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A Study on Pregnancy Outcomes in Patients with First Trimester Vaginal Bleeding

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Abstract

Bleeding in first trimester of pregnancy poses a risk to embryo. It can be a natural symptom of implantation, sign of spontaneous abortion, or of pathologic condition like ectopic pregnancy/ gestational trophoblastic illness.[4]

Aim: To assess the etiology and outcome of first trimester bleeding.

Objectives: (1) To study the etiology for first trimester bleeding. (2) To study the incidence of various etiological factors.

Settings and design: This is the prospective observational study carried out in a tertiary health care centre over 2 years from October 2019 to october 2021.

Materials and methods: This study was conducted on women with complaints of vaginal bleeding in first trimester of pregnancy. The methodology were explained to the women and valid informed written consent was recorded. The ethical clearance was obtained from ethical review committee of the tertiary care centre.

After taking a detailed history and physical examination, the patient will undergo a urine pregnancy test, on confirmation she will be sent for a TVS scan depending upon the USG report further management and follow-up will be decided.

Conclusion: Bleeding in first trimester doesn't necessarily lead to miscarriage, but causes anxiety to the patient. Women and obstetricians should consider the outcome of continued pregnancies after the first trimester bleeding when planning antenatal care and clinical interventions. We need more researches on this to improve our better understanding and knowledge so that we can better plan the continued pregnancy as well as council the patient in better way.

Keywords: Bleeding in pregnancy; First trimester; Pregnancy test; Vaginal bleeding.

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INTRODUCTION

In obstetrics, vaginal bleeding can cause both the patient and the obstetrician worry. Bleeding during the first trimester has a negative impact on their mental health and their anxieties about the pregnancy.[1] According to a meta analysis, vaginal bleeding is linked to a two fold greater risk of additional pregnancy problems. In bleed complicated pregnancies, less than half progress normally beyond 20 weeks, 10-15% have an ectopic pregnancy, 0.2 percent have a vesicular mole, and

30% have a miscarriage.[2] A feared miscarriage complicates about 15% of pregnancies. Genetic disorders cause 50-70 percent of spontaneous abortions.[3]

Bleeding in the first trimester of pregnancy poses a serious risk to the growing embryo. Abortion, ectopic pregnancy, and molar pregnancy are all typical causes of bleeding in the first trimester. Vaginal bleeding can be a natural symptom of pregnancy implantation, a sign of spontaneous abortion starting, or a sign of a pathologic condition such as ectopic pregnancy or gestational trophoblastic illness.[4]

Bleeding is a sign of placental malfunction and is most common around the time of luteal placental shift.[5]

Women who had bleeding in the first trimester of pregnancy were more likely to have bleeding in the second and third trimesters due to the risk of placenta previa, placenta disruption, and bleeding for unclear reasons. Premature rupture of fetal membranes is 2 to 4 times more likely in women who are bleeding in the first trimester. Growth failure occurs in such pregnancies, and the newborn has a low birth weight as a result of premature delivery.[1]

Threatened abortion has been linked to an increased risk of poor obstetric outcomes such as preterm labor, low birth weight, and PROM during pregnancy.[6]

The serum beta HCG doubles or increases by at least 66 percent in 48 hours in normal pregnancies.[3] When beta HCG levels are between 1000 and 2000mIU/ml, TVS can detect the intrauterine gestational sac. The presence of a yolk sac within the gestational sac is conclusive evidence of an intrauterine pregnancy. CRL of >5mm can be used to detect embryonic heart activity. A gestational sac (GS) with a mean sac Introduction diameter of 8mm or more without a yolk sac, as well as a GS with an MSD of 16mm or more without an embryo, are major predictors of a nonviable pregnancy. The absence of an embryo in a GS with a Mean Sac Diameter of 16 mm or higher is a sonographic marker of anembryonic gestation.

There is an 80% chance of spontaneous abortion when the mean sac diameter and CRL differ by <5mm. Subchorionic hematoma affects 20% of women who hemorrhage in the first trimester.[3] The presence of an extra ovarian adnexal mass is the most prevalent USG finding in cases of ectopic pregnancy, followed by tubal ring sign and bleeding.

