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Original Research Article

Early and Late Pregnancy Complications in Women Who Experience First Trimester Vaginal Bleeding at Tertiary Care Hospital, Karachi

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Abstract: *First trimester vaginal bleeding is a common obstetric presentation and a potential predictor of adverse pregnancy outcomes. Timely identification and management are essential to mitigate risks for both mother and fetus, particularly in resource-constrained settings.* ***Objective:*** *To determine the maternal and fetal complications in patients presenting with first trimester vaginal bleeding at a tertiary care hospital.* ***Methods:*** *This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Jinnah Postgraduate Medical Centre (JPMC), Karachi, over six months from May 2023 to October 2023, following ethical approval. A total of 145 pregnant women aged 20–45 years, presenting with vaginal bleeding within the first 12 weeks of gestation, were recruited using non-probability consecutive sampling. Women with systemic illness, bleeding disorders, or malignancy were excluded. Detailed demographic data and obstetric history were collected, and all participants were followed until delivery. Maternal outcomes assessed included miscarriage, term/preterm delivery, placenta previa, placental abruption, pre-eclampsia, and delivery-related complications. Fetal outcomes evaluated were low birth weight, intrauterine growth restriction (IUGR), congenital anomalies, prematurity, and stillbirth. Data were analyzed using SPSS version 20. Chi-square test was used to determine associations with booking status, with $p \leq 0.05$ considered statistically significant.* ***Results:*** *Out of 145 participants, 56 (38.6%) experienced miscarriages, while 28 (19.3%) had preterm and 66 (45.5%) had term deliveries. Placenta previa and placental abruption were noted in 9 (6.2%) and 6 (4.1%) cases respectively. Caesarean section was performed in 43 (29.7%) patients, with instrumental delivery and postpartum haemorrhage reported in 4 (2.8%) and 6 (4.1%) cases respectively. Fetal complications included low birth weight in 24 (16.6%), prematurity in 27 (18.6%), IUGR in 16 (11.0%), congenital anomalies in 6 (4.1%), and stillbirth in 3 (2.1%) neonates. Unbooked patients showed significantly higher rates of miscarriage and preterm birth ($p < 0.05$).* ***Conclusion:*** *First trimester vaginal bleeding is associated with a considerable risk of adverse maternal and fetal outcomes, particularly among unbooked patients. Early detection, consistent antenatal care, and vigilant monitoring are imperative to improve pregnancy prognosis.*

Keywords: Abortion, Spontaneous, Pregnancy Complications, Pregnancy Outcome, Pregnancy Trimester, Vaginal Hemorrhage

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Introduction

Vaginal bleeding in the first trimester (VBF) is a common and distressing symptom that complicates 20 to 30% of all pregnancies globally and raises substantial fears regarding both maternal and neonatal outcome (1). While it can be due to benign conditions (e.g., implantation bleeding), it is sometimes a early symptom of more serious disease such as miscarriage, EP or GTN (2). Nearly 50% of the women with first trimester bleeding can continue a pregnancy to term but the other half is at increased risk for miscarriage, preterm birth and intrauterine growth restriction (IUGR) (3, 4).

Early antenatal diagnosis and its management is challenging in the low- and middle-income countries such as Pakistan due to the availability of resources (5). Data from various locality have reported miscarriage up to 40%, other complications like placenta previa (4%), preterm delivery (6.7%), and stillbirth in women experience early pregnancy bleeding (6, 7). In addition, these women suffer from increased emotional stress: they are twice as likely as controls to suffer from anxiety as well as depression with a significant impact on maternal well-being (8, 9).

Fetal complications of early first-trimester bleeding commonly consist of low birth weight, IUGR, preterm delivery, and malformation (10, 11). Women also experience delivery problems in a number of cases, including a demand of a caesarean section or instrumental delivery because of later pregnancy complications, (12). Extensive studies show that most affected pregnancies result in a normal birth, but early detection and risk stratification are still crucial for optimal outcome (13).

There is scarce data regarding this stage of chronic liver disease and its implications in Pakistani population, although it is widely spread and occasionally serious condition. Local series are needed for the development of local risk profiles and protocols. This study therefore provides insight into maternal and fetal conclusions in patients presenting with first trimester vaginal bleeding at a tertiary care hospital in Karachi and helps in counselling and management (14).

Methodology

This cross-sectional investigation is carried out in the Department of Obstetrics and Gynaecology of the Jinnah Postgraduate Medical Centre (JPMC) Karachi after six months of acceptance of synopsis by the CPSP with a duration of 6 months from May 2023 to October 2023. One hundred and forty-five pregnant women were recruited by non-probability consecutive sampling. The WHO sample size calculator was used to estimate the sample size with an anticipated miscarriage frequency of 40%, 5% error, and confidence level of 95%. Inclusion criteria were women aged 20-45 years in whom a diagnosis of amenorrhea of no more than 12 weeks, a positive urine pregnancy test, and a history of vaginal bleeding during the first trimester had been confirmed. Only those patients who had at least parity and gravida ≥1 were included. Those women with diagnosed connective tissue disease (systemic lupus erythematosus (SLE)), uterine or cervical neoplasia, epilepsy, diabetes mellitus, cardiac disease, asthma, polyhydramnios, and bleeding/clotting disorder were excluded from the study.

