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OUTCOMES OF PREGNANCY IN PATIENTS WITH FIRST TRIMESTER VAGINAL BLEEDING

Obstetrics & Gynaecology

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ABSTRACT

Background: First-trimester vaginal bleeding is a common obstetric concern associated with varied pregnancy outcomes. This study evaluates maternal and neonatal outcomes in patients presenting with first-trimester bleeding. **Methods:** A prospective observational study of 60 patients with first-trimester vaginal bleeding was conducted. Data on maternal demographics, bleeding characteristics, pregnancy outcomes, and neonatal parameters were analyzed. **Results:** Of 60 patients, 31.67% experienced no complications, while 15% had preterm labor, 5% antepartum hemorrhage, and 1.67% second-trimester abortion. Heavy bleeding was associated with a higher abortion rate (66.6%) compared to spotting (41.6%). Neonatal outcomes revealed 71% of infants had birth weights <2.5 kg. Most patients (65%) were primigravida, and 70% were booked for antenatal care. **Conclusion:** First-trimester vaginal bleeding, particularly heavy bleeding, correlates with adverse pregnancy outcomes. Early intervention and close monitoring are critical, especially in unbooked patients.

KEYWORDS

INTRODUCTION

First-trimester vaginal bleeding, occurring in **15–25% of pregnancies**, is a frequent yet clinically significant obstetric concern. While it may signal benign physiological processes such as implantation, it can also herald pathological conditions, including spontaneous abortion, ectopic pregnancy, gestational trophoblastic disease, or cervical anomalies. Early differentiation between normal and abnormal pregnancy progression is critical, as **over 50% of pregnancies complicated by first-trimester bleeding culminate in pregnancy loss**. Among ongoing pregnancies, adverse outcomes such as preterm delivery, preterm premature rupture of membranes (PPROM), placental abruption, pre-eclampsia, and intrauterine growth restriction (IUGR) are disproportionately observed.

Risk stratification is further complicated by maternal factors including advanced age (>35 years), systemic comorbidities (e.g., diabetes mellitus, hypothyroidism), uterine structural abnormalities, thrombophilias, and obesity. Emerging evidence also underscores associations between first-trimester bleeding and long-term neonatal morbidity, emphasizing the need for vigilant antenatal surveillance.

Despite advances in ultrasonography and biomarker assays, prognostic uncertainty persists in clinical practice. This study aims to characterize the **maternal and fetal outcomes** of pregnancies complicated by first-trimester vaginal bleeding and identify modifiable risk factors to optimize management strategies.

MATERIALS AND METHODS

Study Design And Setting

This **prospective observational cohort study** was conducted at the Department of Obstetrics and Gynaecology, GCS Medical College, Hospital and Research Centre, Ahmedabad, from **June 2024 to March 2025**. Participants were recruited from the antenatal outpatient department (OPD) and emergency ward.

Participants

Inclusion Criteria:

- Singleton or multiple pregnancies with confirmed fetal cardiac activity on transvaginal or transabdominal ultrasound.
- Gestational age ≤12 weeks (calculated via last menstrual period or ultrasound dating).
- Complaints of vaginal bleeding (spotting or heavy bleeding) during the first trimester.

Exclusion Criteria:

- Ectopic pregnancy, hydatidiform mole, or biochemical pregnancy (serum β-hCG positivity without ultrasound confirmation).
- Patients opting for elective termination of pregnancy.

Operational Definitions

1. Light bleeding (spotting): Minimal blood loss requiring ≤1 pad/day, not exceeding menstrual flow.

2. Heavy bleeding: Blood loss equivalent to or exceeding menstrual flow, with or without clots.

Data Collection and Follow-Up

1. Baseline Assessment:
2. Detailed history (obstetric, medical, surgical) and physical examination (general, systemic, pelvic).
3. Transvaginal/transabdominal ultrasound to confirm viability, gestational age, and placental localization.
4. Laboratory investigations: Hemoglobin, thyroid profile, blood group, and coagulation studies.