TVS demonstration of an intrauterine gestation sac or = 16 mm without an embryo in patients with first-trimester hemorrhage may be compatible with a viable pregnancy. The risk of miscarriage is considerably enhanced when the sac is tiny for gestational age.

MATERIALS AND METHODS

A prospective observational study was carried out in 350 women visiting with complaints of first trimester vaginal bleeding. The data was collected from Bharati Hospital, wards and OPD, department of Obstetrics and Gynecology, Pune between October 2019-October 2021. The purpose and the procedure of the study was explained to them and a written consent was obtained.

Inclusion Criteria

All women with vaginal bleeding in the first trimester (till 12 weeks) were included in the study.

Exclusion Criteria

Any woman having vaginal bleeding due to non-obstetric causes were excluded from the study.

METHODOLOGY

- Written consent will be obtained from women matching the inclusion and exclusion criteria to participate in the study.
- With a predetermined proforma, a detailed history will be obtained.
- UPT will be done followed by TAS/TVS.
- Depending upon TAS/TVS findings further management will be decided.

STATISTICAL ANALYSIS

- Data were analyzed and appropriate statistical methods like frequency, percentage, mean, standard deviation, and chi-square test were employed to analyze data throughout the study.
- Descriptive and inferential statistical analysis was carried out in the present study. Results on continuous measurements were presented on Mean ± SD (Min-Max) and results on categorical measurements were presented in Number (%). Significance was assessed at a 5 % level of significance. The following assumptions on data were made.
- ***Assumptions:*** 1. Dependent variables should be normally distributed, Samples drawn from the population should be random, Cases of

the samples should be independent.

- Student t-test (two-tailed, independent) was be used to find the significance of study parameters on a continuous scale between two groups (Intergroup analysis) on metric parameters. Chi-square/ Fisher Exact test was used to find the significance of study parameters on a categorical scale between two or more groups.

RESULTS

Table 1: Gravida wise distribution of study participants

Gravida	No. of Cases	Percentage
One	198	56.6%
Two	105	30.0%
Three	35	10.0%
More than three	12	3.4%
Total	350	100.0%

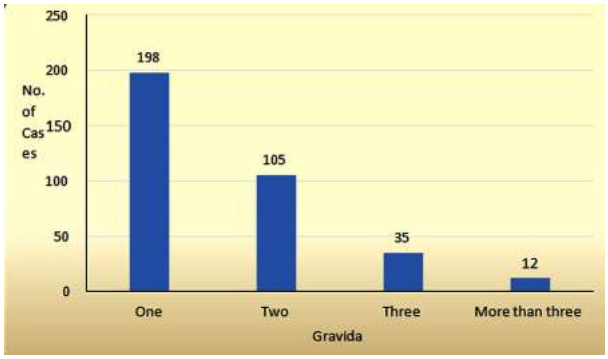

Fig. 1: Gravida wise distribution of study participants

Table 1 and Fig. 1 depicts the gravida wise distribution of women with first trimester bleeding. Out of a total of 350 women, 198 (56.6%) were primigravid followed by 105 (30.0%) who were second gravid.

Table 2: Bleeding volume in current pregnancy wise distribution of study participants

Bleeding volume in current pregnancy	No. of Cases	Percentage
Spotting	158	45.1%
Moderate	110	31.4%
High	82	23.4%
Total	350	100.0%

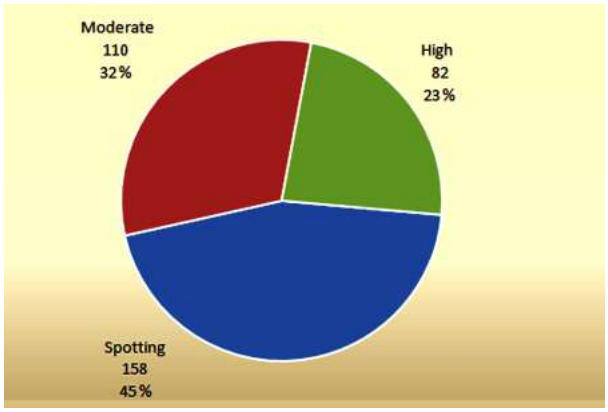

Fig. 2: Bleeding volume in current pregnancy wise distribution of study participants

