

Association between First Trimester Vaginal Bleeding and Fetal Outcomes**Anita Bansal¹, Shuchi Sharma², Rashmi Kumari³**¹Senior Consultant & HOD, Department of Gynaecology & Obstetrics, Northern Railway Central Hospital (NRCH), New Delhi, India²Senior Consultant, Department of Gynaecology & Obstetrics, Northern Railway Central Hospital (NRCH), New Delhi, India³Resident, Department of Gynaecology & Obstetrics, Northern Railway Central Hospital (NRCH), New Delhi, India

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Abstract:

Vaginal bleeding at any stage of pregnancy is a distressing occurrence for both patients and physicians. In the first trimester, vaginal bleeding is classified as obstetric hemorrhage before 12 completed weeks of gestation, excluding women who experience subsequent miscarriage or induced abortion.

In this study, 41.9% of pregnant women who experienced first trimester vaginal bleeding were able to continue their pregnancies, indicating that just over half of these pregnancies ended successfully. Research by Snell et al. observed that vaginal bleeding occurs in 15-25% of pregnancies, with approximately half of these pregnancies continuing. The primary causes of first trimester bleeding include ectopic pregnancy (EP), and trophoblastic disease as well as spontaneous abortion.

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Introduction

Vaginal bleeding at any stage of pregnancy is a distressing occurrence for both patients and physicians. In the first trimester, vaginal bleeding is classified as obstetric hemorrhage before 12 completed weeks of gestation, excluding women who experience subsequent miscarriage or induced abortion. [1] This phenomenon is relatively common, occurring in fifteen to twenty five percent of all pregnancies. Approximately half of the women who experience bleeding in first trimester will go on to miscarry. If a fetal heart rate is detected and the patient is medically stable, cautious reassurance and vigilant monitoring are considered appropriate management strategies for an intrauterine pregnancy. [2]

There is a theory that bleeding during the first trimester could indicate placental dysfunction, potentially leading to complications later in pregnancy. These complications may include a higher risk of pre-eclampsia, preterm delivery, preterm premature rupture of membranes (PPROM), and intrauterine growth restriction (IUGR). [3]

Meta-analyses have revealed that vaginal bleeding in the first trimester is linked to a twofold increase in the risk of other pregnancy complications. Recognizing the outcomes of pregnancies that continue after first-trimester bleeding is vital for both women and their obstetricians. This

understanding assists in planning prenatal care and considering clinical interventions to manage pregnancies more effectively, thereby reducing morbidity and mortality. [4]

Materials and Methodes

Study Design: Hospital based prospective observational study was performed in Department of Obstertrics and Gynaecology, Northern railway cnetral hospital, New Delhi during August 2018 – May 2020. Sample of convenience was taken as 250 according to the footfalls in our OPD.

Inclusion Criteria:

1. Pregnant women within 12 weeks of pregnancy.
2. Singleton pregnancies.

Exclusion Criteria:

1. Multiple gestations.
2. Ectopic pregnancy.
3. Molar pregnancy.
4. Women with chronic medical complications.
5. Patients with known thrombophilia.
6. Uterine anomalies.
7. Cervical insufficiency.
8. History of similar bleeding in previous pregnancies.

A consent form was signed by every patient before enrolling her for study.

Method

All pregnant females attending our OPD in their 1st trimester were enrolled in study fulfilling inclusion and exclusion criteria

A detailed history was taken, maternal age, parity, LMP (thereby gestational age), duration and severity of bleeding ("Spotting" is defined as light bleeding that is only visible when wiping. "Moderate bleeding" refers to a flow comparable to a normal menstrual period, while "heavy bleeding" is characterized by a flow that is more intense than that of a typical menstrual period) was associated with pain or not, passage of clots and or tissue, h/o loss of consciousness, number of previous episodes of bleeding, exact gestational age at the time of bleeding, previous history of bleeding (if present), etc was noted in each case in pre designed proforma.

The patient was examined and USG was done if required.

Relevant investigations were sent including complete blood count, blood grouping and Rh typing, urine examination for albumin, sugar and microscopy, OGTT and coagulation profile, obstetric ultrasound, 13-11CG.

Management of the Case:

- **Mother's condition:** Degree of obstetric hemorrhage (mild, moderate, or severe).
- **Fetal condition:** Gestational age, presence or absence of cardiac activity.

Table 1: Distribution of study population showing period of gestation in patients with first trimester vaginal bleeding

Period Of Gestation	Frequency	Percentage
<6 Weeks	33	49.2
6-8 Weeks	29	43.2
>8 Weeks	5	7.4
Total	67	100.0

- In our study, maximum patients (49.2%) had bleeding in <6 weeks of period of gestation, followed by 43.2% in 6-8 weeks period of gestation, and 7.4% in more than 8 weeks period of gestation.
- Out of total patients included in this study, 53.7% had only slight bleeding per vaginum, while 46.3% had heavy bleeding per vaginum,

Resuscitative measures were taken in cases of moderate to severe hemorrhage. Maternal and perinatal complications were recorded for each case. The enrolled patients were monitored closely until delivery, with pregnancy outcomes assessed through continuous observation.