Once getting formal approval from institutional ethical review board and CPSP, the eligible patients coming to the OPD/ED were retrieved and recruited with the help of written informed consent. Maternal age, gestational age, residence status, booking status, occupation, gravida, and parity of each patient was noted on a structured proforma. All patients were followed up till delivery and maternal and fetal outcomes were recorded as per predefined operational definitions. Pregnancy outcomes that were evaluated were spontaneous abortion, delivery at term or preterm, placenta previa, placental abruption, pre-eclampsia, caesarean section, instrumental delivery and post-partum haemorrhage. Fetal outcomes such as LBW, IUGR, congenital anomalies, premature delivery, stillbirth were recorded. The statistical analysis was performed with SPSS ver. 20. Continuous variable such as maternal age and gestation age was expressed as mean ± standard deviation and qualitative variable was presented as frequency and percentage. Stratification was made for possible effect modifiers in terms of age, gravida, parity and booking status. Poststratification chi-square test or Fisher's exact test was performed when appropriate and used a threshold of $p \leq 0.05$ for significance.

Results

There were 145 pregnant women with first trimester vaginal bleeding included in the study. The mean maternal age was 30.8 ± 5.4 years and the mean gestational age at time of bleeding was 7.3 ± 2.1 weeks. Majority of the patients were unbooked (72.4%) and unemployed (88.3%) and the gestational age was multigravida in 61.4%.

For the maternal outcomes, miscarriage was observed in 56 (38.6%) and term pregnancies in 66 (45.5%) cases. Preterm deliveries were found in 28 (19.3%) women, while placenta previa and placental abruption in 9 (6.2%) and 6 (4.1%) patients, respectively. Pre-eclampsia occurred in 9 (6.2%) cases. Among delivery complications, caesarean section was the most common (43; 29.7%) followed by instrumental delivery (4; 2.8%), and postpartum haemorrhage (6; 4.1%). The results are presented in Table 1 and Figure 1.

Regarding the fetal outcome, 24 (16.6%) had low birth weight, 27 (18.6%) had premature labor, and 16 (11.0%) had IUGR. There were 6 (4.1%) cases with congenital anomalies, 3 (2.1%) were stillbirths. The detailed data can be found in Table 2 and was graphically illustrated in Figure 2.

Stratified analysis of maternal age, gravida and booking status were also conducted to identify their impact on pregnancy outcomes. An unbooked status was significantly associated with higher rates of miscarriage and preterm delivery ($p < 0.05$). Such findings emphasize early antenatal booking and follow-up in the management of first trimester PVB.

Table 1: Maternal Outcomes in Women with First Trimester Vaginal Bleeding

Outcome	Yes (n)	No (n)	Percentage Yes (%)
Miscarriage	56.0	89.0	38.6
Term Pregnancy	66.0	79.0	45.5
Preterm Birth	28.0	117.0	19.3
Placenta Previa	9.0	136.0	6.2
Placental Abruption	6.0	139.0	4.1
Pre eclampsia	39.0	106.0	26.9
Instrumental Delivery	8.0	137.0	5.5
Cesarean Section	56.0	89.0	38.6
Postpartum Hemorrhage	7.0	138.0	4.8

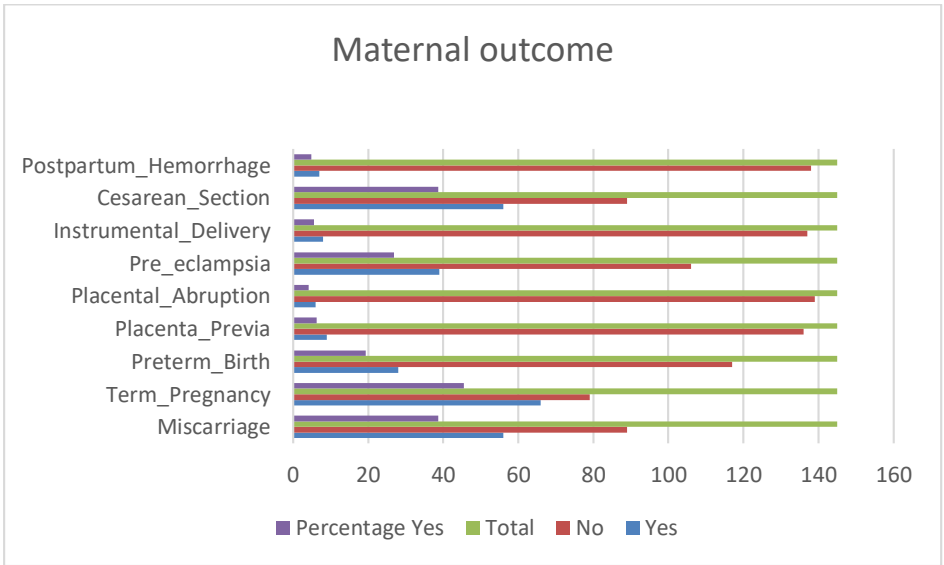

Figure 1.Maternal Outcome

Table 2: Fetal Outcomes in Women with First Trimester Vaginal Bleeding

Outcome	Yes (n)	No (n)	Percentage Yes (%)
Low Birth Weight	24.0	121.0	16.6
Premature Birth	27.0	118.0	18.6

