

Comprehensive Midwifery Care for a Postpartum Mother with Postpartum Hemorrhage (PPH) due to Retained Placenta: A Case Report

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Abstract

Introduction: Postpartum hemorrhage (PPH) remains the leading cause of maternal mortality. In Indonesia, the maternal mortality rate in 2023 was 189 per 100,000 live births, with hemorrhage as the dominant cause. Retained placenta is an important factor because it inhibits uterine contractions, especially in mothers aged ≥ 35 years, multiparous, anemic, and with chronic energy deficiency (CED). **Case description:** A 36-year-old multiparous woman (G4P3A0) with CED and mild anemia developed PPH after failure of placental delivery despite active management of the third stage. Estimated blood loss was ~ 1200 mL. Manual placental exploration, uterotonics, and fluid resuscitation were provided, followed by hospital referral. Ultrasound confirmed retained placental tissue, and curettage was performed. The patient stabilized after comprehensive treatment. **Discussion:** Older maternal age, multiparity, chronic energy deficiency (CED), and anemia contribute to impaired myometrial contractility and failure of placental separation. Chronic energy deficiency (CED) and anemia reduce energy reserves and the oxygen-carrying capacity of uterine tissues, thereby increasing the risk of retained placenta and Postpartum hemorrhage (PPH). **Conclusion:** Retained placenta and Postpartum hemorrhage (PPH) are closely associated with maternal risk factors, including age ≥ 35 years, multiparity, anemia, and chronic energy deficiency (CED). Early detection of risk factors during antenatal care, as well as immediate and coordinated management in the third stage of labor, are very important to reduce maternal morbidity and mortality.

Introduction

Postpartum hemorrhage (PPH) is one of the main causes of maternal morbidity and mortality worldwide. Globally, more than 14 million women experience PPH every year, and this condition accounts for more than 20% of maternal deaths, especially in developing countries with limited access to obstetric care services (WHO, 2023).

In Indonesia, Postpartum hemorrhage (PPH) remains a significant cause of maternal mortality. Based on the Indonesian Health Profile in 2023, the maternal mortality rate (MMR) was recorded at 189 per 100,000 live births, with 360 deaths caused by hemorrhage, making it the second largest direct cause after hypertension in pregnancy (Ministry of Health of the Republic of Indonesia, 2024).

Retained placenta is one of the important causes of Postpartum hemorrhage (PPH), with a contribution reaching 28% of postpartum hemorrhage cases. Several maternal factors, such as age ≥ 35 years, multiparity, anemia, and chronic energy deficiency (CED), are known to increase the risk of impaired uterine contractility and abnormal placental attachment (Widyaningsih et al., 2020); (Zuitasari, 2025).

This case report aims to describe the process of early detection of risk factors, initial management, stabilization, and referral in a case of Postpartum hemorrhage (PPH) due to retained placenta, and to emphasize the strategic role of midwives in reducing maternal morbidity and mortality.

Case Description

A 36-year-old woman, gravida 4 para 3 abortus 0 (G4P3A0), came to the Community Health Center with a gestational age of 38–39 weeks and signs of active first stage of labor. The patient had several obstetric risk factors, namely older maternal age, multiparity, chronic energy deficiency (CED), and mild anemia.

Maternal Nutritional and Anthropometric Status

At the first-trimester antenatal visit, anthropometric measurements were performed, which showed undernourishment. The patient's mid-upper arm circumference (MUAC) was recorded at 21.8 cm, below the normal limit of < 23.5 cm, and was categorized as chronic energy deficiency (CED). The patient's body weight at that time was 39 kg, with a height of 153 cm; the body mass index (BMI) was calculated at 16.66 kg/m², which is within the underweight category according to the WHO classification.

During pregnancy, the patient's body weight increased to 50 kg with a total weight gain of 11 kg; this increase was still slightly below the recommended weight gain for pregnant women with low BMI.

Laboratory Results Before Delivery

Laboratory examination in the first trimester showed the hemoglobin level was still within the normal range; however, as delivery approached, the hemoglobin decreased, indicating mild anemia. A summary of the laboratory examination results before delivery is presented in Table 1.

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Table 1
 Laboratory Examination Results Before Delivery

Parameter	Trimester I	At the Admission for Labor	Reference Value
Hemoglobin (Hb)	12.3 g/dL	10.5 g/dL	12.0–15.0 g/dL
Random Blood Glucose	118 mg/dL	–	< 200 mg/dL
HBsAg	Negative	–	Negative
HIV	Nonreactive	–	Nonreactive
Syphilis	Nonreactive	–	Nonreactive

The combination of MUAC <23.5 cm, BMI <18.5 kg/m², and a decrease in hemoglobin levels before delivery indicates that the patient had limited energy and hematological reserves, thereby increasing the risk of postpartum hemorrhage complications.

