ORIGINAL ARTICLE

Feto-Maternal Outcomes in Pregnant Women with First Trimester Vaginal Bleeding

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ABSTRACT

Background: Vaginal bleeding can be a normal sign of implantation of the pregnancy, may herald the initiation of spontaneous abortion, or may be the sign of a pathologic condition such as ectopic pregnancy or gestational trophoblastic disease.

Methods: This was a prospective cohort study included 68 cases of pregnant female with first trimester vaginal bleeding at Obstetrics& Gynecology Department, Faculty of Medicine, Zagazig University. The duration of the study was from February 2021 to December 2021. General and local examinations were done for every participant. Vaginal bleeding was considered light when the women did not need hospital care and heavy when she was admitted to hospital. Fetal biometric measures and any maternal or fetal outcomes were noted and associated with vaginal bleeding. .

Results: There was 29.5% had no complications but there is 8.8% had intrauterine growth restriction (IUGR), 17.6% had placental abruption, 30.9% had premature labor, 10.3% had premature rupture of membrane (PROM) and 2.9% had intrauterine fetal death (IUFD).

Conclusion: Patients who were presented with severe vaginal bleeding had a pregnancy loss and hence a negative prognosis. Pregnancy prognosis is considerably influenced in the presence of sub-chorionic hematoma since the risk of preterm labour, IUGR, and notably miscarriage increases dramatically.

Keywords: Vaginal bleeding, First trimester, Feto-Maternal, Outcomes.

INTRODUCTION

Bleeding in the first trimester is a frequent gestational issue that affects 16-25 percent of all pregnancies [1]. The history of vaginal hemorrhage in early gestation with a closed cervix is a probable indication of imminent miscarriage. According to a meta-analysis, vaginal bleeding doubles the chance of pregnancy problems [2].

Vaginal hemorrhage may be a marker of pregnancy implantation, an indication of prenatal trophoblastic disease, or a pathological sign of ectopic gestation [1]. Vaginal hemorrhaging in early gestation necessitates further investigation to determine whether the pregnancy is normal or abnormal, as well as whether there is a pathological issue that necessitates rapid attention [1]. Vaginal hemorrhage in the first trimester is thought to indicate underlying placental disorder, which can cause difficulties such as first or second trimester abortion, pre-eclampsia, premature birth, preterm rupture of membranes, intrauterine growth limitations, and intrauterine death later [3].

Abortus imminens is detected by vaginal hemorrhage in the first trimester with a closed cervix and verified by ultrasonography with fetal heartbeat. It's encouraging to have Doppler confirmation of fetal heart activity because it means bleeding isn't a factor in fetal death [4].

METHODS

The research was carried out at the Obstetrics & Gynecology Department, Faculty of Medicine, Zagazig University, whereas 68 gravid women, with first trimester vaginal hemorrhage were enrolled in this prospective cohort research. This study was conducted between February 2021 and December 2021 .

Inclusion Criteria for study group: All pregnant women with vaginal hemorrhage in the first trimester (<12 weeks) who went to an antenatal clinic.

Exclusion Criteria for groups: Congenital uterine abnormalities, poor obstetric history, **and** a history of hemorrhaging problems

Sample Size: According to the following criteria with 95% Two-sided confidence interval and power 80% and delivery at 37-40 weeks. In spotting bleeding were 89.2% compared to 56.2% in heavy bleeding, so sample size was calculated to be (68 case) of pregnant female with first trimester vaginal bleeding

Operational design: All women involved in the trial were explained the study and given signed permission before the study began, along with counseling regarding the study's risks and benefits.

Methods: Patients were subjected to:

Complete history taking: Full history taking: Name, age, telephone no., address, occupation, and residence. Menstrual history including age of menarche, menstrual disturbance, dysmenorrhea, related symptoms, obstetric history including parity and mode of delivery, history of chronic disease and medications or DM. Family history of similar condition or diabetes, history of allergy to any medication, surgical history of operation, laparoscopic interference, and prior ovulation induction in the past 6 months.