5. Follow-Up Protocol:
6. Biweekly antenatal visits until 28 weeks, then weekly until delivery.
7. Serial ultrasounds for fetal growth (at 18–22 weeks, 28–32 weeks, and 36 weeks).
8. Documentation of complications (e.g., preterm labor, PPROM, IUGR) and neonatal outcomes (birth weight, APGAR scores, NICU admissions).

9. Statistical Analysis:
10. Descriptive statistics for demographic and clinical variables.
11. Comparative analysis to assess associations between bleeding severity and outcomes.

Ethical Considerations

1. Institutional Ethics Committee approval obtained. (IEC/GCSMC/2024/OBG-03).
2. Written informed consent secured from all participants.

RESULTS

1. Pregnancy Outcomes

Pregnancy Outcome	Number	Percentage (%)
Preterm labour	9	15%
Antepartum hemorrhage	3	5%
Second trimester abortion	1	1.67%
No complications	19	31.67%

Interpretation:

1. Preterm labour (15%): 9 patients delivered before 37 weeks of gestation, a significant risk factor for neonatal morbidity.
2. Antepartum hemorrhage (5%): 3 patients experienced bleeding after 20 weeks, which may indicate placental abnormalities.
3. Second trimester abortion (1.67%): 1 pregnancy loss occurred between 12–24 weeks.
4. No complications (31.67%): 19 patients had uncomplicated pregnancies despite first-trimester bleeding.

5. 1st trimester abortions - 28 (46.67%)

2. Neonatal Outcomes

Parameter	Number	Percentage (%)
Birth weight		
<2 kg	8	25.8%
2–2.4 kg	14	45.2%
>=2.5kg	9	29%
APGAR at 5 minutes		
Low (≤7)	10	32.3%
Normal (8–10)	21	67.7%

Interpretation:
1. Low birth weight (<2.5 kg): 71% of newborns (20/31) weighed <2.5 kg, suggesting intrauterine growth restriction or preterm delivery.
2. APGAR scores: 32.3% of neonates (10/31) had low scores (≤7), indicating potential perinatal distress.

3. Maternal Demographics
Gravida

Gravida	Number	Percentage (%)
1	39	65%
2	18	30%
3	2	3.33%
4	1	1.67%

Interpretation:
1. Primigravida dominance (65%): Most patients (39/60) were first-time pregnant, potentially reflecting heightened anxiety or earlier reporting of bleeding.

Age Distribution

Age Group	Number	Percentage (%)
<20 years	11	18.33%
21–30 years	33	55%
≥31 years	16	26.67%

Interpretation:
1. The majority (55%) were aged 21–30 years, aligning with peak reproductive age.

4. Bleeding Characteristics
Gestational Age At Onset

Gestational Age	Number	Percentage (%)
<6 weeks	11	18.3%
6–10 weeks	44	73.3%
>10 weeks	5	8.3%

Interpretation:
1. Most patients (73.3%) presented at **6–10 weeks**, a critical window for embryonic viability assessment.
2.

Nature Of Bleeding

Bleeding Type	Aborted	Continued Pregnancy	Total	Abortion Rate
Spotting	20	28	48	41.6%
Heavy	8	4	12	66.6%

Interpretation:
1. Heavy bleeding had a higher abortion rate (66.6% vs. 41.6%): Heavy bleeding is strongly associated with pregnancy loss, likely due to placental disruption or chromosomal abnormalities.

5. Clinical Management
Mode of Admission

Mode	Number	Percentage (%)
Emergency	48	80%
LR*	12	20%

Interpretation:
1. Emergency admissions (80%): Most cases required urgent evaluation, highlighting the perceived severity of symptoms.

Booking Status

Status	Number	Percentage (%)
Booked	42	70%
Unbooked	18	30%

Interpretation:
1. Unbooked patients (30%): Lack of antenatal care may delay risk stratification and intervention.

6. Obstetric History

Prior Bleeding	Number	Percentage (%)
No	16	76.1%
Yes	5	23.8%

Denominator = 21 (patients with prior pregnancies).

Interpretation:
1. 23.8% With Prior Bleeding: Recurrent bleeding may indicate underlying conditions (e.g., cervical insufficiency, clotting disorders).