Labor occurred spontaneously, and the baby was born alive, weighing 3162 grams. Active management of the third stage of labor was performed with the administration of 10 IU of oxytocin intramuscularly and controlled cord traction. However, until 30 minutes after the birth of the baby, the placenta had not been delivered, and active bleeding of approximately ±1200 mL occurred.

Manual exploration of the placenta, administration of additional uterotonics, and fluid resuscitation were performed. The placenta was delivered incompletely with retained cotyledons, a diagnosis of Postpartum hemorrhage (PPH) due to retained placenta was established, and the patient was immediately referred to a regional referral hospital.

Laboratory Results After the Occurrence of Hemorrhage

Ultrasonography examination at the hospital showed retained placental tissue measuring 5.1 × 2.4 cm in the uterine cavity. Laboratory examination revealed moderate anemia accompanied by disturbances in protein and electrolyte balance, as shown in Table 2.

Table 2
 Laboratory Examination Results After the Occurrence of Postpartum Hemorrhage

Examination	Results	Adult Reference Value
Hematology		
Hemoglobin (Hb)	9.4 g/dL	12.8–15.6 g/dL
Hematocrit	28.1 %	36–45 %
Erythrocyte	3.25 ×10 ⁶ /μL	3.8–5.8 ×10 ⁶ /μL
Neutrophils	44.4 %	50–70 %
Lymphocytes	54.1 %	20–45 %
Monocytes	1.5 %	0–10 %
Hemostasis Function		
PT	10.6 seconds	9.3–11.4 seconds
APTT	25.9 seconds	24.5–32.4 seconds
INR	0.96	0,8–1,2
Clinic Chemistry		
Albumin	2.7 g/dL	3.5–5.0 g/dL
Potassium (K ⁺)	2.8 mmol/L	3.6–5.0 mmol/L

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These results showed moderate anemia, hypoalbuminemia, and mild hypokalemia, while the coagulation parameters were still within normal limits. These findings support the diagnosis of Hemorrhagic Post Partum due to retained placenta without accompanying disorders of the hemostatic system.

The patient then underwent curettage the following day. After fluid therapy, electrolyte correction, and intensive monitoring, the mother's condition improved. Follow-up laboratory examination showed an increase in hemoglobin levels to 11 g/dL, and potassium levels returned to normal (3.8 mmol/L). The mother was declared stable and discharged.

1. Discussion

This case illustrates the occurrence of Postpartum hemorrhage (PPH) due to retained placenta in a 36-year-old mother with risk factors of older maternal age, multiparity, chronic energy deficiency (CED), and anemia. The combination of these factors interacts with each other and contributes to impaired uterine contractility and failure of spontaneous placental separation after delivery.

Older Maternal Age and Multiparity as Risk Factors for Retained Placenta

Maternal age ≥ 35 years is associated with structural and functional changes in the uterus, including decreased myometrial elasticity and altered endometrial vascularization. Jauniaux et al. (2020) explain that in older mothers, the process of decidualization is often less optimal, so the placenta may implant more deeply and attach more firmly to the uterine wall. This condition makes the placenta more difficult to detach during the third stage of labor and increases the risk of retained placenta.

In addition to maternal age, multiparity is also an important risk factor. Repeated pregnancies can cause repeated stretching of the uterus, which, in the long term, reduces the strength and coordination of myometrial contractions. Ekka (2025) reported that multiparity significantly increases the risk of Postpartum hemorrhage (PPH), especially when accompanied by other risk factors such as anemia and impaired nutritional status. In this case, the multiparous status (G4P3A0) increased the probability of placental separation disorders and postpartum hemorrhage.

The Role of Chronic Energy Deficiency (CED) and Low BMI in Uterine Contractility

The maternal nutritional status in this case showed chronic energy deficiency, as evidenced by a MUAC of 21.8 cm (< 23.5 cm) and a BMI of 16.66 kg/m², which are included in the underweight category according to WHO. The condition of chronic energy deficiency reflects low energy and protein reserves, which directly affect smooth muscle function, including that of the myometrium.

Uterine contraction is an energy-intensive process that depends on the availability of glucose, fatty acids, and adequate oxygen. In mothers with chronic energy deficiency (CED), limited energy reserves lead to weak and ineffective myometrial contractions. Lestari and Hanum (2025) state that CED increases the risk of uterine atony because the uterine muscles do not have sufficient energy to maintain strong and sustained contractions. This finding is consistent with the case in which the uterus experienced difficulty in separating the placenta, although active management of the third stage of labor had been performed.