Outcome: Fetal and neonatal outcomes were studied according to the following parameters:

- Incidence of prematurity.
- APGAR score at birth.
- Fetal weight.
- NICU admission if needed.
- Incidence of NICU admission.
- Incidence of intrauterine fetal demise (IUFD).

Data Analysis: Data was entered twice to ensure accuracy, then compared and cleaned to remove any errors. Afterward, it was exported to Stata SE 12.1 for analysis. The recordings were compiled and organized into tables. Standard statistical tests, such as chi-square, unpaired t-tests, and analysis of variance, were applied as appropriate. Significance was determined at the 5% level.

Observations and results:

- In present study, majority of patients fall in age group of 26 to 35 years age, 54.4% were in age group of 26 to 30 years and 27.2% patients in age group of 31-35 years, and majority of patients were primigravida (33%) followed by gravid 2 (32.8%) with majority were para 1 (43.6%) followed by nulliparous (42.4%).

and 46% had a history of pain associated with bleeding per vaginum in the first trimester of pregnancy.

- In this research, there was a significant association between heavy bleeding and abortion, and light bleeding with the continuation of pregnancy.

Table 2: Distribution Of Study Population According To Relationship Between Pregnancy Outcome And Amount Of Bleeding

Maternal outcomes	Heavy bleeding		Light bleeding		Chi square test P value
	NO	%	NO	%	
Abortion	18	58.1	12	33.3	0.042
Continuation of pregnancy	13	41.9	24	66.7	
Total	31	100.0	36	100.0	

In this study there was significant association between heavy bleeding and abortion and light bleeding with continuation of pregnancy.

Table 3: Distribution of study population according to cause of bleeding

Cause of Bleeding	Frequency	Percentage
Threatened Abortion	37	55.2
Inevitable Abortion	1	1.5
Missed Abortion	19	28.4
Incomplete Abortion	8	11.9
Total	67	100.0

After ultrasound, the cause of first trimester bleeding was found in the majority of cases as threatened abortion (55.2%), followed by missed abortion (28.4%) and incomplete abortion (11.9%).

Table 4: Distribution of study population according to mode of delivery

Mode of Delivery	Frequency	Percentage
Vaginal Delivery	14	37.8
LSCS	23	62.2
Total	37	100.0

Out of 37 patients who continued their pregnancy beyond the period of viability, 14 (37.8%) delivered by vaginal delivery and the remaining 23 (62.2%) delivered by caesarean delivery.

Table 5: Distribution of study population according to prematurity

Prematurity	Frequency	Percentage
YES	13	35.1
NO	24	64.9
Total	37	100.0

In this study, 64.9% of pregnancies attained maturity and 35.1% were premature.

Table 6. Distribution of study population showing relationship between amount of bleeding and adverse fetal outcome

Prematurity	YES	3	21.4%	10	43.5%	0.288
	NO	11	78.6%	13	56.5%	
Fetal weight	<2.5	4	28.6%	12	52.2%	0.191
	>1=2.5	10	71.4%	11	47.8%	
APGAR	</=7	7	50.0%	12	52.2%	1.000
	>7	7	50.0%	11	47.8%	
NICU Admission	Yes	4	28.6%	13	56.5%	0.173
	No	10	71.4%	10	43.5%	

In this study there is no significant association seen between amount of bleeding and adverse fetal outcome ($p > 0.05$).

Discussion

In this study, 41.9% of pregnant women who experienced first trimester vaginal bleeding were able to continue their pregnancies, indicating that just over half of these pregnancies ended successfully. Research by Snell et al. observed that vaginal bleeding occurs in 15-25% of pregnancies, with approximately half of these pregnancies continuing. The primary causes of first trimester bleeding include ectopic pregnancy (EP), and trophoblastic disease as well as spontaneous abortion. [5]

In this study, the first step in identifying the cause of bleeding was to assess the uterus and pregnancy sac through ultrasound. Deutchman et al. (2009) and Thorstensen et al. (2000) demonstrated that for pregnancies experiencing first trimester bleeding,

critical diagnostic measures include transvaginal ultrasound and tracking the increasing serum levels of β -hCG. Saraswat et al. conducted a systematic review which found that first trimester bleeding does not affect the method of delivery. However, other research indicates that it may increase the likelihood of a cesarean section is higher in women who experience bleeding. Our study results align with these findings. [6]

Previous research indicates that first trimester bleeding is associated with various placental disorders, resulting in shorter pregnancies and an amplified risk of preterm delivery. [7] These pregnancies often exhibit growth restrictions, leading to low birth weight and newborns with low Apgar scores at 5 minutes. While many studies report low birth weights and Apgar scores below 7, the mortality rates of newborns vary across different studies. [8]

Conclusions

As per the findings, the first trimester bleeding can serve as a predictor of adverse infant outcomes, underscoring the need to educate pregnant women about this issue for enhanced prenatal care. The role of clinical interventions by obstetricians is crucial not only in sustaining pregnancies but also in declining fetal complications in these speculative cases. Therefore, accurate management and careful planning by obstetricians are essential.

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