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Case Report

Maternal Outcomes in Pregnant Women Having First Trimester Vaginal Bleeding in a Tertiary Care Centre

Dr. Nandkishor More[1], Dr. Mirza Salma Beg[2], Dr. Ganesh Tondge[3]

[1]Associate professor, Obstetrics and Gynaecology , SRTR Government Medical College, Ambajogai, Dist- Beed
[2]3rd Year PG Student, Obstetrics and Gynaecology, SRTR Government Medical College Ambajogai Dist- Beed
[3]Professor and HOD Obstetrics and Gynaecology, SRTR Government Medical College, Ambajogai Dist- Beed

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Corresponding Author:

Dr. Mirza Salma Beg
3rd Year PG Student, Obstetrics and Gynaecology, SRTR Government Medical College Ambajogai Dist- Beed

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ABSTRACT

Background: First-trimester vaginal bleeding is a common pregnancy complication, with significant implications for maternal outcomes. Early recognition and evaluation of such cases are vital to improve pregnancy prognosis.
Objective: To assess the maternal outcomes in women presenting with first-trimester vaginal bleeding at a tertiary care centre.
Methods: This prospective observational study included 100 pregnant women presenting with vaginal bleeding in the first trimester. Demographic characteristics, clinical presentation, ultrasonographic findings, and maternal complications were analyzed. Data were expressed in percentages and proportions.
Results: Among 100 women, the majority were aged 21–25 years (53%), and 57% were multigravida. Most presented between 6–9 weeks gestation (63%). Natural conception accounted for 78%, with the remainder conceived by ovulation induction or assisted reproductive techniques. On ultrasonography, 42% pregnancies were viable while 58% were non-viable.
Among viable pregnancies, 57% delivered at term, while complications such as placenta previa (5%), abruption (2%), pregnancy-induced hypertension (7%), and intrauterine growth restriction (5%) were observed. Non-viable pregnancies were predominantly due to inevitable abortion (28%), followed by complete abortion (21%), incomplete abortion (17%), and ectopic pregnancy (10%).
The mode of delivery among viable pregnancies included vaginal delivery (52%), caesarean section (43%), and instrumental delivery (5%).
Conclusion: First-trimester bleeding was associated with a higher risk of adverse maternal outcomes. Careful monitoring and timely intervention are essential to optimize pregnancy prognosis.

Keywords: Vaginal bleeding, First trimester, Pregnancy outcome, Abortion, Maternal outcomes.

INTRODUCTION

First-trimester vaginal bleeding is a frequent complication of pregnancy and is often associated with significant maternal anxiety and adverse outcomes. Beyond its immediate clinical implications, early pregnancy complications such as miscarriage have also been linked to long-term psychological and mental health consequences for women [1,2].

The presence of vaginal bleeding during the first trimester has been shown to correlate with increased risks of spontaneous abortion, placental complications, preterm birth, intrauterine growth restriction (IUGR), and perinatal morbidity [3]. In a prospective cohort, Hokabaj et al. reported that women presenting with first-trimester bleeding had poorer maternal and perinatal outcomes compared to those with uncomplicated pregnancies [3].

From a healthcare perspective, first-trimester bleeding constitutes a substantial burden on emergency services. In the United States alone, it accounted for nearly half a million emergency department visits between 1993 and 2003 [4]. The frequency of these presentations emphasizes the clinical importance of prompt evaluation and accurate diagnosis.

The differential diagnosis of early pregnancy bleeding is wide, ranging from benign causes such as implantation bleeding to more serious conditions including ectopic pregnancy or impending miscarriage [5]. The prognosis can be highly variable, with some pregnancies progressing uneventfully while others result in early pregnancy loss. Several studies have quantified this risk. Poulose et al. observed that even in women with a confirmed viable foetus on ultrasound, the probability of early pregnancy loss remained significantly higher if vaginal bleeding was present [6]. Similarly, Schauberger et al. highlighted the prognostic value of ultrasonographic findings in the evaluation of first-trimester bleeding [7].

Current clinical practice emphasizes the role of imaging, particularly ultrasonography, in guiding management. The American College of Radiology Appropriateness Criteria further recommend an integrated approach that combines clinical examination, biochemical markers, and ultrasound to improve diagnostic accuracy and patient outcomes [8].

Given the high prevalence of first-trimester vaginal bleeding and its association with adverse outcomes, region-specific data are essential to inform clinicians about prognosis and to guide management strategies. This study was conducted to evaluate the maternal outcomes in women presenting with first-trimester vaginal bleeding in a tertiary care centre.

