International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Siddhu S et al. Int J Reprod Contracept Obstet Gynecol. 2022 Apr;11(4):1150-1155
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20220896

Original Research Article

The study of outcome of pregnancy with first trimester vaginal bleeding and its complications

Sachin Siddu*, Vandana Dhama, Rachna Chaudhary, Shakun Singh

Department of Obstetrics and Gynaecology, LLRM Medical college, Meerut, Uttar Pradesh, India

Received: 06 February 2022
Accepted: 07 March 2022

***Correspondence:**
Dr. Sachin Siddu,
E-mail: Sachinsiddu99@gmail.com

ABSTRACT

Background: To study the pregnancy outcome of the first trimester vaginal bleeding and to assess the maternal pregnancy complications associated with this pregnancy.
Method: The prospective observational study was conducted in the department of obstetrics and gynecology, L.L.R.M. medical college and associated SVBP hospital, Meerut during one year period from June 2020 to May 2021 with the sample size of 100 patients who fit the inclusion criteria were included in the study after obtaining an informed and written consent.
Results: Among the patients presented with first trimester vaginal bleeding, ectopic pregnancy was noted in 7%, hederiform mole in 3%, 17% aborted in the first trimester itself, 73% of patients that continued pregnancy after first trimester 3% had second trimester miscarriage.70% who reached beyond viability gestational age 52% delivered vaginally, out of which 27.14% had preterm delivery, 18% were delivered by caesarian section. The adverse perinatal outcome noted in the study were LBW (23, 32.85%), preterm birth (19, 27.14%), NICU admission (25, 35.71%), FGR (8, 11.43%) and intrauterine fetal death (2, 2.86%). The maternal complication associated with pregnancy noted in the study were anemia (29,54.72%), PIH (6, 11.32%), placenta previa (5, 9.43%), placental abruption (3, 5.66%) and PPROM (8, 15.09%).
Conclusions: There is positive correlation between first trimester vaginal bleeding and adverse feto-maternal outcome. The fetus is in increased risk of LBW, Preterm birth, NICU Admission, FGR and fetal death. The patients are in increased risk of having maternal complication like anemia, PIH, Placenta previa, Placental abruption and PPROM.

Keywords: First trimester vaginal bleeding, Outcome, Pregnancy

INTRODUCTION

Bleeding per vagina is one of the commonest presentations in the first trimester, where the incidence rate is up to 15-25%.[1,5] Bleeding in the first trimester is often painless, but it can be associated with lower abdominal pain. However, the color, consistency, flow of bleeding and features associated with bleeding like abdominal pain along with the clinical examination, biochemical investigations and USG, often helps in making accurate diagnosis.

Bleeding can be in the form of spotting or frank bleeding. The source of bleeding is always maternal. Disruption of maternal blood vessels in the decidua or it can be from discrete cervical or vaginal lesions results in vaginal bleeding. First trimester vaginal bleeding is a clinical manifestation which predicts the adverse outcome of the pregnancy. It is an indicator of significant adverse maternal and perinatal outcome.

Vaginal bleeding in pregnancy, it can be normal or abnormal. Vaginal bleeding is seen in some pregnant patients due to implantation of the fertilized egg pregnancy or it may be associated with some pathological cause. Vaginal bleeding after confirmation with a positive pregnancy test requires further assessment to identify

normal or abnormal pregnancy that requires intervention.[3,4]

The most common causes for first trimester bleeding are miscarriage and ectopic pregnancy.[3]

The present study analyses the feto-maternal outcome and cause in pregnancies that are affected with first trimester vaginal bleeding.

METHODS

The Prospective Observational Study was conducted in the department of obstetrics and gynecology, L.L.R.M. medical college and associated SVBP hospital, Meerut during one year period from June 2020 to May 2021.

This clinical study comprises of 100 women who fulfilled the criteria. The study protocol was approved by institutional ethical committee.

All subjects were included in the study after obtaining an informed and written consent. Participation in the study was voluntary.

Inclusion criteria

All pregnant patients of singleton pregnancy presented with first trimester vaginal bleeding delivering at study institutions were chosen for the study.