Examination:

General examination: Vital signs (Blood pressure, Temperature, Heart rate, Respiratory rate), **Signs of** (Pallor, Cyanosis, Jaundice, and Lymph node enlargement).

Body Mass Index(BMI):

$$\frac{\text{Weight in Kg}}{(\text{Height in meters})^2}$$

Local examination: Uterus (small, hypoplastic, RVF or bicornuate, **cervix (**short or tear) **and Vaginal discharge** (bloody or purulent)

Abdominal examination: Previous surgery scar, mass, discomfort, stiffness, and swelling, or ovarian swelling.

Abdominal palpation: Palpate examining each of the nine abdominal areas for clinical evidence of gastrointestinal pathology: Tenderness, rebound tenderness, guarding and masses, abdominal percussion, and abdominal auscultation: Assess bowel sounds

Laboratory study: Complete blood picture (CBC): hemoglobin levels (Hb %), red blood cells (RBCs), white blood cells (WBCs), platelet count. **Renal function test:** serum creatinine, blood urea and urine analysis. **Liver Test Profile:** AST and ALT, serum albumin, bilirubin, serum gamma-glutamyl transferase (GGT), prothrombin time, and international normalized ratio (INR), and **coagulation profile** (INR, APTT, platelets, and fibrinogen), **Serum beta-HCG**

Ultrasonographic investigations: (VOLUSON 730 PRO V)

Fetal biometric measures: Fetal biometry is the ultrasound measurement of the fetus' anatomic segmentation. CRL, BPD, head circumference (HC), AC, and femur length (FL) are the most prevalent metrics. To improve the precision of standard parameter measurements and acquire more comprehensive information.

We looked at the perinatal outcome and pregnancy complications of threatening miscarriage (premature birth, premature pre-labour rupture of membranes [PPROM], preeclampsia, placental abruption, and intrauterine growth restriction [IUGR]). We examined at the negative maternal and perinatal outcomes in pregnant women who had vaginal hemorrhage in the first trimester. We Managed the cases (medical treatment received, outcome maternal, outcome fetal). Followed up: Abortion, premature rip of membranes, premature labor, second and third trimester vaginal hemorrhage, low birth weight, intrauterine growth delay, and method of delivery were all assessed in all women. Once a month during the first six months, once every two weeks for the seventh and eighth months, and once a week for the last month.

Ethical Consideration: Written informed consent was obtained from all participants. The study was done according to The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Data management and Statistical Analysis: Data was gathered employing Microsoft Excel software throughout the history, basic clinical evaluation, laboratory tests, and results assessments. The data was then imported into the Statistical Package for the Social Sciences (SPSS version 20.0) program for analysis. Depending to the nature of data, qualitative data is represented as a number, while quantitative data is represented as a proportion. To determine the significance of variations, the following tests were utilized: Pearson's correlation or Spearman's correlation. For substantial findings, the P value was set at < 0.05, and for very substantial results, it was set at < 0.001.

RESULTS

The median gravidity is 3.6 ± 1.7 and ranges from 1 to 9. But the parity mean is 1.8 ± 1.5 ranging from 0 to 7. According to mode of delivery 70.6 % among the participants delivered by caesarean section. Frequency of previous abortion among the participants (N=63), there are 44 participants had no previous abortion, 5 participants had one previous

abortion, 16 participants had two previous abortions and 3 participants had four previous abortions. Table (1)

By asking the patient about the volume and duration of bleeding to help quantify total or ongoing blood loss. We assessed the severity of bleeding; 54.4% of the participants had minimal vaginal bleeding, 30.9% had moderate vaginal bleeding and 14.7% had severe vaginal bleeding Table (2).