OBJECTIVES

The present study was conducted with the following objectives:

1. To determine the maternal outcomes in women presenting with first-trimester vaginal bleeding.
2. To analyze the association between first-trimester vaginal bleeding and adverse events such as spontaneous abortion, ectopic pregnancy, intrauterine growth restriction, placenta previa, placental abruption, and hypertensive disorders.

METHODS

Study Design and Setting

This was a hospital-based, prospective observational study conducted in the Department of Obstetrics and Gynaecology at a tertiary care centre. The study enrolled women presenting with first-trimester vaginal bleeding, and data collection was carried out after obtaining clearance from the Institutional Ethics Committee.

Study Population and Sample Size

A total of 100 pregnant women presenting with vaginal bleeding during the first trimester (≤12 weeks of gestation) were included in the study. Sample size was determined based on the expected prevalence of adverse maternal outcomes in women with first-trimester bleeding from prior regional studies.

Inclusion Criteria

- Pregnant women attending the outpatient or emergency department with vaginal bleeding during the first trimester.
- Women willing to give written informed consent and adhere to follow-up.

Exclusion Criteria

- Women with bleeding not related to pregnancy (e.g., cervical pathology, vaginal lesions).
- Molar pregnancies or gestational trophoblastic disease.
- Women with severe systemic illness that could independently affect pregnancy outcomes.

Data Collection

Detailed sociodemographic and obstetric history was obtained, including age, parity, socioeconomic status, and booking status. Clinical examination and relevant investigations were performed.

- Ultrasonography (USG): All patients underwent a transabdominal or transvaginal ultrasound to assess gestational age, viability, presence of subchorionic hematoma, and nature of pregnancy (viable or non-viable).
- Mode of Conception: Documented as natural, ovulation induction, or assisted reproductive techniques (ART).
- Clinical Presentation: Nature and severity of vaginal bleeding (spotting, more than spotting, clots) were recorded.

Follow-up and Outcome Assessment

Patients were followed throughout pregnancy until delivery or termination. Maternal outcomes were assessed in detail, including miscarriage (inevitable, incomplete, or complete), ectopic pregnancy, and obstetric complications such as placenta previa, placental abruption, pregnancy-induced hypertension (PIH), and intrauterine growth restriction (IUGR). The mode of delivery and maternal morbidity were also recorded systematically for analysis.

Statistical Analysis

Data were compiled and analyzed using descriptive and inferential statistics. Categorical variables were expressed as proportions and percentages, while continuous variables were presented as mean ± standard deviation (SD). Associations between first-trimester vaginal bleeding and maternal outcomes were evaluated using the Chi-square test or Fisher's exact test, as appropriate. A p-value < 0.05 was considered statistically significant.

RESULTS

1. Baseline Characteristics

A total of 100 pregnant women presenting with first-trimester vaginal bleeding were included in the study. The majority of patients were aged 21–25 years (53%), followed by those in the age group of 26–30 years (25%). Women above 35 years constituted only 3% of the cohort.

Regarding socioeconomic status, the largest proportion belonged to the lower middle class (33%), followed by the lower class (24%), while only 7% were from the upper class.
Most women (89%) were booked cases registered for antenatal care, while 11% were unbooked at presentation. In terms of parity, 57% were multigravida and 43% were primigravida. The baseline characteristics has been shown in table 1

Table 1. Baseline Demographic and Obstetric Characteristics (n = 100)

Variable	Category	Number	Percentage (%)
Age (years)	≤20	11	11
	21–25	53	53
	26–30	25	25
	31–35	8	8
	>35	3	3
Socioeconomic status	Upper	7	7
	Upper middle	16	16
	Lower middle	33	33
	Upper lower	20	20
	Lower	24	24
ANC registration	Booked	89	89
	Unbooked	11	11
Parity	Primigravida	43	43
	Multigravida	57	57

2. Gestational Characteristics

Most women presented between 6–9 weeks of gestation (63%), while 20% presented before 6 weeks and 17% between 9–12 weeks.

With regard to the mode of conception, the majority conceived naturally (78%), followed by ovulation induction (16%) and assisted reproductive techniques (ART) (6%).
The nature of bleeding at presentation varied: 41% reported only spotting, 37% had bleeding more than spotting, while 22% passed clots. The Gestational Profile and Clinical Presentation has been shown in table 2.

