International Journal of Community Medicine and Public Health
Arora S et al. Int J Community Med Public Health. 2023 Sep;10(9):3283-3288
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20232691

Original Research Article

Effect of non-traumatic first trimester per vaginal bleeding on maternal and fetal outcomes in Indian tertiary care teaching hospital

Shweta Arora[1]*, Raeesa Tanveer[2], Rachit Gulati[3]

[1]Department of Obstetrics and Gynaecology, Cloudnine Hospital, Gurgaon, Haryana, India
[2]Department of Obstetrics and Gynaecology, AcesoBKG Health Care, Mysore, Karnataka, India
[3]Department of Physical Medicine and Rehabilitation, Rama Medical College, Hapur, Uttar Pradesh, India

Received: 12 June 2023
Accepted: 15 August 2023

***Correspondence:**
Dr. Shweta Arora,
E-mail: drshwetaaroragulati@gmail.com

ABSTRACT

Background: Aim of study was to assess the maternal and perinatal outcomes in first trimester vaginal bleeding.
Methods: This prospective observational study was done on 112 patients with first trimester vaginal bleeding at a tertiary care teaching hospital in South India over a period of two years. All the patients who satisfied the inclusion and exclusion criteria were evaluated for the outcomes like hypertensive disorders, post partum and anter partum haemorrhage, rupture of menbranes, anemia, gestational diabetes, pre term delivery, low birth weight, small for gestational age, NICU admissions, intra-uterine growth restriction and mode of delivery.
Results: Maximum patients with bleeding per vagina in first trimester belonged to 26-30 years age group out of which majority had spotting. No specific significance was found to be associated between gravida score and bleeding or bleeding types. Out of 75 patients who continued pregnancy, 57 (76.0%) patients had one or the other complication in pregnancy which was significant ($p<0.05$). Regarding fetal outcomes, 19 had preterm delivery, 10 were LBW while 4 were SGA, 26 required NICU admissions and 8 had IUGR. 48 patients had recurrent bleeding PV which showed no significant correlation with abortion or APH.
Conclusions: Study shows that per vaginal bleeding in first trimester may lead to maternal and foetal complications. We recommend training pregnant women regarding those complications and their prevention.

Keywords: First trimester bleeding, Pregnancy outcomes, Threatened abortion

INTRODUCTION

Bleeding during pregnancy can cause maternal anxiety and emerging evidence suggests that it may be associated with poor fetal and maternal outcomes. Knowledge about the outcome of ongoing pregnancies following first-trimester bleeding is relevant to both women and their obstetricians in order to plan antenatal care and consider clinical interventions in pregnancy.[1] Estimates of bleeding prevalence in early pregnancy are imprecise and range from 7 to 24%.[2] When bleeding occurs in the first trimester, about 30% of pregnancies will miscarry, 10% to 15% will be an ectopic pregnancy, approximately 0.2% will be a hydatidiform mole, and about 5% of women will have a termination of pregnancy. The remaining 50% will continue beyond 20 weeks.[3] Meta-analysis indicates that vaginal bleeding is associated with a twofold increased risk of other complications during that pregnancy.[4] 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. Vaginal bleeding after confirmation with a positive pregnancy test requires further assessment in order to identify normal or abnormal development of the pregnancy or a pathologic condition that requires intervention.[5] First trimester vaginal bleeding does not

usually terminate the pregnancy. However, its outcome is a matter of debate.

The objective of this study is to determine the maternal and perinatal complications in such pregnancies in this part of the world so that they can be managed in the best possible way with reduction in morbidity and mortality.

METHODS

In this prospective observational study, 112 patients with first trimester bleeding who attended the outpatient/inpatient Department of Obstetrics and Gynaecology at a tertiary care hospital in Mysore, Karnataka (India) between May 2016 to May 2018 were studied. Clearance was taken from the Ethics Committee. Purposive sampling was done. Written informed consent was taken from each woman.

