of congenital malaria.

Overall, the findings of this case demonstrate that comprehensive midwifery care, early diagnosis, continuous monitoring, breastfeeding support, family education, and multidisciplinary collaboration contribute significantly to improving health outcomes among

neonates with congenital malaria. The Continuity of Care approach provides an effective framework for identifying complications early, ensuring treatment adherence, and promoting neonatal recovery while supporting the broader goals of maternal and child health services.

CONCLUSIONS

Congenital malaria is a rare but potentially serious neonatal infection caused by the vertical transmission of *Plasmodium* parasites from mother to fetus during pregnancy or delivery. In this case, a seven-day-old neonate presented with fever, lethargy, decreased breastfeeding frequency, mild jaundice, weak sucking reflex, and laboratory-confirmed *Plasmodium vivax* infection. Maternal history of recurrent fever during pregnancy further supported the diagnosis of congenital malaria and highlighted the importance of comprehensive maternal assessment during antenatal care.

The implementation of comprehensive midwifery care through the Continuity of Care approach enabled early identification of neonatal danger signs, continuous monitoring of clinical conditions, breastfeeding support, parental education, and multidisciplinary collaboration. These interventions contributed to significant clinical improvement, including normalization of body temperature, increased breastfeeding frequency, improved neonatal activity, reduction of jaundice, and overall stabilization of the infant's condition.

The findings of this case report demonstrate the essential role of midwives in the prevention, early detection, management, and follow-up care of neonates with congenital malaria. Continuous assessment and family-centered care facilitate timely intervention and improve treatment outcomes. Furthermore, collaboration between midwives, physicians, laboratory personnel, and family members is crucial for ensuring comprehensive and effective management of congenital malaria.

This case also emphasizes the importance of strengthening malaria prevention strategies during pregnancy through antenatal screening, maternal health education, early diagnosis, and prompt treatment of maternal malaria infection. Such interventions may reduce the risk of placental malaria and congenital transmission, thereby contributing to improved maternal and neonatal health outcomes.

Future studies involving larger populations and multiple healthcare settings are recommended to provide stronger evidence regarding effective midwifery management of congenital malaria and the application of Continuity of Care in neonatal healthcare services.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

Natalya Rut Naomi Nainggolan (NRNN): Conceptualization, investigation, data collection, patient assessment, data curation, methodology, formal analysis, validation, visualization, manuscript preparation, writing of original draft, and editing.

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