Exclusion criteria

Twin pregnancy, high risk pregnancy (hypertension, diabetes, severe anemia), non-obstetrical causes of vaginal bleeding in pregnancy and medical causes like coagulopathies were excluded from the study.

Methodology

Pregnant women as per exclusion and inclusion criteria was considered into the study. Pregnancy was confirmed by a pregnancy test. A detailed clinical history, clinical examination, routine biochemical investigations and ultrasonography of the patient who satisfy the criteria. A detailed information regarding timing, heaviness, duration as well as associated symptoms with the bleeding was noted.

Heaviness was defined according to the heaviest bleeding in an episode, and was compared to heaviness of usual menses.

A 'spotting' episode was only noticed when wiping, a 'light bleeding' episode was defined as having the heaviest day(s) of flow being lighter than the heavy flow of a usual menstrual period, and a heavy bleeding episode was defined as having the heaviest day(s) of flow as heavy or heavier than the heavy flow of a usual menstrual period.[6]

All patients were closely monitored by frequent follow up in antenatal period, patient was kept under close observation during intrapartum and postpartum period. Ultrasound examination was done in all three trimesters. The feto-maternal outcome of the pregnancy and the complications associated will be noted.

The statistical analysis of results was done by using SPSS (Statistical package for social science) versions 16 statistical analysis software. Discrete (categorical) data were summarized as in proportions and percentages (%) and mean ± SD (standard deviation). The values were represented in number (%) and mean ± SD.

RESULTS

It was seen that the average age of the patients was over 25 (25-26). The median age was 25 years with a range of 19-34 years.

Table 1: Age wise distribution among the study group.

Age category (Years)	N	Percentage (%)
>20-25	49	49
>25-30	39	39
>30	8	8
Up to 20	4	4
Total	100	100

Table 2: Viability of pregnancy by the end of first trimester in patients with first trimester vaginal bleeding among study group.

Viability	N	Percentage (%)
Non-viable	27	27
Viable	73	73
Total	100	100

Most of the pregnancies in the study were viable (73, 73%).

Table 3: Quantity of bleeding per vagina among study group.

Quantity of bleeding	N	Percentage (%)
Spotting	73	73
Moderate bleeding	19	19
Heavy bleeding	8	8
Total	100	100

Most of the patients had only spotting (73,73%). Nineteen patients (19%) had moderate bleeding, while 8 patients had heavy bleeding (8%).

Out of the 73 patients with spotting, 67 had viable pregnancies. For patients with moderate bleeding, the number of patients with viable pregnancy was 6 out of 19. No patient with heavy bleeding had a viable pregnancy.

Table 4: Relation of quantity of bleeding with viability among study group of patients.

Quantity	Heavy bleeding	Moderate bleeding	Spotting	Total	Percentage (%)
Non- viable	8	13	6	27	27
Viable	0	6	67	73	73

Table 5: Outcome of the study group of patients presented with first trimester vaginal bleeding at the end of first trimester.

Outcome at end of first trimester	N	Percentage (%)
SLIUP	50	50
Threatened abortion	26	26
Missed abortion	8	8
Ectopic pregnancy	7	7
Hydatidiform mole	3	3
Incomplete abortion	3	3
Inevitable abortion	3	3
Total	100	100

Most of the patients had single live intra-uterine pregnancy (50,50%) at end of 1st trimester. Among the patients presented with first trimester vaginal bleeding threatened abortion was seen in 26 patients (26%), missed abortion in 8 patients (8%), incomplete abortion in 3%, inevitable abortion 3% and hydatiform mole in 3%.

Table 6: Outcome of all patients presented with first trimester vaginal bleeding in study group.

Pregnancy outcome	N	Percentage (%)
Miscarriage	20	20
Hydatidiform mole	3	3
Ectopic pregnancy	7	7
FTVD	35	35
LSCS	18	18
PTVD	17	17
Total	100	100

Table 7: Complication associated with pregnancy in the third trimester in the patients who had viable pregnancy after first trimester.