According to ultrasonography there were 63 cases of vaginal bleeding among the participants. About 20.6% had threatened abortion, 49.2% had missed abortion, 12.7% had ectopic pregnancy in right side and 7.9% in left side, 16 (25.4) Vesicular mole Table (3). 29.5% had no complications but there is 8.8% had IUGR, 17.6% had placental abruption, 30.9% had

premature labor, 2.95% had GDM, 5.9% had Gestational Hypertension, 10.3% had PROM, 5.9% had pre-eclampsia and 2.9% had IUFD Table (4). There was a statistically substantial link between severity of vaginal bleeding and abortion, birth weight, APGAR score, NICU, and fetal oxygenation. Table (5)

There is 5.9% had DM, Gestational Hypertension, preeclampsia, 11.8% had anemia, 4.8% had hyperemesis, 3.1 had postpartum Hge and 1.6% had antepartum Hge. Table (6). 19% had missed abortion, 20.6% had ectopic pregnancy in which 13.2% were right and 8.8% were left, 25.4% had vesicular mole, 4.7% had Still birth, 19.6% had preterm labour and 10.4% had full-term labour.

Table (1): Obstetric history of the participants

Variables	N= 63
Gravidity	
Mean± SD	**3.6± 1.7**
Range	**1-9**
Parity	
Mean± SD	**1.8± 1.5**
Range	**0-7**
Mode of delivery	
Vaginal	**18 (29.4)**
CS	**45 (70.6)**
Abortion	**n (%)**
No	**40 (64.7)**
1 time	**5 (7.4)**
2 times	**15 (23.5)**
≥3 times	**3 (4.4)**

SD: standard deviation; CS: caesarean section

Table (2): severity of vaginal bleeding among the participants

Vaginal bleeding	n (%)
Minimal	**36 (54.4)**
Moderate	**18 (30.9)**
Severe	**9 (14.7)**

Qualitative data presented as frequency and percentage

Table (3): Differential diagnosis of vaginal bleeding by USG

Causes	n (%)
Ectopic pregnancy	**13 (20.6)**
Ectopic pregnancy Place **Right Side** **Left Side**	**8 (12.7)** **5 (7.9)**
threatened abortion	**13 (20.6)**
Missed abortion	**31 (49.2)**
Vesicular mole	**16(25.4)**

Table (4): maternal and fetal complications distributions among the participants

Complications	n (%)
No complications	19 (29.5)
IUGR	5 (8.8)
Placental abruption	11 (17.6)
Premature labor	20 (30.9)
Gestational Diabetes	2 (2.9)
Gestational Hypertension	4 (5.9)
PROM	8 (10.3)
Pre-eclampsia	4 (5.9)
IUFD	2 (2.9)

IUGR: intrauterine growth retardation, PROM: premature rupture of membrane

Table (5): Association between severity of vaginal bleeding and feto- maternal outcomes

Variables	Mild vaginal bleeding n= 34	Moderate vaginal bleeding n= 15	Severe vaginal bleeding n= 9	P value
Abortion	1 (2.8)	5 (27.8)	6 (66.7)	**0.001***
Birth weight <2 Kg n (%) 2-2.5Kg n (%) >3 Kg n (%)	0 (0) 9 (25) 26 (69.4)	2 (11.1) 7 (38.9) 4 (50.0)	2 (22.2) 1 (11.1) 0 (0)	**0.008***
APGAR score	7.9± 3.6	6.7± 3.3	5.4± 2.1	**0.022***
NICU				
Yes	2 (5.9)	4 (26.7)	3 (33.3)	**0.040***
No	32 (94.1)	11 (73.3)	6 (66.7)	
Fetal oxygenation				
Yes n (%) No n (%)	**0 (0)** **34 (100)**	**2 (13.3)** **13 (86.7)**	**3 (33.3)** **6 (66.7)**	**0.005***

Table (6): Maternal outcomes among studied cases (n=63).