Pregnant females with normal intrauterine pregnancy presenting anywhere from first day of last menstrual cycle to 12 weeks of pregnancy with the complaints of bleeding per vagina and who agreed to give consent to be a part of the study were included. Patients who had recurrent episodes of bleeding were also evaluated for the possible outcomes. A pregnant woman with first trimester bleeding as a result of trauma or local cause of bleeding such as polyp or cervical erosions, history of previous abortions, chronic medical complications including diabetes mellitus and hypertension, diagnosed cervical cancer or incompetence and History of bleeding dyscrasias or on anticoagulant drugs were excluded from the study.

A complete history starting from presenting complaints, history of presenting illness, obstetric history, menstrual history, past history, family history, and clinical examination including gynecological examination was done which helped in clinical diagnosis. All routine investigations were sent which included complete haemogram, coagulation profile and ultrasonography (USG).

All the patients with bleeding per vagina in the first trimester of pregnancy were subjected to ultrasonography examination which was done with real time ultrasound machines in 8-10 weeks interval throughout the whole pregnancy. The women were asked to visit every two weeks in the first 6 months of pregnancy, weekly in the 7^{th} and 8^{th} months and two times per week in the last month of pregnancy.

Various maternal and perinatal outcomes were recorded and data was analyzed on personal computer using SPSS v16.0. Descriptive and Inferential statistics were done and Chi-square tests were used to assess associations between the groups. A value of $p<0.05$ was considered to be statistically significant.

RESULTS

In this study 112 women with first trimester vaginal bleeding were studied. Their age wise distribution and correlation with type of bleeding is given in table 1. Out of 112 patients, 5 (4.5%) were from age 18-20 years, 20 (17.9%) from age 21-25 years, 53 (47.3%) from age 26-30 years and 34 (30.4%) were 31years and above.

Table 1: Age-wise distribution of patients.

			Bleeding type			Total
			Spotting	Moderate	Heavy	
Ages (in years)	18-20	Count	3	2	0	5
		% within bleeding type	3.4	13.3	0.0	4.5
	21-25	Count	17	3	0	20
		% within bleeding type	19.1	20.0	0.0	17.9
	26-30	Count	44	6	3	53
		% within bleeding type	49.4	40.0	37.5	47.3
	>31	Count	25	4	5	34
		% within bleeding type	28.1	26.7	62.5	30.4
Total		Count	89	15	8	112
		% within bleeding type	100.0	100.0	100.0	100.0

Maximum patients with bleeding per vagina in first trimester belonged to 26-30 years age group out of which maximum patients had spotting. 57 (50.9%) were primigravida and 55 (49.1%) were multigravida (Table 2).

Among heavy bleeders 75% belonged to the multigravida group. No specific significance was found to be associated between gravida score and bleeding or bleeding types.

Out of total 112 patients, 75 (67%) patients crossed the period of viability and continued their pregnancy, while 37 (33%) aborted. Out of 75 patients who continued pregnancy, 41 (54.7%) delivered by caesarean section while the rest 34 had vaginal delivery. 26 (34.7%) patients had normal vaginal delivery, while 8 (10.7%) patients had instrumental delivery.

Table 2: Obstetric score and its association with first trimester bleeding per vagina and bleeding types.

			Bleeding type			Total
			Spotting	Moderate	Heavy	
Gravida score	Primigravida	Count	48	7	2	57
		% within bleeding type	53.9	46.7	25.0	50.9
	Multigravida	Count	41	8	6	55
		% within bleeding type	46.1	53.3	75.0	49.1
Total		Count	89	15	8	112
		% within bleeding type	100.0	100.0	100.0	100.0

As far as the maternal outcomes in pregnancy with first trimester bleeding PV is concerned. Out of 75 patients who continued pregnancy, 13 (17.3%) developed hypertensive disorders such as gestational hypertension, preeclampsia and eclampsia, 16 (21.3%) patients had either premature rupture of membranes or pre-term premature rupture of membranes, 9(12%) patients had post partumhemorrhage. 6 (8.0%) developed gestational diabetes mellitus later in pregnancy out of 75 who continued it while 3 (4.0%) had anaemia. 71 (94.7%) out of 75 patients who continued pregnancy did not develop ante partum hemorrhage while 1 (1.3%) patient had abruption and 3 (4.0%) patients had placenta previa. 6 (8%) patients who continued pregnancy had other complications like low lying placenta or chorioamnionitis.