Maternal outcome	N	Percentage (%)
No complication	20	27.40
Complication	53	72.60
Anaemia	29	54.72
Anemia A/w PPH	2	3.77
PIH	6	11.32
Placenta abruption A/w anemia	3	5.66
Placenta previa	2	3.77
Placenta previa, anemia	3	5.66
PPROM	6	11.32
PPROM A/w anemia	2	3.77
Total	73	100

Thirty patients were with no live birth in the study where 23% had miscarriage, 7% were diagnosed with ectopic pregnancy and hydatiform mole in 3% ,30% patients were with no neonatal birth. Seventy patients in the study who continued the pregnancy beyond viability among them full-term vaginal delivery was 35%, lower segment caesarean section was 18% and pre-term vaginal delivery was 17%.

Out of the 73 patients with viable pregnancy in the entire course, 53 patients had a complication (53, 72.60%). Most common complication was anemia (29, 54.72%) followed by PIH (6, 11.32%) and PPROM (6, 11.32%).

Table 8: Summary of the major perinatal outcome of the patients delivered among study group.

Perinatal outcome parameter	N	Percentage (%)
FGR	8	11.43
Death	2	2.86
NICU admission	25	35.71
APGAR less than 7 at 5 minutes	7	10
APGAR less than 7 at 1 minutes	70	100
Preterm birth	19	27.14
Low birth weight	23	32.85
Baby weight (in kgs)	2.61±0.36	
APGAR at 1 minute	5.36±1.29	
APGAR at 5 minutes	7.23±1.65	

Most of the patients had no adverse perinatal outcomes (60, 85.71%). The common adverse perinatal outcome was LBW (23, 32.85%), FGR (8, 11.43%) followed by intrauterine fetal death (2, 2.86%). Of the 70 patients with a live birth, NICU admission was needed in 25 neonates or 35.71%. It was seen that most of the patients had an APGAR score of more than 7 at 5 minutes (63, 90%). Only seven patients had APGAR score less than 7 at 5 minutes. The average body weight at birth was 2.61 kgs with standard deviation of 0.36 kgs. The median Weight was 2.70 kgs with range of 1.90-3.50 kgs, (23, 32.85%) neonates had low birth weight (<2.5 kg).

DISCUSSION

Vaginal bleeding in the first trimester of pregnancy, can be seen to occur in 15-25% pregnant patients and multiple studies have shown different results in terms of impact on feto-maternal outcome.[2] To gain further insights on impact of first trimester bleeding in a subset of Indian pregnant patients, we performed this study on 100 female patients who presented to the department of obstetrics and

gynecology at the Lala Lajpat Rai medical college and SVBP affiliated hospital with bleeding in the first trimester.

The major observations of the study with their references were that: The median age of the patients was 25 years with an average age of 25.53±3.46 years, most of them were under the age of 30 years.

Olugbenga et al in their study showed that the mean maternal age for the study and control groups was 31.4±4.7 and 30.56±3.9 years, respectively (p>0.05). The mean parity was 2.3±1.4 for the study group and 2.5±1.7 for the control group (p>0.05). The mean gestational age at presentation in the hospital, when bleeding occurred was 12.8±1.71 weeks for the study group and 12.6±1.48 weeks for the control group (p>0.05).[7]

The patients were mostly multigravida patients with single parity belonging to a lower socio-economic status and an average POG of 7.24±1.90 weeks.

Iranian study by Amirkhani also showed that most of the patients with first trimester bleeding were under the age of 34 years (80%). Most of the patients were multigravida patients belonging to a lower socio-economic status. Only one-fourth of the patients were primigravida patients. Most of the patients had single parity followed by nulliparity. Most of the patients did not have a history of abortion in the study.

The average gestation period was 7.64±1.70 weeks. The median POG (period of gestation) was 7.40 weeks with a range of 4.50 weeks to 12 weeks.[5]

Most of the patients presented with 3-4 days of bleeding per vaginum and pain abdomen. The bleeding quantity was spotting for most of the patients followed by moderate bleeding.

