

## Diagnosis and Management of Antepartum Bleeding in Primary Health Care

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### Abstract

**Objective:** Antepartum bleeding, occurring in the second or third trimester of pregnancy, is a critical obstetric concern. This literature review explores diagnostic and management strategies for antepartum bleeding within primary health care settings.

**Method:** This study employs a literature review methodology. Data were gathered from articles published between 2010 and 2024, accessed through PubMed and ScienceDirect.

**Result:** Early identification and timely management of antepartum bleeding are essential in minimizing maternal and fetal morbidity and mortality. This review examines diagnostic approaches, including clinical assessments, ultrasonography, and laboratory investigations, with a focus on their accessibility within primary care environments. Management strategies, ranging from expectant care to emergency interventions, are discussed, alongside the critical role of primary care providers in stabilizing patients, ensuring prompt referrals, and providing continuous care.

**Conclusion:** The review concludes by advocating for standardized protocols and enhanced training for primary care practitioners to improve the management of antepartum bleeding.

**Keywords:** Antepartum bleeding, antepartum, Emergency, Pregnancy

## Diagnosis dan Penatalaksanaan Perdarahan Antepartum di Layanan Kesehatan Primer

### Abstrak

**Tujuan:** Perdarahan antepartum, yang terjadi pada trimester kedua atau ketiga kehamilan, merupakan perhatian serius dalam perawatan obstetri. Tinjauan literatur ini mengeksplorasi strategi diagnosis dan penatalaksanaan perdarahan antepartum di layanan kesehatan primer.

**Metode :** Penelitian ini merupakan *literatur review*. Data penelitian diperoleh dari publikasi artikel di tahun 2010 – 2024 yang diakses melalui PubMed and ScienceDirect.

**Hasil:** Identifikasi dini dan penatalaksanaan tepat waktu sangat penting untuk meminimalkan morbiditas dan mortalitas ibu serta janin. Pendekatan diagnostik, termasuk penilaian klinis, ultrasonografi, dan pemeriksaan laboratorium, ditinjau dengan penekanan pada aksesibilitasnya di lingkungan pelayanan primer. Selain itu, protokol manajemen, mulai dari penanganan ekspektatif, hingga intervensi darurat juga diulas. Peran penyedia layanan kesehatan primer dalam menstabilkan pasien, memastikan rujukan tepat waktu, dan memberikan perawatan lanjutan sangat ditekankan.

**Kesimpulan:** Tinjauan ini menyimpulkan dengan menganjurkan adanya protokol standar dan peningkatan pelatihan bagi praktisi layanan kesehatan primer untuk lebih baik menangani perdarahan antepartum.

**Kata kunci :** Antepartum, Gawat darurat, Kehamilan, Perdarahan

## Introduction

Antepartum hemorrhage (APH) is bleeding from the genital tract after 24 weeks of gestation or from the time of viability of pregnancy for extrauterine survival until the planned date of delivery.<sup>1</sup> APH significantly contributes to mortality and morbidity, complicating approximately 0.9-5% of pregnancies with various sociodemographic variables. Based on data from the World Health Organization (WHO), 80% of maternal deaths are caused by hemorrhage.<sup>2</sup> Indonesia ranks second among Southeast Asian countries with the highest maternal mortality rate due to hemorrhage during pregnancy, recorded at 305 per 100,000 live births in 2019.<sup>3</sup> Hemorrhage leading to maternal mortality in Indonesia includes antepartum hemorrhage (3%) and postpartum hemorrhage (25%).<sup>3</sup> In developing countries, maternal deaths from antepartum hemorrhage account for up to 50% of all maternal mortality cases.<sup>4</sup> Bleeding from APH can manifest in several forms, including placenta previa, abruptio placenta, and vasa previa.<sup>5</sup>

The most common causes of significant bleeding are placenta previa and abruptio placenta. Meanwhile, ruptured vasa previa may not be directly related to significant blood loss but can cause serious injury to fetal blood circulation, thus increasing the risk of fetal anemia and fetal death.<sup>6</sup> A study in Qatar showed that 15.3% of pregnant women diagnosed with antepartum bleeding came from low socioeconomic backgrounds (including poor education), family histories of hypertension, and G6PD deficiency.<sup>7</sup> Placenta previa is found in 58.4% of antepartum bleeding cases, followed by placental abruption in 35.6% of cases of antepartum bleeding in Nigeria.<sup>7</sup> In Indonesia, hemorrhage in pregnant women is attributed to placenta previa in 31% of cases and placental abruption in 22% of cases.<sup>8</sup>