Table 3: Maternal outcomes of pregnancy with first trimester bleeding PV (N=total number of patients that continued pregnancy).

Maternal outcomes	N= 75	Frequency (%)
Hypertensive disorders	13	17.3
PPH	9	12
PROM+PPROM	16	21.3
Anemia	3	4
GDM	6	8
Abruptio	1	1
Placenta previa	3	4
Others	6	8
Total	57	76

Overall, out of 75 patients who continued pregnancy, 57 (76.0%) patients had one or the other complication in pregnancy (including placenta previa, hypertensive disorders of pregnancy, GDM, low lying placenta, caesarean or instrumental deliveries, chorioamnionitis, anaemia) while 18 (24%) patients had no complications throughout pregnancy. Cross tabulation p value is 0.01 (<0.05) indicating significant correlation between maternal complications in pregnancy and First trimester bleeding PV (Table 3).

In case of perinatal outcomes of 75 patients who continued pregnancy, only 2(2.7%) newborn had anomalies while the rest 73 (97.3%) were normal infants, 56 (74.7%) patient delivered at term while 19 (25.3%) delivered preterm, out of which, 13 (68.4%) patients delivered between 34-37 weeks, 5 (26.3%) patient delivered between 28-34 weeks, and 1 (5.3%) patient delivered at <28 weeks of gestation. 10 (13.3%) of the patients had low birth weight babies at term, while 4 (5.33%) patients had small for gestational age new borns. Out of 75 newborns in the study, 26 (34.7%) required NICU admission while rest 49 (65.3%) were healthy infants while 10 (13.3%) newborns had APGAR score <7 at 5 minutes indicating increased morbidity. Only 2 (2.7%) of the patients had neonatal death out of 75 who continued the pregnancy. 8 (10.7%) patients had babies with intra uterine growth retardation (Table 4).

Table 4: Frequency of various perinatal outcomes in patients with first trimester bleeding PV (N=total number of patients that continued pregnancy).

Outcomes	N=75	Frequency (%)
Anomaly	2	2.7
Preterm delivery	19	25.3
Term delivery	56	74.7
Term LBW	10	13.3
SGA	4	5.33
NICU	26	34.7
APGAR <7 AT 5 min	10	13.3
Neonatal death	2	2.7
IUGR	8	10.7

Out of 112 patients with bleeding PV in first trimester, 48 patients had recurrent bleeding PV. Among these 48 patients, 15 (31.2%) patients aborted while 33 (68.8%) patients continued pregnancy. Cross tabulation showed p-value of 0.728 indicating no significant relation between recurrent bleeding and no. of patients who continued pregnancy (Table 5).

Among the 48 patients that had recurrent bleeding PV, 1(2.1%) patient developed abruptio and 3 (6.2%) had placenta previa. Cross tabulation gives a p-value of 0.063 (p<0.05) and thus indicates that there is no correlation between recurrent bleeding and APH (Table 6).

Out of 48 patients with recurrent bleeding, 10 (20.8%) newborns of patients who continued pregnancy required

NICU admission while 4 patients among those who continued pregnancy (33) delivered IUGR babies.

Table 5: Outcome of pregnancy in patients with recurrent bleeding PV.

			Recurrent bleed		Total
			No	Yes	
Continued pregnancy	No	Count	22	15	37
		% within recurrent bleed	34.4	31.2	33.0
	Yes	Count	42	33	75
		% within recurrent bleed	65.6	68.8	67.0
Total		Count	64	48	112
		% within recurrent bleed	100.0	100.0	100.0

Table 6: Correlation of APH in pregnant females with recurrent bleeding PV.