IUGR	16.0	129.0	11.0
Anomalous Fetus	6.0	139.0	4.1
Stillbirth	3.0	142.0	2.1

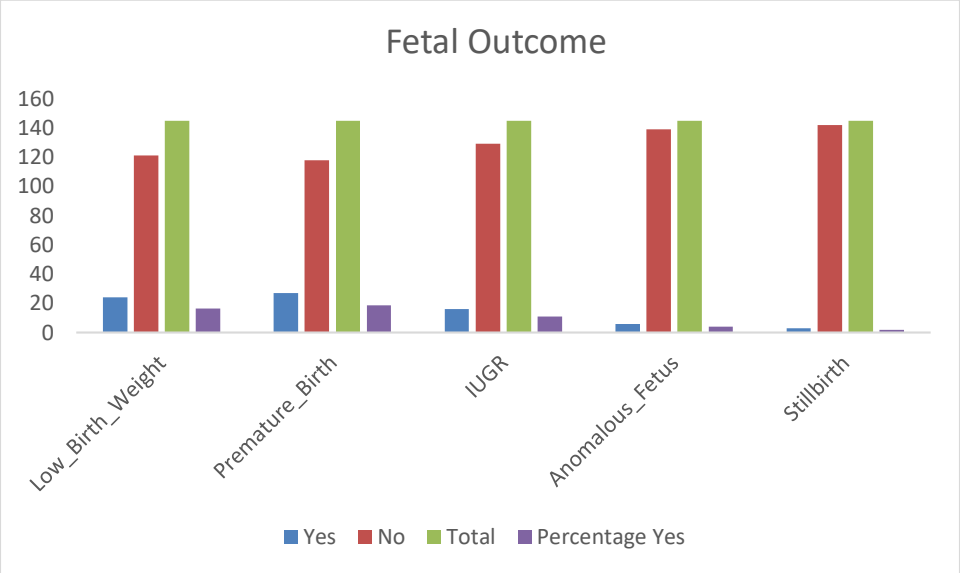

Figure 2.Fetal Outcome

Discussion

This demonstrates the tremendous impact of maternal and fetal complications related to first trimester vaginal bleeding. Of 145 pregnant women evaluated, 38.6% had history of miscarriage, which is in accordance with previous world statistics with the rate of miscarriage 20–40% in this population (2, 5). Our results also indicate that while 45.5% of the women delivered at term, a significant 19.3% had preterm births. These findings are in line with previous reports that early pregnancy haemorrhage was significantly associated with higher risks of preterm delivery, particularly in the unbooked patients. (3, 6)

It is important to note that the study noted placenta previa in 6.2% and placental abruption in 4.1% of the cases, corroborating the literature about early bleeding and placental alterations (4, 5). Pre-eclampsia occurred in 6.2% of the women, suggesting that complications in early pregnancy may be associated with subsequent maternal morbidity. Caesarian section were the most frequent complication during delivery in our population (29.7%) and this rate was greater than the national rate, reflecting a larger proportion of complications warranting urgent interventions (12, 15).

Fetal results were no less disturbing. Low birth weight was reported in 16.6% of newborns, IUGR and prematurity in 11.0% and 18.6%. Our findings are consistent with those of Saraswat et al., who reported an increased risk of fetal growth restriction and low birth weight in women with early pregnancy complications (3). There was 1 stillbirth (2.1%) and congenital anomalies were recorded in 4.1% of pregnancies, emphasizing the importance of close antenatal surveillance in this cohort (7, 16).

The impact on women affected psychologically also cannot be ignored. Evidence exists that women with FTB are at increased risk of anxiety and depressive symptoms in early pregnancy affecting maternal health and pregnancy outcomes (8, 9). While this study did not evaluate psychological metrics directly, the potential correlation highlights the importance of early counselling and psychological services.

With regards to obstetric outcomes, our findings also support the importance of both early booking and the provision of antenatal care on a regular basis, with strong associations between unbooked status and adverse complications such as miscarriage and preterm birth ($p < 0.05$). These results are supported by other studies from South Asia who endorse antenatal care as a factor of protection from complications (17).

Limitations of the study include prospective data collection and narrowly defined population from a tertiary care hospital. There was, however, some potential biases in the study, such as a single-centre study design and that there was no long-term following-up of neonatal outcomes. More multicentre studies are needed to investigate if early bleeding predicts late pregnancy outcomes and neonatal conditions.

Conclusion

In conclusion, this study adds to existing evidence that first trimester vaginal bleeding is not only a frequent presenting complaint but also a harbinger of both early and late maternal-fetal complications. Proactive identification, structured antenatal surveillance, and psychological support can significantly improve outcomes in this vulnerable group of patients.

Declarations

Data Availability statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-MMS-033-24)

Consent for publication

Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

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All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

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