It was shown by similar study conducted in Iran by Amirkhani that the bleeding volume was moderate in 73.30% patients while spotting was seen only in 3.3% patients. Spotting was the most common bleeding quantity in our study. The difference can be attributed to the higher levels of awareness and relatively urban population with higher literacy compared to the hinterland.[5]

Three fourths (73%) of patients had a viable pregnancy. Out of the 73 patients with spotting, 67 (91.78%) had viable pregnancies. For patients with moderate bleeding, the proportion of patients with viable pregnancy was 31.57% (6 out of 19). No patient with a heavy bleeding had a viable pregnancy. The results were significant statistically (p<0.0001) for both heavy bleeding versus spotting group and moderate bleeding versus spotting group. This highlights that as the flow of the bleeding increased, the proportion of patients with viable pregnancy decreased.[5]

Three fourths (73%) of patients had a viable pregnancy at the end of first trimester and it was seen that as the flow of the bleeding increased, the proportion of patients with viable pregnancy decreased.

Kamble et al showed similar results in their study when they highlighted that out of the 1007 females with first trimester vaginal bleeding, 83.2% had spotting with abortion rate of 81.2%, whereas 16.8% had heavy bleeding with an abortion rate of 96.4%.[12]

Half of the patients had a single live intrauterine pregnancy at the end of first trimester. 26% patients had threatened abortion while missed abortion was seen in 8% patients.

Davari-Tanha et al in their Iran based study showed a 42.7% spontaneous pregnancy loss in first trimester whereas other studies reported miscarriage incidence of 7.8% by 14 weeks (John et al) 9.3% in first trimester (John et al) and Weiss et al reported a rate of 1% for light bleeding and 2% for heavy bleeding by 24 weeks.[10,16,17]

Seventy patients (70%) continued the pregnancy with most of these being term delivery (72.86%) while almost one fourth of the patients had preterm delivery.

Hossain et al showed that there was an increased risk of preterm delivery among women with a history of vaginal bleeding in the first trimester of their pregnancy.[14]Among 30% patients who didn't reach viability, miscarriage was the most common reason which seen in 23%, ectopic pregnancy in 7%, hydatidiform mole in 3%.

Olugbenga et al showed that in early pregnancy bleeding, 12 cases of miscarriages were seen during the followed-up period, 5 (41.67%) had missed abortions, 4 (33.33%) had incomplete abortions and 3 (25%) had complete abortions. Two of the cases of the complete abortions occurred in the first trimester.[7]

Kamble et al showed that 40% patients had missed abortion in their study. 23% had incomplete abortion and emergency curettage was performed. 15.3% patients went up till term and delivered normally.[12] Most of the patients with a viable pregnancy had complications, the complications associated were anemia (29, 54.72%), PIH (6, 11.32%), placenta previa (5, 9.43%), placental abruption (3, 5.66%) and PPROM (8, 15.09%).

Yang et al in their study on 56 women with vaginal bleeding in the first and second trimesters of their pregnancy, reported a doubled risk of preterm delivery in these subjects regardless of the volume or number of bleeding. Thirty percent patients did not have a live neonatal birth at pregnancy completion. Miscarriage, hydatidiform mole and ectopic pregnancy were the most common reasons for the same. 72.60% patients with a viable pregnancy had complications. Most common complications were anaemia, PIH and PPROM.[15]

The average body weight at birth was 2.61 kgs with standard deviation of 0.36 kgs. Almost one third neonates had low birth weight (<2.5 kg).

Kamble et al showed that the out of all the females with first trimester bleeding, 160 delivered live babies. Out of these, 88.12% babies had birth weight >3 kg 5.6% babies required NICU care.[12]

NICU admission was needed in 25 neonates or 35.71%. Perinatal mortality was seen in only 3 patients (4.29%).