			Recurrent bleed		Total
			No	Yes	
APH	No	Count	64	44	108
		% within recurrent bleed	100.0	91.7	96.4
	Abruptio	Count	0	1	1
		% within recurrent bleed	0.0	2.1	0.9
	Placenta previa	Count	0	3	3
		% within recurrent bleed	0.0	6.2	2.7
Total		Count	64	48	112
		% within recurrent bleed	100.0	100.0	100.0

DISCUSSION

Bleeding per vaginum in the first trimester is one of the most common obstetric problems. It is also one of the commonest causes for the majority of the emergency admissions. Approximately, one-third of first-trimester bleedings happens in pregnancies that are otherwise normal. In addition, no anatomical cause can be established in vast majority of pregnancies that are complicated by vaginal bleeding. Pregnancies complicated with first trimester bleeding might end up in pregnancy loss. If pregnancy continues poor maternal and foetal outcome may occur.

In this study we tried to analyse outcome of normal intrauterine pregnancies complicated by first trimester vaginal bleeding. We assessed 112 patients which included patients from antenatal outpatient department who were followed from first episode of bleeding till delivery. Study was done for a period of 2 years. All patients with first trimester vaginal bleeding were subjected to ultrasound scans and routine investigations were sent.

Out of the total 112 patients studied, included 57(50.9%) primigravida and 55(49.1%) multigravida. Maximum patients with first trimester vaginal bleeding were of 26-30 years age group. Majority of the first trimester vaginal bleeding patient presented between 8-10 weeks of amenorrhoea. Majority of patients (89) presented with spotting, among which 70 (78.7%) had a favourable outcome and only 19 (21.3%) out of the 89 aborted. 7 out of 8 patients with heavy bleeding category aborted. 11 (73.3%) patients out of 15 patient with moderate bleeding category aborted.

Total 75 patients continued the pregnancy beyond 20 weeks of gestation out of which 56 (74.7%) delivered full term, 19 (25.3%) delivered preterm, 8 (10.7%) had IUGR, 26 (34.7%) had NICU admission, 2 (2.7%) had neonatal death, 10 (13.3%) had LBW at term, 4 (5.3%) had SGA babies and 10 (13.3%) had APGAR <7 at 5 minutes.

Out of 75 patient who continued pregnancy beyond 20 week of gestation, hypertensive disorders were seen in 13 (17.3%) cases, placenta previa in 3 (4%) cases, placental abruption in 1 (1%) case, PROM and PPROM in 16 (21.3%) cases, anaemia was in 3 (4%) cases, 6 (8%) patient developed GDM, PPH was seen in 9 (12%) patients. Anaemia was seen in just 3 cases in our study; which is comparatively lower when compared to other studies; this can be explained as our hospital has good patient follow up and patients are given adequate iron supplementation during antenatal follow ups to prevent anaemia. Significant correlation ($p<0.01$) was seen in patients with first trimester bleeding PV and maternal pregnancy oucomes. Of these 75 patients who crossed POV 54.7% had a caesarean section, 34.7% patient had NVD, 10.7% had instrumental delivery.

Table 7: Comparison with previous studies.