Delayed treatment of hemorrhage can lead to serious complications and may even result in death. The risks are higher if complications of APH occur, which can be either maternal or fetal. Maternal complications can result in hypovolemic shock, acute renal failure, and disseminated intravascular coagulation (DIC).<sup>9</sup> These conditions could lead to higher incidences of deliveries by cesarean section, as high as 83.3% for placenta previa, with a maternal mortality rate of 1%.<sup>10</sup> Meanwhile, fetal complications might include premature delivery, low birth weight, birth asphyxia, and intrauterine fetal death. Approximately one-fifth of very preterm babies are born in association with APH, with cerebral palsy, low birth weight, and smaller babies also noted as outcomes of this event.<sup>9,10</sup>

Antepartum hemorrhage is a serious clinical issue that poses high risks to maternal and fetal health, including the risk of shock, fetal death, and complications during delivery. Awareness and preparedness at primary healthcare facilities to detect and manage cases of antepartum bleeding play a crucial role in reducing maternal and infant morbidity and mortality. This literature review explores the diagnosis and management of antepartum hemorrhage at primary healthcare facilities to promote timely intervention and optimal referral practices.

## Method

This article was prepared using a literature review method, which involved searching for national and international literature relevant to the selected research topic. The data for this study were sourced from articles published between 2010 and 2024, accessible through reputable databases such as PubMed and ScienceDirect. Articles were identified using specific keywords, including “antepartum bleeding,” “emergency,” “primary healthcare services,” “placenta

previa,” and “hemorrhage.” The quality and relevance of the selected articles were assessed based on inclusion and exclusion criteria. The inclusion criteria consisted of articles that are relevant to the keywords used in the search and discuss the diagnosis and management of antepartum hemorrhage, particularly in primary healthcare services. The exclusion criteria were articles that did not provide full access to research content.

## Result

The diagnosis and management of antepartum hemorrhage involve an initial assessment at the primary healthcare level, which includes obtaining a clinical history and conducting examinations such as abdominal palpation, speculum examination, and fetal anomaly assessment.<sup>11</sup> The management includes blood tests, ultrasonography, fetal investigations, and close monitoring. In severe cases, inpatient care at the hospital, including blood transfusions, is required. Similarly, the management of bleeding caused by placenta previa depends on clinical symptoms, the severity of the hemorrhage, and the extent of placental coverage over the birth canal.<sup>12</sup> To ensure timely and effective care, healthcare services must establish a well-functioning maternal referral system, as emphasized in previous studies.<sup>13</sup> Additionally, antenatal care services should educate pregnant women about the symptoms and risks of antepartum hemorrhage during pregnancy, which could help mitigate these risks.<sup>14</sup>

## Discussion

Antepartum bleeding is defined as bleeding from the genital tract after 24 weeks of gestation, occurring in 2–5% of all pregnancies after 24 weeks.<sup>15</sup> The causes of antepartum bleeding range from cervicitis to placental abnormalities, with placenta previa and placental abruption being the

most common.<sup>16</sup> Preoperative preparation can improve outcomes and should be aggressively employed in patients at high risk of hemorrhage.<sup>17</sup> Complications of antepartum bleeding include maternal shock, increased risk of preterm birth, fetal hypoxia, and sudden fetal death, making antepartum hemorrhage a greater risk to the fetus than to the mother.<sup>15</sup>

Bleeding resulting from premature separation of the placenta, even if it is in a normal position, is known as placental abruption.<sup>15</sup> Typical symptoms include genital bleeding, uterine tenderness, and increased uterine activity.<sup>18</sup> Known risk factors for placental abruption include hypertension, preeclampsia, advanced maternal age, multiparity, maternal/paternal smoking, cocaine use, trauma, premature rupture of membranes, chorioamnionitis, and previous placental abruption.<sup>16</sup> The impact of placental abruption on the mother primarily depends on its severity, while the impact on the fetus is determined by the severity and gestational age at the time of the placental abruption.<sup>18</sup>