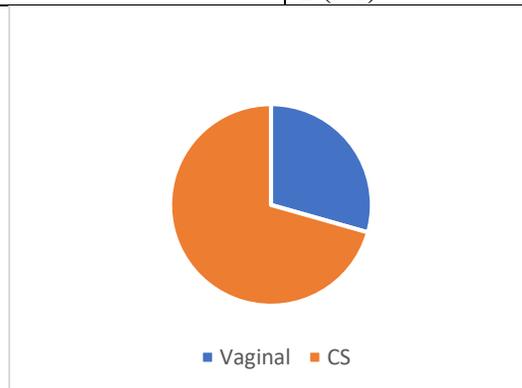| Variables	n(%)
Hyperemesis	3 (4.8)
Antepartum Hge	1(1.6)
Anemia	8(11.8)
Diabetes	
Gestational	2 (2.95)
Pre-gestational	2 (2.95)
Preeclampsia	4 (5.9)
Gestational Hypertension	4 (5.9)
Postpartum Hge	2 (3.1)

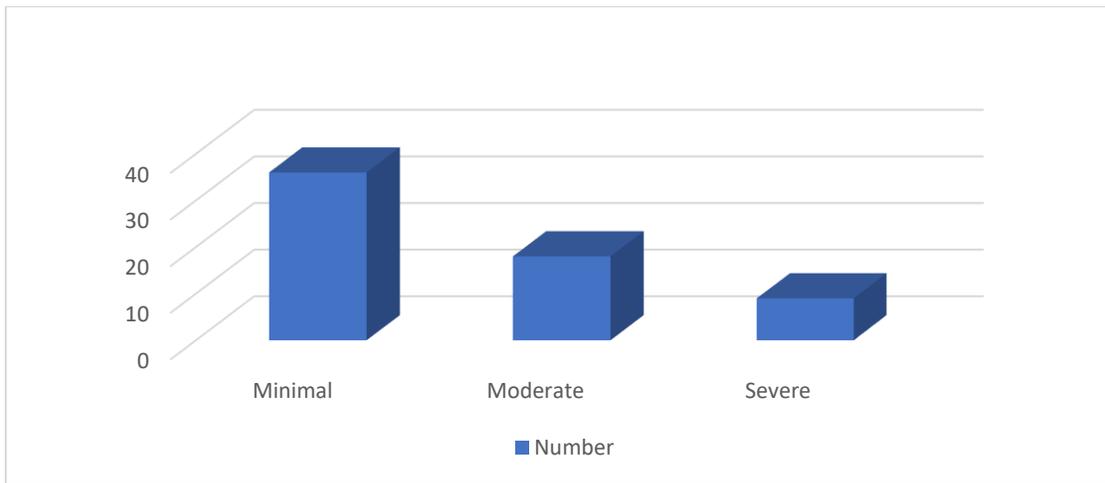Figure (1): **Mode of delivery of included patients**

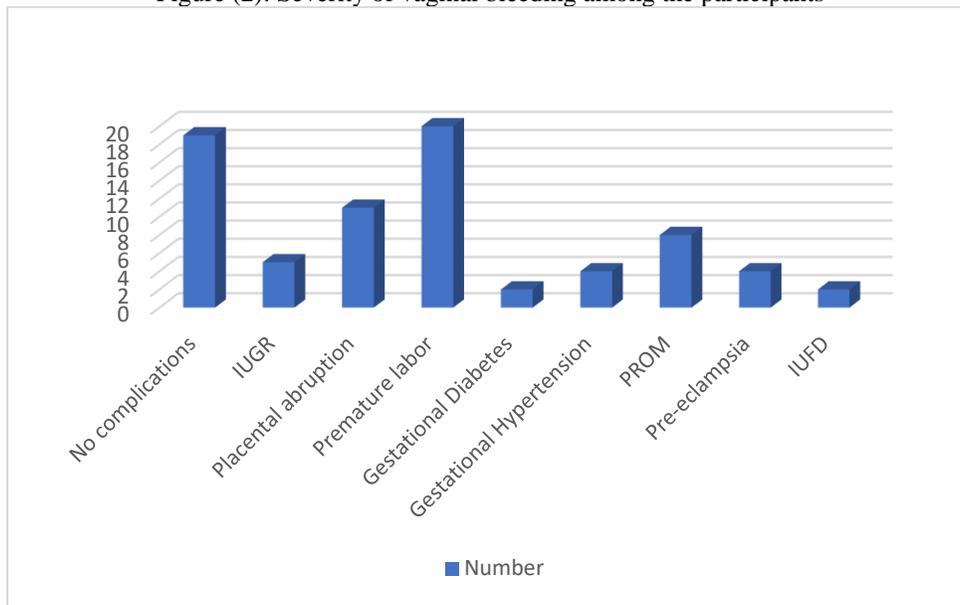Figure (2): Severity of vaginal bleeding among the participants