Outcomes of pregnancies with first trimester bleeding	Author and year								
	Patel et al (2014)[6]	Agarwal et al (2014)[8]	Meenal et al (2017)[7]	Davari-Tanha et al (2008)[10]	Amirkhani et al (2013)[1]	Wijesriwardana et al (2006)[12]	Mulik et al (2004)[13]	Hosseini et al (2013)[11]	Present study
Abort ion	40	21	7	-	20	-	-	-	33
Full term	78.1	-	79	-	75	-	-	-	74.7
Pre term	21.9	28.5	21	14.7	25	-	14.4	-	25.3
PROM/PPROM	18.7	20.4	14	27.5	-	-	-	27.1	21.3
IUGR	14.1	6.12	6	4	0.5	9.5	-	-	10.7
Neonatal death	9.4	8.16	-	9.3	-	0.7	1.3	-	2.7
APGAR<7 @ 5 min	-	-	39	-	11.7	2.7	-	-	13.3
NICU	30.3	16	-	-	16.7	16.7	-	-	34.7
Anomaly	2	2.04	-	-	-	-	-	-	2.7
LBW	35.9	-	13	-	-	-	-	12.3	13.3
Abruptio	7.8	-	1	5.7	13.3	-	2	-	1
Placenta previa	3.1	-	2	0.6	-	0.3	0.9	-	4
Anaemia	29	-	-	22.7	-	-	-	-	4
Hypertensive disorder	6.2	-	15	4.6	-	5.7	-	6.6	17.3
PPH	6.2	-	7	4.6	-	9.7	-	-	12
Instrumental delivery	-	-	-	-	-	28.1	-	-	10.7
Caesarean	40.5	-	38	52.7	-	-	-	-	54.7

Our study showed maximum patients with bleeding PV of 26-30 years age group consistent with the study of Amirkhani et al.[1] Amongst the patients with first trimester bleeding PV, 74.7% patient delivered full term consistent with Patel et al, Meenal et al and Amirkhani et al.[6,7,1] Our study showed 25.3% patients had preterm delivery which is similar to rates of preterm deliveries in Patel et al, Agarwal et al, Meenal et al, Amirkhani et al and Yakristan.[6-9,1] 33% patient with first trimester bleeding PV aborted which is consistent with findings of Patel et al and Agarwal et al.[6,8]

21.3% patients had PROM/PPROM which is comparable to Patel et al, Agarwal et al, Davari-Tanha et al and Hosseini et al.[6,8,10,11] IUGR was seen in 10.7% patients which is comparable to Patel et al, Agarwal et al, Meenal et al and Wijesriwardana et al.[6,8,7,12]

Our study showed neonatal death incidence as 2.7% which was comparatively lower than other studies like Patel et al, Agarwal et al, Davari-Tanha et al which can be attributed to ours being a tertiary care hospital with good NICU facilities which is reflected in terms of increased NICU admissions in our study.[6,8,10] NICU admissions in our study was 34.7% which is comparable to Patel et al, but is comparatively more than Agrawal et al, Amirkhani et al and Wijesriwardana et al.[6,8,1,12] Incidence of anomaly as 2.7% consistent with Patel et al and Agrawal et al LBW at term incidence is 13.3% comparable to Meenal et al and Hosseini et al.[6,8,7,11] Our study showed Abruptio incidence as 1% which is consistent with Meenal et al and Mulik et al but is lower than Patel et al and Amirkhani et al while placenta previa incidence was 4% which is consistent with Patel et al and Meenal et al.[7,13,6,1]

In our study anaemia was present in 4% cases only which is comparatively lower than other studies like in Patel et al and Davari-Tanha et al and can be explained because ours being a tertiary health care centre we supplement adequate iron to our antenatal patients and patients come for a regular follow up.[6,10]

Hypertensive disorders were found increased in our study, 17.3% which in comparatively more than other studies like Patel et al, Hosseini et al, Wijesriwardana et al and Davari-Tanha et al.[6,11,12] PPH was present in 12% of patients which is also comparatively more than that in Patel et al, Meenal et al, and Davari-Tanha et al.[6,7,10]

Our study showed slightly higher rates of caesarean section when compared to Patel et al and Meenal et al.[6,7]

The variability of results obtained in different studies seemed to be due to lack of consistencies observed between these studies, in the definition of the upper limits of abortion used, size of the study population, gestational age at presentation and to a lesser extent the statistical test

used. It appeared that the definitive relationship between threatened miscarriages and adverse pregnancy outcome is not yet established. The positive value of this assumption gives a picture of the possible complications that may follow.

