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THE UNSEEN THREAT : HEMORRHAGE IN EARLY PREGNANCY

Obstetrics & Gynaecology

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ABSTRACT

Introduction: Vaginal bleeding in early pregnancy is common concern, affecting 7-24% of pregnancies. It is associated with adverse outcomes such as preterm birth and low birth weight. Many predisposing factors like anemia, endocrine abnormalities, intrauterine defects have shown to have significant impact on early pregnancy. This study evaluates 50 patients presenting with early pregnancy bleeding, their causes, predisposing factors and management. **Objective:** To study the causes and predisposing factors of hemorrhage in first trimester of pregnancy. **Methods:** A cross-sectional study was conducted at a tertiary care hospital over 6 months, including 50 patients with first-trimester bleeding. Data was collected through clinical history, physical examination, and ultrasonography, compiled on excel sheet and analyzed. **Results:** The study identified various causes of bleeding including threatened abortion (20%), missed abortion (32%), and incomplete abortion (38%). Anemia was the most common predisposing factor (76%) along with hypothyroidism and overt diabetes mellitus. **Conclusion:** Identifying and managing predisposing factors is crucial for improving maternal outcomes. Regular follow-up and targeted interventions are recommended for women with early pregnancy bleeding.

KEYWORDS

First-trimester bleeding, Threatened abortion, ultrasonography, Anemia

INTRODUCTION

Bleeding per vaginum is the most common and alarming symptom during early pregnancy. It has been estimated to affect 7 to 24% of all pregnancies (1). It is linked to increased risks of preterm birth and low birth weight. Clinical history and pelvic examinations often fall short in determining the cause, making ultrasonography essential for evaluation and prognosis. The causes of hemorrhage in first trimester include threatened abortion, spontaneous abortion, incomplete abortion, ectopic pregnancy, and gestational trophoblastic diseases. Miscarriages frequently occur in the first trimester, with genetic abnormalities found in 50% of cases (2). Recurrent spontaneous abortion can be attributed to genetic, anatomical, autoimmune, endocrine, and lifestyle factors, with up to 50% of cases having undetermined causes (3). Endocrinological abnormalities such as thyroid dysfunction and anemia are significant contributors to recurrent pregnancy loss. This study aims to explore the causes of first-trimester bleeding and associated predisposing factors.

Aims And Objectives:

1. To identify the causes of first-trimester vaginal bleeding.
2. To evaluate predisposing factors associated with hemorrhage in first-trimester

METHODS:

A cross- sectional study was conducted at our tertiary care hospital over a period of 6 months from Jan 2024 to July 2024, wherein 50 patients coming to emergency department with hemorrhage in the first trimester of pregnancy were included.

Relevant clinical history, physical examination including pelvic examination was done in all patients and provisional clinical diagnosis was made. In all cases routine investigations including hemoglobin, blood grouping and Rh typing, urine pregnancy test by card, ultrasonography examination of all patients was done. After applying the Inclusion and exclusion criteria, written consent was taken from the patients who were willing to participate in the study. All the data was recorded. Bleeding and pain was categorized according to patient's subjective assessment at presentation.

Inclusion Criteria:

Patients who present with per vaginal bleeding with

1. Urine pregnancy test positive tested using rapid chromatographic immunoassay
2. Pregnancy < 12 weeks
3. Reproductive age group 18-45yrs

Exclusion Criteria:

1. Women in reproductive age group with urine pregnancy test negative with missed periods
2. Women Age <18 yrs and > 45 years with urine pregnancy test positive
3. Non obstetrical causes of vaginal bleeding
4. Pregnancy > 12 completed weeks of gestation
5. Women who wished for termination of pregnancy

RESULTS

The average age of women participating in this study was 27 + 4.9 years. Among 50 patients participating, 36% (18) were illiterate, 0.5% (1) were graduate, 62% (31) had received primary and secondary education. 86% women belonged to low socioeconomic scale, 9% belonged to lower middle class and 6 % belonged to upper middle class. A 72%(36) of women were multigravida indicating a higher prevalence among them, and potentially reflecting increased risk factors and complications associated with previous pregnancies.