DISCUSSION

First-trimester vaginal bleeding is a prevalent concern, affecting approximately 20% of all pregnancies. (1)

This study aimed to elucidate the maternal and neonatal outcomes associated with early pregnancy bleeding, providing insights that are crucial for clinical management and patient counseling.

Our findings indicate that 15% of patients experiencing first-trimester bleeding subsequently developed preterm labor. This aligns with previous research demonstrating an increased risk of preterm delivery in such cases. (2)

The association between early bleeding and preterm labor underscores the necessity for heightened antenatal surveillance and proactive interventions to mitigate potential adverse outcomes.

The study also revealed that 5% of the cohort experienced antepartum hemorrhage. This finding is consistent with literature suggesting that early pregnancy bleeding may predispose patients to placental complications later in gestation, such as placental abruption or previa. (2)

These conditions are significant contributors to maternal and neonatal morbidity, highlighting the importance of early identification and management.

A notable observation from our research is the correlation between the severity of bleeding and pregnancy outcomes. Patients reporting heavy bleeding exhibited a higher rate of miscarriage (66.6%) compared to those with spotting (41.6%). This trend is corroborated by studies indicating that heavy bleeding, especially when accompanied by pain, significantly elevates the risk of miscarriage. (3)

The data suggest that the intensity of bleeding can serve as a prognostic indicator, guiding clinicians in risk stratification and management decisions.

Neonatal outcomes were also impacted, with 71% of infants born weighing less than 2.5 kg, and 25.8% weighing under 2 kg. This prevalence of low birth weight is higher than the general population and may be attributed to factors such as intrauterine growth restriction or preterm birth, both of which have been associated with first-trimester bleeding. (4)

Additionally, 32.3% of neonates had low APGAR scores (≤7), indicating perinatal distress and the potential need for intensive neonatal care.

Demographic analysis revealed that 65% of the patients were primigravidas, suggesting that first-time pregnancies might be more susceptible to complications following early pregnancy bleeding. This finding is in line with studies that have identified primigravidity as a potential risk factor for adverse outcomes in the context of early bleeding. (5)

Furthermore, 30% of the patients were unbooked, emphasizing the critical role of early and regular antenatal care in identifying and managing risks associated with first-trimester bleeding.

The timing of bleeding onset was predominantly between 6 and 10 weeks of gestation (73.3% of cases). This period is crucial for placental development and embryogenesis, and bleeding during this window may reflect underlying placental insufficiencies. Such insufficiencies

can have long-term implications, including an increased risk of pre-eclampsia and fetal growth restriction.

Therefore, early gestational bleeding warrants meticulous follow-up to monitor for these potential complications.

The high rate of emergency admissions (80%) among patients with first-trimester bleeding highlights the anxiety and urgency associated with this symptom. This statistic underscores the need for comprehensive patient education regarding the potential implications of early pregnancy bleeding and the importance of prompt medical evaluation. Structured follow-up and clear communication can alleviate patient anxiety and ensure timely interventions when necessary.

In summary, first-trimester vaginal bleeding is a significant predictor of adverse pregnancy outcomes, including preterm labor, low birth weight, and perinatal distress. The severity of bleeding serves as a crucial prognostic factor, necessitating individualized antenatal care and vigilant monitoring. Early ultrasound assessments, patient education, and timely obstetric interventions are pivotal in improving outcomes for this high-risk group. Future research should focus on refining risk assessment models and developing standardized management protocols to optimize both maternal and neonatal health.

CONCLUSION

The study reinforces that first-trimester vaginal bleeding is a significant predictor of adverse pregnancy outcomes, including preterm labor, low birth weight, and fetal distress. The severity of bleeding serves as a crucial prognostic indicator, necessitating vigilant monitoring and individualized antenatal care. Emphasizing early ultrasound evaluation, comprehensive antenatal counseling, and timely obstetric interventions can improve pregnancy outcomes in this high-risk group. Future research should aim to refine risk stratification models and develop standardized management protocols to optimize maternal and fetal health.

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