Placenta previa occurs when the placenta is fully or partially inserted into the lower part of the uterus. Symptoms associated with placenta previa share common elements with prior uterine trauma, including parity, advanced maternal age, previous cesarean section or other uterine surgeries, and prior placenta previa.<sup>15</sup> The typical sign of placenta previa is painless vaginal bleeding in the second or third trimester, with the initial bleeding often being light. Patients with placenta previa are at significantly higher risk of experiencing significant blood loss during surgery, as the obstetrician is more likely to incise the placenta, leading to an increased risk of placenta accreta.<sup>19</sup>

The first step in diagnosing antepartum bleeding is a comprehensive clinical assessment. Healthcare providers should take a detailed obstetric history, including

gestational age, type of bleeding, and associated symptoms. Knowing the gestational age is important for understanding how far along the pregnancy is, helping identify potential causes. Distinguishing between bright red and dark blood can indicate different issues, such as placental abruption versus implantation bleeding. Inquiring about abdominal pain, contractions, or other symptoms is also crucial for providing vital clues. Studies have shown that a thorough clinical evaluation significantly impacts the diagnostic process and subsequent management.<sup>20</sup>

A lack of advanced support and examination often presents challenges in primary healthcare. Additionally, ultrasound is a cornerstone of the diagnostic approach, as it helps visualize the placenta's location and assess fetal well-being. Early ultrasound, such as transabdominal and transvaginal ultrasound, can help identify conditions like placenta previa and placental abruption, allowing for timely interventions. Blood tests play a crucial role in evaluating antepartum bleeding and can help identify underlying issues that may require immediate attention. A complete blood count can assess anemia, while blood typing and Rh factor testing are essential to prevent complications in cases of Rh incompatibility.<sup>20</sup>

The management of antepartum bleeding begins with a rapid yet thorough assessment of the patient's condition to determine the severity of bleeding and evaluate both maternal and fetal well-being. The clinician should begin by taking a detailed history, focusing on the gestational age, the amount and nature of the bleeding (whether light or heavy, bright red or clotted), any associated symptoms such as pain or contractions, and the history of comorbid conditions.<sup>7</sup> According to the study results, the most common comorbidities in patients with APH were anemia (51.31%), hypothyroidism (19.73%), cholestasis (13.15%), pregnancy-induced hypertension (11.84%), and thrombocytopenia (3.94%).

Healthcare providers in primary healthcare (PHC) should have a thorough understanding of the patient's comorbid history, as this can influence the management and treatment of APH.<sup>21</sup> In cases of APH occurring in patients with anemia, hemoglobin levels should be monitored throughout the pregnancy, with iron supplementation and regular antenatal care check-ups.

A study utilizing the case-based learning method emphasized that physical examination are also crucial for establishing an early diagnosis.<sup>11</sup> This highlights the role of PHC as a frontline healthcare facility in providing faster diagnoses and facilitating timely management. Physical examinations that can be conducted include monitoring vital signs, abdominal palpation, speculum examination, and fetal anomaly assessment.<sup>11</sup> Monitoring vital signs is essential to detect signs of hypovolemic shock, such as tachycardia, hypotension, and pallor. Abdominal palpation helps identify uterine tenderness, which may suggest placental abruption or uterine contractions. Speculum examination allows for an inspection of the cervix to determine the source of bleeding; however, digital vaginal examination is contraindicated in cases of suspected placenta previa, as it may trigger further bleeding. Fetal anomaly examination, including placental localization, is critical for identifying women at risk of APH.<sup>1,21,22</sup> If the patient is hemodynamically unstable, immediate intervention is required, with priority given to stabilizing the mother's condition. Actions that should be taken include establishing intravenous access, administering fluids (such as NaCl or Ringer's lactate) to prevent hypovolemic shock, and preparing for a possible blood transfusion in cases of severe hemorrhage.<sup>6</sup> Oxygen therapy may also be administered to ensure adequate oxygenation for both the mother and fetus. Continuous monitoring of maternal vital signs and fetal heart rate is essential. In some PHC facilities, fetal Doppler ultrasound may

be used to assess fetal well-being.<sup>5,7</sup>

Once the patient is stabilized, diagnostic investigations are necessary to confirm the cause of bleeding using several approaches, including ultrasound, laboratory tests, and cardiotocography. Ultrasonography is essential for diagnosing or ruling out placenta previa, particularly when the placental location is unknown. In addition to identifying placental position, ultrasonography can assess amniotic fluid volume and fetal well-being.<sup>5</sup> A study by Gurung et al. found that ultrasonography had higher specificity (100%) compared to sensitivity (71.43%) with an accuracy of 75% in detecting placental abruption (Gurung et al., 2018).<sup>23</sup> A study by Glantz and Purnell also reported the sensitivity (24%), specificity (96%), and positive (88%) and negative (53%) predictive values of ultrasound for detecting abruption.<sup>24</sup> This means that if ultrasonography indicates the presence of abruption (premature placental separation), it is highly likely that abruption is indeed present. In other words, a positive ultrasound result for abruption has a high diagnostic accuracy.