Table no 1- Distribution according to causes of first trimester vaginal bleeding

Category	Clinical diagnosis	Ultrasonographic diagnosis
Threatened abortion	13	10
Missed abortion	6	16
Complete abortion	1	2
Incomplete abortion	26	19
Inevitable abortion	1	0
Vesicular mole	1	1
Ectopic pregnancy	2	2
Total	50	50

As seen in table 1, diagnosis was made based on clinical examination and ultrasonography findings with 20% (10) being diagnosed as threatened abortion. 32%(16) patients as missed abortion, 4%(2) as complete abortion ,38%(19) as incomplete abortion ,2%(1) as inevitable abortion ,2%(1) as vesicular mole and 4%(2) as ectopic pregnancy .This distribution highlights that incomplete and missed abortions were the predominant causes of bleeding, collectively accounting for 70% of cases. Threatened abortions were less common than incomplete and missed abortions, still represented a significant proportion of cases.

Table 2- Distribution according to ultrasonographic evaluation of clinical diagnosis.

Cause of 1st trimester bleeding	N (%)
Threatened abortion	10(20%)
Missed abortion	16(32%)
Complete abortion	2(4%)
Incomplete abortion	19(38%)
Inevitable abortion	1(2%)
Vesicular mole	1(2%)
Ectopic pregnancy	2(4%)
Total	50

The discrepancies between clinical and ultrasonographic diagnoses, as seen in table 2, signifies the critical role of ultrasonography in accurately identifying missed and incomplete abortions, where clinical assessment alone may be less reliable.

Table 3- Distribution based on the duration of bleeding

Duration of bleeding	No. of women(%)S
1 day or less	32(64%)
2-3 days	13(26%)
>3 days	5(10%)

64% patients had bleeding for 1 day or less, 26% (13) had bleeding for 2-3 days and 10%(5) patients had bleeding for >3 days as seen in table no 3. A majority of patients, 64% experienced bleeding for 1 day or less, indicating that early, transient bleeding is relatively common. Only 10% had bleeding for longer duration of >3 days which were associated with recurrent minor bleeding later in gestation, indicating more serious underlying issues requiring closer monitoring and intervention.

Table 4- Correlation with weeks of gestation

Weeks of gestation	N (%)
<5 weeks	1(2%)
5-7.6 weeks	20(40%)
8-12 weeks	29(58%)

Table 5- Distribution according to predisposing factors

Predisposing factor	No. Of Women N (%)
History of bad obstetric history	13(26%)
History of diabetes	3(6%)
History of Thyroid abnormalities	5(10%)
History of anemia	38(76%)
History of Intrauterine defects	5(10%)

The highest incidence, 58% (29) of bleeding was observed in the 8-12 weeks gestational age group, suggesting that bleeding tends to be more common as pregnancy progresses through the first trimester as seen in table 4. Among the predisposing factors studied, 76%(38) patients had history of anemia, 10%(5) patients had history of thyroid abnormalities, 6%(3) had overt diabetes, 26%(13) had bad obstetric history, 10%(5) had intrauterine defects as seen in table 5. Anemia was the most common predisposing factor, indicating its association with early pregnancy bleeding. Endocrine abnormalities accounted for 16% (8) of cases underscoring the need for comprehensive screening and timely management of these conditions.

Intrauterine defects involved in study are septate uterus, bicornuate uterus, endometrial polyps, and intramural fibroids, were less frequent but still relevant, as they were associated with recurrent miscarriage warranting correction for improved outcome.

Threatened abortion 20% were managed conservatively with progesterone support. In 70% of cases check curettage was done both in incomplete abortion as well in missed abortion In 2% cases with vesicular mole, dilatation and evacuation was done. Ruptured ectopic pregnancy was managed by emergency exploratory laparotomy with salpingectomy.

DISCUSSION:

Vaginal bleeding in the first trimester of pregnancy is a significant clinical concern, often leading to anxiety for expectant mothers and requiring careful management to ensure favorable outcomes.

36% of women were found to be illiterate in our study which shows education status influencing the risk of abortions. Education level and mother's occupation are associated with the incidence of spontaneous abortion. Larasati FD et al observed that women with higher educational attainment had a lower prevalence of spontaneous abortion compared with women with low educational attainment (4).

Our study also discusses various causes of first-trimester bleeding, highlighting the complexity of diagnosing and managing these cases. We found that the most common causes of first-trimester bleeding were incomplete abortion (38%) and missed abortion (32%). A study by Jauniaux E et al found a high prevalence of missed and incomplete abortions among women experiencing early pregnancy bleeding, reflecting the challenges in distinguishing these conditions based solely on clinical assessment.(5)

Threatened abortion was noted in 20% of cases, which corroborates with the study by Najnin F. et al, who found that threatened abortion is a frequent presentation in early pregnancy bleeding and often resolves without progression to more severe outcomes(6). Accurate differentiation between threatened and other types of abortions is crucial, as threatened abortions have a better prognosis and resolve without progressing to more severe outcomes with careful monitoring for continuation of the pregnancy and timely intervention if the situation changes.