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Anemia as a Predisposing Factor for Postpartum Hemorrhage (PPH)

Anemia in pregnant and laboring mothers plays an important role in increasing the risk of Postpartum hemorrhage (PPH). In this case, the hemoglobin level decreased from 12.3 g/dL in the first trimester to 10.5 g/dL at admission for labor, which indicates mild anemia. This decrease was likely due to a combination of physiological hemodilution during pregnancy and inadequate nutritional status resulting from chronic energy deficiency (CED).

Physiologically, the increase in plasma volume during pregnancy is not proportionally balanced by an increase in erythrocyte mass; thus, hemoglobin levels relatively decrease (Obianeli et al., 2024). Anemia reduces the oxygen-carrying capacity to tissues, including the myometrium, and uterine contractions become less optimal. Zuitasari (2025) reported that mothers with anemia have a higher risk of experiencing Postpartum hemorrhage (PPH) compared with mothers without anemia, because impaired tissue oxygenation slows uterine involution and increases bleeding.

Mechanism of Retained Placenta and Postpartum Hemorrhage

Retained placenta in this case was most likely caused by a combination of impaired uterine contractility and stronger placental attachment to the uterine wall. According to Franke et al. (2021), failure of placental separation is often not caused solely by time, but by the inability of the uterus to contract effectively. When uterine contractions are weak, the venous sinuses at the placental implantation site remain open, therefore leading to continuous bleeding.

In this case, although active management of the third stage of labor was performed according to the guidelines, the placenta was not delivered within 30 minutes, and approximately ± 1200 mL of active bleeding occurred. This condition met the criteria for retained placenta and Postpartum hemorrhage (PPH); therefore, manual removal of the placenta (MROP) was an appropriate and life-saving intervention, as recommended by WHO (2023) and Perlman and Carusi (2022).

Interpretation of Laboratory Results After Hemorrhage

Laboratory results after the occurrence of hemorrhage showed moderate anemia (Hb 9.4 g/dL), hypoalbuminemia, and mild hypokalemia, with coagulation parameters still within normal limits. Anemia and decreased hematocrit reflect acute blood loss due to Postpartum hemorrhage (PPH). Hypoalbuminemia was likely caused by plasma loss during hemorrhage as well as the hemodilution effect due to the administration of large volumes of crystalloid fluids.

Mild hypokalemia found in this case may be due to electrolyte loss from hemorrhage, a shift of potassium into the cells under acute stress, and the administration of intravenous fluids without potassium. Sadiku et al. (2024) state that electrolyte imbalance can worsen myometrial contractility; therefore, electrolyte correction is an important part of the management of Postpartum hemorrhage (PPH). Improvements in hemoglobin and potassium levels after stabilization and curettage indicate successful management and recovery of the patient's hemodynamic condition.

The Role of Comprehensive Midwifery Care and the Referral System

Comprehensive midwifery care has a key role in the successful management of this case. Early detection of risk factors such as chronic energy deficiency (CED), anemia, older maternal age, and multiparity since the antenatal period allows increased clinical

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vigilance during labor. The implementation of active management of the third stage of labor, close monitoring of vital signs, and rapid decision-making to perform manual exploration and referral demonstrates midwifery practice in accordance with obstetric emergency care standards.

Research by Alfitri et al. (2022) emphasizes that rapid and coordinated referral to healthcare facilities with advanced obstetric management capabilities can significantly reduce the risk of maternal morbidity and mortality. In this case, coordination between the midwife and the doctor, as well as continuity of care from the primary facility to the referral hospital, enabled the mother to receive definitive management in the form of curettage and correction of metabolic disturbances; therefore, the bleeding could be stopped, and the mother's condition stabilized.

Conclusion

This case illustrates the occurrence of Hemorrhagic Post Partum due to retained placenta in a mother with risk factors of maternal age ≥ 35 years, multiparity, anemia, and chronic energy deficiency (CED), which significantly increase the risk of postpartum hemorrhage. Rapid and appropriate management through early detection of risk factors, active management of the third stage of labor, management of obstetric emergencies, and coordinated referral play an important role in preventing serious complications and reducing maternal morbidity and mortality. Therefore, screening for nutritional status using MUAC and BMI, periodic monitoring of antenatal care, and comprehensive assessment of pregnancy risk need to be integrated into antenatal services to support safer delivery planning and the readiness of healthcare facilities to face potential obstetric emergencies.

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