Saraswat et al in their meta-analysis showed that the reported risk of preterm delivery in women with threatened miscarriage varied between 1.5 and 4.5 across the different studies. The overall adjusted risk of preterm delivery was 2.05 (95% CI=1.76, 2.4) in women who experienced first-trimester bleeding. There was evidence of significant statistical heterogeneity in reported results (p<0.0001).[11]

A significant association existed between first-trimester bleeding and IUGR. The risk of having a baby with IUGR was 1.54 (95% CI=1.18, 2.0) times in women with first trimester threatened miscarriage. The overall risk of having a low-birthweight baby was higher in women who bled in the first trimester (OR=1.83, 95% CI=1.48, 2.28) than in women who did not. The risk varied from 1.1 to 3.7 across the different studies. Perinatal deaths were observed to be nearly twice as frequent in women who experienced threatened miscarriage when pooled across different studies (OR=2.15, 95% CI=1.41, 3.27).[11]

Lykke et al showed that First-trimester bleeding increased the risk of delivery in weeks 32-36 from 3.6% to 6.1% (odds ratio [OR], 1.65; 95% confidence interval CI=1.57-1.77) and in weeks 28-31 from 0.3% to 0.9% (OR 2.98; 95% CI 2.50-3.54) and increased the risk of placental abruption from 1.0% to 1.4% (OR=1.48; 95% CI=1.30-1.68).[8]

They also showed that the first-trimester bleeding in the first pregnancy increased the risk of recurrence in the second pregnancy from 2.2% to 8.2% (OR=4.05; 95% CI=3.78-4.34), preterm delivery from 2.7% to 4.8% (OR=1.83; 95% CI=1.67-2.00), and placental abruption from 0.9% to 1.0% (OR=1.29; 95% CI=1.07-1.56) in the second pregnancy.[8]

Most of the patients had no adverse perinatal outcomes (60,85.71%). The common adverse perinatal outcome was LBW (23 ,32.85%), FGR (8, 11.43%) followed by intrauterine fetal death (2, 2.86%).

Sutter et al showed that First-trimester bleeding led to increased second trimester [odds ratio (OR=4.56; confidence interval (CI=2.76-7.56] and third-trimester bleeding rates (OR=2.85; CI=1.42-5.73), P-PROM (OR=2.44; CI=1.38-4.31), preterm contractions (OR=2.27; CI=1.48-3.47) and NICU admissions (OR=1.75; CI=1.21-2.54).[13]

First-trimester bleeding increased the risk for preterm birth (OR=1.64; CI=1.05-2.55) and extreme preterm birth (OR=3.05; CI=1.12-8.31). They concluded that first-trimester bleeding in an ongoing singleton pregnancy following ART increases the risk for pregnancy complications.[13]

Saraswat et al showed that women with threatened miscarriage had a significantly higher incidence of antepartum haemorrhage due to placenta praevia [odds ratio (OR=1.62, 95% CI=1.19, 2.22] or antepartum haemorrhage of unknown origin (OR=2.47, 95% CI=1.52, 4.02) when compared with those without first-trimester bleeding.[11]

They were more likely to experience PPROM (OR=1.78, 95% CI=1.28, 2.48), preterm delivery (OR=2.05, 95% CI=1.76, 2.4) and to have babies with intrauterine growth restriction (OR=1.54, 95% CI=1.18, 2.00). First-trimester bleeding was associated with significantly higher rates of perinatal mortality (OR=2.15, 95% CI=1.41, 3.27) and low-birthweight babies (OR=1.83, 95% CI=1.48, 2.28).[11]

Less number of cases, limited period of study and COVID pandemic were the major limitations of our study. Thus, larger and a greater number of cases are required to further validate the results.

CONCLUSION

In our study, there is positive correlation between first trimester vaginal bleeding and adverse feto-maternal outcome. considering the results of our study, first trimester vaginal bleeding can be predicting factor for adverse outcome of mother and infant.

Proper antenatal care helps us to diagnose complications associated in the pregnancy with first trimester vaginal bleeding at an early stage and intervention could result in better outcome. Our study clearly highlighted that patient having first trimester pregnancy bleeding had high complication rate and associated with adverse feto-maternal outcomes. Larger randomized studies with heterogenous sample from multiple sites are needed to further validate the findings

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Siddu S, Dhama V, Chaudhary R, Singh S. The study of outcome of pregnancy with first trimester vaginal bleeding and its complications. Int J Reprod Contracept Obstet Gynecol 2022;11:1150-5.