Table 2. Gestational Profile and Clinical Presentation (n = 100)

Variable	Category	Number	Percentage (%)
Gestational age (weeks)	<6	20	20
	6–9	63	63
	9–12	17	17
Mode of conception	Natural	78	78
	Ovulation induction	16	16
	ART	6	6
Nature of bleeding	Spotting	41	41
	More than spotting	37	37
	Clots	22	22

3. Pregnancy Outcomes

On ultrasonographic evaluation, 42% of pregnancies were viable, while the remaining 58% were non-viable (Table 3).

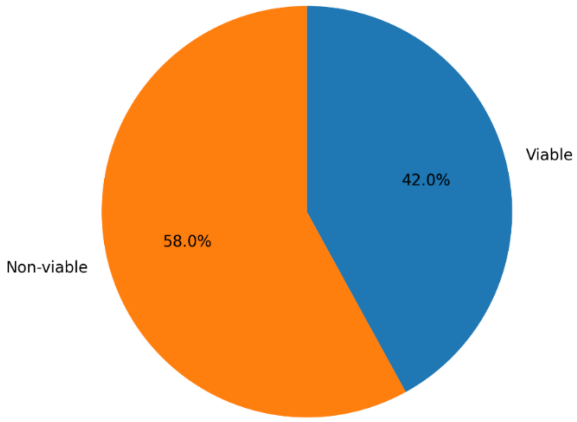
Among the non-viable pregnancies, the most frequent outcome was inevitable abortion (28%), followed by complete abortion (21%), incomplete abortion (17%), and ectopic pregnancy (10%).
The overall distribution of viable and non-viable pregnancies is illustrated in Figure 1, which highlights that non-viable outcomes were more common in this study cohort.

Table 3. Distribution of Pregnancy Outcomes (n = 100)

Pregnancy Outcome	Number	Percentage (%)
Viable	42	42
Non-viable	58	58
- Inevitable abortion	28	28

- Complete abortion	21	21
- Incomplete abortion	17	17
- Ectopic pregnancy	10	10

Figure 1. Pregnancy Outcome Distribution



4. Maternal Outcomes in Viable Pregnancies

Among the 42 viable pregnancies, the majority (57%) progressed to term delivery, while 14% resulted in preterm delivery. A small proportion of cases were complicated by placenta previa (5%), placental abruption (2%), pregnancy-induced hypertension (7%), and intrauterine growth restriction (IUGR) (5%).

With respect to the mode of delivery, 52% delivered vaginally, 43% underwent lower segment caesarean section (LSCS), and 5% required instrumental delivery. These outcomes are detailed in Table 4 and figure 2

Table 4. Maternal Outcomes in Viable Pregnancies (n = 42)

Maternal Outcome	Number	Percentage (%)
Gestational age at delivery		
- Term	24	57
- Preterm	6	14
Pregnancy complications		
- Placenta previa	2	5
- Placental abruption	1	2
- PIH (Pregnancy-induced hypertension)	3	7
- IUGR	2	5
Mode of delivery		
- Vaginal	22	52
- LSCS	18	43
- Instrumental delivery	2	5

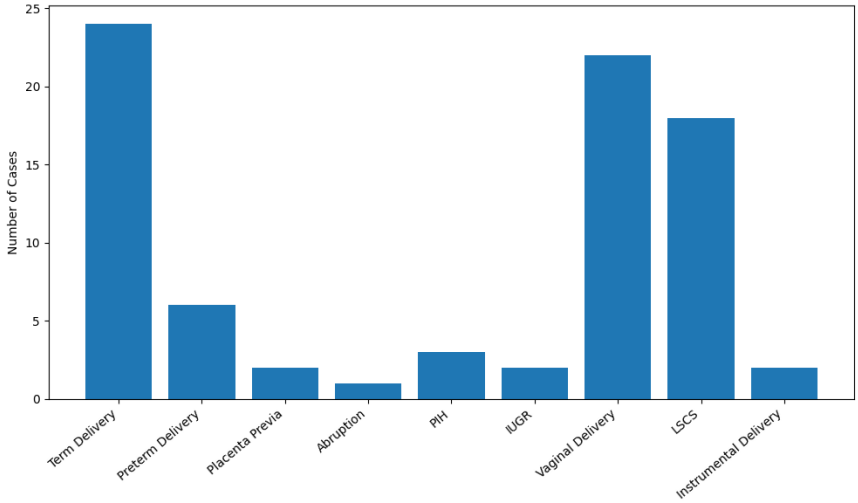


Figure 2. Maternal outcomes in viable pregnancies

5. Comparative Statistical Analysis

The association of first-trimester vaginal bleeding with adverse maternal outcomes was evaluated. Women presenting with bleeding had a markedly higher risk of pregnancy loss, with 66% of cases resulting in abortion (inevitable, complete, or incomplete) and 10% diagnosed as ectopic pregnancies. Among ongoing pregnancies, complications such as placenta previa (5%), placental abruption (2%), pregnancy-induced hypertension (7%), and intrauterine growth restriction (5%) were also observed.