The limitations of this study were that the severity of vaginal bleed was based on a subjective description by the patient. The total size of sample is small, and a larger sample size would give better results. And serum progesterone levels could not be done due to financial constraints.

CONCLUSION

Considering the results of this study and on careful comparison and review of other studies we conclude that first trimester vaginal bleeding can be a predicting factor in terms of maternal and foetal outcomes of pregnancy and it's absolutely essential to increase the knowledge of pregnant women in this regard for better care. First trimester bleeding is associated with higher rates of pregnancy related complications such as preterm deliveries, PROM/PPROM, LBW babies at term, hypertensive disorders of pregnancy, PPH, increased rates of caesarean section, IUGR babies, increased rates of NICU admission. No significant increase in incidence of congenital anomalies and anaemia was noted in the study. Patients with recurrent episodes of bleeding were found to have more chances of placenta previa and placental abruption.

ACKNOWLEDGEMENTS

We would like to thank the Department of Obstetrics and Gynaecology, Apollo BGS Hospitals, Mysore.

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

REFERENCES

1. Amirkhani Z, Akhlaghdoust M, Abedian M, Salehi GR, Zarbati N, Mogharehabed M, et al. Maternal and perinatal outcomes in pregnant women with first trimester vaginal bleeding. J Fam Reproduct Heal. 2013;7(2):57.
2. Hasan R, Baird DD, Herring AH, Olshan AF, Funk ML, Hartmann KE. Patterns and predictors of vaginal bleeding in the first trimester of pregnancy. Ann Epidemiol. 2010;20(7):524-31.
3. James DK, Steer PJ, Weiner CP, Gonik B. High Risk Pregnancy E-Book: Management Options-Expert Consult. Elsevier Health Sciences; 2010.
4. Ananth C, Savitz D. Vaginal bleeding and adverse reproductive outcomes: a meta-analysis. Paediatr Perinat Epidemiol. 1994;8(1):62-78.
5. Snell BJ. Assessment and management of bleeding in the first trimester of pregnancy. J Midwif Women's Health. 2009;54(6):483-91.
6. Patel NG, Patel MS, Shah SR, Jani SK, Patel JA, Shah JU. Study of outcome of pregnancy in patients with first-trimester bleeding per vaginum. Inter J Advan Med. 2017;1(3):230-3.
7. Sarmalkar MS, Singh S, Nayak AH. Maternal and perinatal outcome in women with threatened abortion in first trimester. Int J Reprod Contracep Obstet Gynecol. 2017;5(5):1438-45.
8. Agrawal S, Khoiwal S, Jayant K, Agarwal R. Predicting adverse maternal and perinatal outcome after threatened miscarriage. Open J Obstet Gynecol. 2014;4:1-7.
9. Yakistiran B, Yuce T, Soylemez F. First trimester bleeding and pregnancy outcomes: case-control study. Inter J Wom Heal Reprod Sci. 2016;4(1):4-7.
10. Davari-Tanha F, Shariat M, Kaveh M, Ebrahimi M, Jalalvand S. Threatened abortion: a risk factor for poor pregnancy outcome. Acta Medica Iranica. 2008;46(4):314-20.
11. Hosseini MS, Yaghoubipour S. Late pregnancy outcomes in women with vaginal bleeding in their first trimester. J Obstet Gynecol India. 2013;63(5):311-5.
12. Wijesiriwardana A, Bhattacharya S, Shetty A, Smith N, Bhattacharya S. Obstetric outcome in women with threatened miscarriage in the first trimester. Obstet Gynecol. 2006;107(3):557-62.
13. Mulik V, Bethel J, Bhal K. A retrospective population-based study of primigravid women on the potential effect of threatened miscarriage on obstetric outcome. J Obstet Gynaecol. 2004;24(3):249-53.

Cite this article as: Arora S, Tanveer R, Gulati R. Effect of non-traumatic first trimester per vaginal bleeding on maternal and fetal outcomes in Indian tertiary care teaching hospital. Int J Community Med Public Health 2023;10:3283-8.