According to Giordano et al., the management of placenta previa depends on clinical symptoms, bleeding severity, and the extent of placental coverage over the birth canal.<sup>12</sup> In cases of severe bleeding or complete placental coverage, more intensive medical intervention may be required to ensure the safety of both the mother and fetus. In cases of minor bleeding and a stable maternal and fetal condition, conservative management is often employed. This includes bed rest and frequent monitoring of the mother and fetus. If bleeding is severe or recurrent, and the pregnancy is at or near term (usually around 37 weeks), an emergency cesarean section may be necessary to prevent further complications. Delivery is the definitive treatment for placenta previa.<sup>5</sup>

Placental abruption is a medical emergency. If the abruption is severe and

the mother or fetus is in distress, immediate delivery is required, often via cesarean section. However, if the abruption is partial and the pregnancy is preterm, conservative management with close monitoring may be considered if both the mother and fetus are stable. Blood transfusions may be necessary to manage significant blood loss, and coagulopathy (if present) should be corrected. Vasa previa poses a high risk of fetal death if not promptly recognized. When vasa previa is diagnosed before labor, a planned cesarean section before the onset of labor is usually recommended to prevent rupture of the fetal vessels.<sup>15,18</sup>

The management of obstetric emergencies, including antepartum hemorrhage, still relies on advanced healthcare facilities in hospitals. This is due to the fact that some PHC facilities lack the necessary equipment and specialist healthcare providers capable of handling severe complications. The study by Rukmini and Ristrini emphasized that PHC facilities play a crucial role in initial stabilization and have an adequate maternal referral system to tertiary care services.<sup>13</sup> With an integrated referral system, patients experiencing severe hemorrhage can receive prompt treatment. Furthermore, it is essential for healthcare providers in PHC to recognize the clinical symptoms and severity levels of antepartum hemorrhage.

One of the most important roles of PHC in managing antepartum bleeding is identifying the need for prompt referral. Most cases of major antepartum hemorrhage require more advanced care, such as imaging to confirm the cause of bleeding (ultrasound), blood transfusion services, and the expertise of obstetricians. Conditions like placental abruption, placenta previa, or suspected uterine rupture necessitate urgent referral to a hospital equipped for surgical intervention (cesarean section) and neonatal intensive care. Referral should be well-coordinated

and carried out without delay. Stabilization measures, such as fluid replacement and monitoring, should continue during transport.<sup>20</sup>

In addition to managing acute cases of antepartum bleeding, PHC plays a vital role in preventing its occurrence through antenatal care (ANC), patient and family education, and lifestyle modification advice. This is also supported by the study conducted by Nasriyah and Wilandari, which states that high-risk pregnancies can actually be prevented through routine and quality antenatal care.<sup>14</sup> Regular antenatal visits help in identifying and managing risk factors early. Women with a history of cesarean sections, placenta previa, or hypertension should be closely monitored, and complications like preeclampsia (a risk factor for placental abruption) should be treated promptly. Additionally, health education provided by healthcare providers should include knowledge of warning signs during the third trimester of pregnancy. Educating pregnant women about warning signs of antepartum bleeding (such as vaginal bleeding, abdominal pain, or contractions) and the importance of seeking immediate care can improve outcomes.<sup>25</sup>

## Conclusion

Primary healthcare (PHC) plays an essential role in preventing adverse outcomes through early recognition, stabilization, and timely referral. A structured approach—including accurate assessment, immediate care, and an effective referral system—is indispensable. Additionally, preventive measures, such as quality antenatal care and education, can reduce the incidence of this complication. To improve maternal health in communities, PHC facilities must be equipped with adequate training, infrastructure, and system support, enabling healthcare providers to apply current knowledge in the management of antepartum bleeding cases.

## Conflict of Interest

The authors declare no conflict of interest.

## Acknowledgement

None.

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