Figure (3): Maternal and fetal complications distributions among the participants
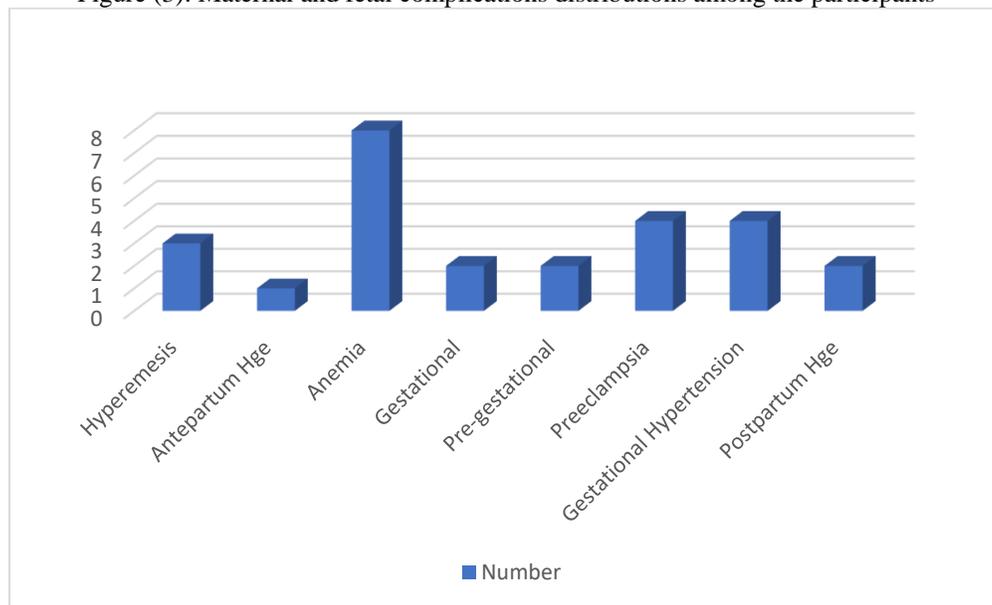

Figure (4): Maternal outcomes among studied cases

DISCUSSION

Maternal age, systemic disorders including diabetes, hypothyroidism, infertility therapy, maternal weight, and uterine anatomical defects are all known to raise the incidence of abortus imminens [5].

Our study included a sum of 68 gestated women the age range is 20 to 47 years. The mean age among the participants is 30.5± 8.1 ranged from 20 to 47 years old. Miscarriage risk is multifactorial, and although certain maternal risk factors are more relevant than others, no predictor of future loss of pregnancy exists. The age of the mother is a significant predictor of abortion risk. The probability of miscarriage less than 20 weeks' pregnancy is 8.9% among women aged 20 to 30. For women over the age of 40, this figure rises to 74.7 percent [6].

In agreement with Olugbenga et al, in which 86.5 percent of the patients were aged 20 to 34. [5]. Furthermore, 20% of patients were pregnant as teenagers, which is a significantly higher proportion than the general population, which had 8% of patients pregnant as teenagers.