These associations are summarized in Table 5, where abortion and ectopic pregnancy outcomes demonstrated statistical significance ($p< 0.05$), while hypertensive disorders and placental complications did not show significant association.

Table 5. Association of First-Trimester Vaginal Bleeding with Maternal Outcomes (n = 100)

Maternal Outcome	Number (%)	p-value	Significance
Abortion (inevitable, complete, incomplete)	66 (66%)	<0.001	Significant
Ectopic pregnancy	10 (10%)	0.032	Significant
PIH / Placenta previa / Abruption	6 (6%)	0.087	Not significant
IUGR	2 (5%)	0.091	Not significant

DISCUSSION

In the present study, 58% of women presenting with first-trimester bleeding had non-viable pregnancies, while 42% continued as viable. These findings highlight the adverse prognostic implications of early pregnancy bleeding. Similar outcomes have been reported by Luise et al., who in their observational series found that more than half of women managed expectantly after spontaneous first-trimester miscarriage did not proceed to a viable pregnancy [9]. Likewise, a meta-analysis by Sotiriadis et al. concluded that vaginal bleeding in early gestation significantly increases the risk of miscarriage irrespective of management modality [10].

In terms of management, randomized and cohort studies have explored different approaches for early pregnancy failure. Tang et al. demonstrated comparable efficacy between repeated vaginal and sublingual misoprostol for silent miscarriages [11], while Wieringa-de Waard et al. described the natural course of spontaneous miscarriage, showing that most women present with a similar profile of bleeding and abdominal pain to that observed in our cohort [12]. Our results, with 28% inevitable abortions, 21% complete abortions, and 17% incomplete abortions, fall well within these reported ranges.

The role of surgical versus medical management has also been debated. Zhang et al., in a multicenter randomized trial, reported success rates of 80–90% with misoprostol comparable to surgical evacuation [13]. While our study was not interventional, the spectrum of miscarriage outcomes observed aligns with their data, suggesting that expectant, medical, and surgical approaches each have a place depending on clinical context.

Maternal complications beyond miscarriage were also observed. Ananth and Savitz, in a meta-analysis, emphasized that first-trimester vaginal bleeding increases the risk of subsequent pregnancy complications [14]. In our study, 7% of women developed pregnancy-induced hypertension and 5% intrauterine growth restriction (IUGR), in agreement with the findings of Amirkhani et al., who reported that nearly one-third of women with early bleeding developed complications later in pregnancy [15]. Similarly, Yakistiran et al. highlighted that vaginal bleeding in early gestation is associated with increased maternal morbidity, supporting the role of early monitoring [16].

Indian literature echoes similar results. Jasoliya and Bhatia reported that nearly 60% of women with first-trimester bleeding experienced adverse pregnancy outcomes, including miscarriage and maternal complications [17]. More recently, Vashisht demonstrated that non-viable pregnancy outcomes ranged from 55–60%, comparable to the 58% observed in our study [18].

Our complication rates were relatively lower than some international series. For instance, Evrenos et al. described significantly higher rates of placental complications, with placenta previa in 10% and abruption in 6% of cases [19], whereas in our population these were 5% and 2%, respectively. This difference may be explained by demographic variations, as our cohort had a younger mean maternal age and a lower proportion of high-order pregnancies.
Similarly, Kamble et al. found that first-trimester bleeding was associated with 35% abortion rates [20]. Our results showed a higher proportion of abortions (66% across inevitable, complete, and incomplete categories), reflecting differences in study design, patient selection, and follow-up duration.

CONCLUSION

First-trimester vaginal bleeding was associated with a high proportion of adverse maternal outcomes in this study, with 58% of pregnancies resulting in non-viability and a significant proportion complicated by conditions such as placenta

previa, placental abruption, pregnancy-induced hypertension, and intrauterine growth restriction. Among viable pregnancies, the rate of caesarean delivery was also high, reflecting the obstetric risks linked to early bleeding.

These findings confirm that first-trimester bleeding serves as an important prognostic marker for adverse maternal outcomes. Early ultrasound evaluation, close antenatal monitoring, and timely intervention are essential to reduce complications and optimize pregnancy prognosis. Regional differences in presentation and healthcare access should also be considered when interpreting these outcomes.

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