Ectopic pregnancy and vesicular mole were less common but still important to identify due to their serious implications. Ectopic pregnancy, occurring in 4% of cases in our study, poses significant risks, including rupture and internal bleeding. These findings are similar to study conducted by Stulberg D.B. et al, who emphasized the importance of early identification of ectopic pregnancies to prevent life-threatening situations (7). The low incidence of vesicular mole (2%) aligns with its rarity but underscores the need for vigilance due to its potential for malignant transformation.

Anemia is the most common nutritional deficiency disorder in the world affecting 1.62 billion people worldwide, with greatest number of individuals affected are pregnant women.(8). Anemia is the most common predisposing factor (76%) in our study, similar to study conducted by Xu.Q et al, who reported that anemia is a significant risk factor for miscarriage(9). Women with low Hb have six times greater risk of having spontaneous abortion(4). Iron is essential for placental and fetal development and severe iron deficiency can cause adverse pregnancy outcomes such as increased risk of preterm labor, fetal loss, and even perinatal death(10). This emphasizes the need for correction of anemia as well as micronutrient deficiency preconceptionally by increasing awareness about its importance in women of reproductive age group for optimal pregnancy outcome.

16% patients had endocrine abnormality including thyroid abnormalities (10%) and diabetes (6%), reinforcing the need for careful endocrine evaluation and management in pregnant women similar to study conducted by Kaur R et al , who highlighted that thyroid dysfunction, especially hypothyroidism, is linked to an increased risk of miscarriage and adverse pregnancy outcomes due to its effects on fetal development and placental function(11). Similarly, Mills J.L. et al observed that poorly controlled diabetes mellitus, contributes to early pregnancy loss and other complications (12).

The presence of anatomic abnormalities and a history of bad obstetric outcomes also contributed to the risk of first-trimester bleeding. Uterine anomalies, present in 10% of cases in our study, are consistent with findings from Alonso L et al, who reported that such anomalies can significantly impact pregnancy outcomes by affecting implantation and increasing miscarriage risk (13). Poor pregnancy outcome is mainly due to its poor implantation environment and as it provides scanty vascular supply for the implanting embryo by disrupting the orderly arranged vessels in the intermediate myometrial layer of the uterus (14). Uterine anomalies can affect implantation and increase the likelihood of miscarriage, while a history of previous pregnancy complications may predispose women to similar issues in subsequent pregnancies. A history of bad obstetric outcomes (26%) also aligns with research by Linehan L. A. et al indicating that women with a history of adverse pregnancy events are at higher risk for similar complications in subsequent pregnancies requiring comprehensive evaluation further decreasing the risk (15).

The management of first-trimester bleeding varies based on the underlying cause and the clinical status of the patient. For threatened abortion, recommendations often include supportive care and

monitoring, although the efficacy of interventions such as bed rest remains debated. In cases of incomplete or complete abortion, surgical intervention or expectant management, depending on the clinical situation and patient preference, are employed to ensure complete resolution and prevent complications.

Our study highlights the importance of a multidisciplinary approach to managing first-trimester bleeding. Coordination between obstetricians, radiologists, and other healthcare professionals ensures accurate diagnosis and appropriate management, ultimately improving maternal and fetal outcomes.

CONCLUSION:

First-trimester vaginal bleeding presents a complex clinical challenge with various potential causes and predisposing factors. As anemia is common predisposing factor for increased risk of abortions, Anemia Mukt Bharat programme in India targets women in reproductive age group supplementing prophylactic iron and folic acid tablets to reduce anemia. Pre-conceptional counselling of couples and correction of anemia, endocrine abnormalities is important to improve pregnancy outcome. Ultrasonography plays an important role as the first line investigation in diagnosis, and its easy availability has helped manage early pregnancy bleeding without catastrophic complications.

Patients with recurrent early trimester bleeding need regular follow-up and targeted interventions based on the underlying cause of bleeding which **a**re crucial for optimizing maternal and fetal health.

Future research should focus on refining management protocols for first-trimester bleeding and exploring strategies for preventing recurrent pregnancy loss. Enhanced understanding and management of predisposing factors will contribute to better clinical outcomes and patient satisfaction.

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