In Bhatu & Prajapati, the research included people aged 18 to 35, and the majority of first trimester hemorrhaging (69%) occurred in those aged 21 to 30 [7].

In the current study, the mean gravidity is 3.6± 1.7 and range from 1 to 9. But the parity mean is 1.8± 1.5 ranging from 0 to 7.

In agreement with Bhatu & Prajapati,[7], study in which the most of patients were primigravida, with 53 percent and multigravida, with 47 percent.

A Study by Kamble et al, [8] The majority of instances (56.7%) were primigravida, with the remaining 43.3 percent being multigravida.

Maternal obstetric history (Intrauterine exitus, gravidity, parity, spontaneous or induced abortion) was also useful for exams throughout prenatal care in the threatening miscarriage group [9].

In this study, 54.4% of the participants had minimal vaginal bleeding, 30.9% had moderate vaginal bleeding and 14.7% had severe vaginal bleeding.

The present study results showed that 22.1% had ectopic pregnancy. About 19.1% had intra uterine fetal death, 54.4% had missed abortion and 26.5% had subchorionic hematoma.

Evrenos et al, [10] found that 61% were abortions and 21% ectopic pregnancies where in Sarmalkar et al, 70% were abortions.

Our study results showed that the mean systolic blood pressure among the participants is 113.4± 4.8, the mean diastolic blood pressure is 67.9± 6.4, the mean pulse among the participants is 90± 85.2, the mean

hemoglobin is 11.3± 0.9 and the mean platelet count among the participants is 139.1± 14.4. About 35.3% had B+ as ABO group. There were 44% of the participants had no adnexal mass and 24 participants had positive adnexal mass. Only 6% had hypertension among the participants.

Like previous studies which reported that, the average gestation period in the threatened miscarriage group was 243 days, compared to 263 days in the control group. In pregnancies with a high risk of miscarriage, mother age and abortion history had a negative impact on the outcome [11].

In our study, 5.9% of patients had hypertension. This condition was linked to pregnancy-induced hypertension and preeclampsia, as well as poorer Apgar scores and a bad prior obstetric history, according to previous research [12].

Abortion is also increased by maternal comorbidities like antiphospholipid antibody disorder, excessive maternal weight, and high blood pressure [6].

In this study, 32.4% had no complications but there is 8.8% had IUGR, 17.6% had placental abruption, 30.9% had premature labor and 10.3% had PROM.

Our findings were comparable to those previously published by Hossain et al., [12]. According to this research, hemorrhage problems in the first and second trimester are more probable than hemorrhage in the first trimester alone.

Another model focuses on the real placental bed bleeding: Excessive oxidative stress, which has been associated to premature birth, PROM, and preeclampsia, has been connected to an iron deposit [13].

A nidus increases the chances of infection, which has been associated with premature birth. Additionally, decidual hemorrhage will produce an excess of thrombin from decidual-cell produced tissue factor, which might obstruct the implantation process [14].

In the present study 29.5% had no complications but there is 8.8% had IUGR, 17.6% had placental abruption, 30.9% had premature labor, 10.3% had PROM and 2.9% had IUFD.

In our study, 70.6 % among the participants were delivered by caesarean section.

While Saraswat et al. conducted a comprehensive study and found that bleeding during the first trimester had no influence on the delivery route [15]. However, some investigations have shown that the likelihood of a cesarean delivery in women who are bleeding is higher than in other women. The volume and features of bleeding are linked to poor mother and fetal outcomes, which we did not track [9].

CONCLUSION

Patients who were presented with severe vaginal bleeding had a pregnancy loss and hence a negative prognosis. Pregnancy prognosis is considerably influenced in the presence of sub-chorionic hematoma since the risk of preterm labour, IUGR, and notably miscarriage increases dramatically.

Conflict of interest: None

Financial disclosure: None

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