Table 2 and Fig. 2 shows that the bleeding volume in current pregnancy in study participants. Out of 350 participants, 158 (45.1%) were found spotting, 110 (31.4%) were found moderate and 82 (23.4%) were found High bleeding volume.

Table 3: Past obstetrics History wise distribution of study participants

Past obstetrics History	No. of Cases	Percentage
History of threatened abortion	117	33.4%
History of abortion	53	15.1%
History of preterm	18	5.1%
Previous LSCS	21	6.0%

Table 3 shows the past obstetrics history of women. Out of 350 cases, history of threatened abortion, history of abortion, history of preterm and previous LSCS were found in 117 (33.4%), 53 (15.1%), 18 (5.1%), and 21 (6.0%) cases respectively.

Table 4: Outcome of pregnancy in study participants

Outcome of Pregnancy	No. of Cases	Percentage
Non-viable	95	27.1%
Viable	255	72.9%

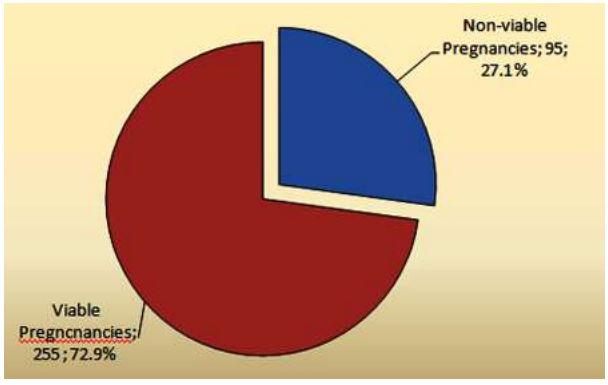

Fig. 3: Pie chart of outccomes

Table 4 and Fig. 3 shows the outcome of pregnancy in study participants. In the above table, 95 (27.1%) participants were found non-viable fetuses while the remaining 255 (72.9%) were viable pregnancies

Table 5: Termination of pregnancy in non-viable foetus cases

Mode of Termination	No. of Cases	Percentage
Spontaneous complete abortion	30	31.6%
Spontaneous incomplete Abortion	54	56.8%
Ectopic	11	11.6%
Rupture	4	4.2%
unruptured	5	5.3%
scar ectopic	2	2.1%
Total	95	100%

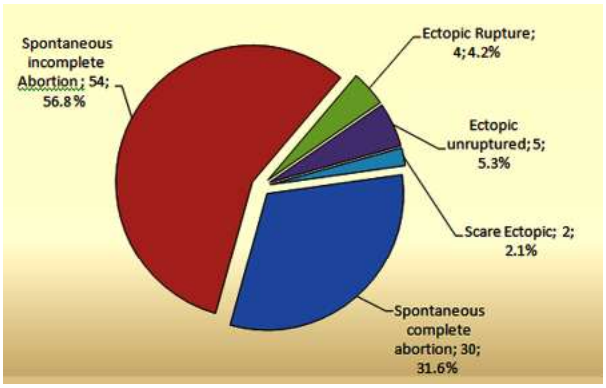

Fig. 4: P

Table 5 and Fig. 4 showsthat the termination of pregnancy in study participants with nonviable pregnancies. In the above table 30 (31.6%) participants were having a spontaneous complete abortions and 54 (56.8%) were having spontaneous incomplete abortions. There were 11 (11.6%) cases diagnosed having ectopic pregnancies among the total cases of 95 non-viable pregnancies.

Table 6: Outcome of viable pregnancies

Mode of Delivery/ Termination	No. of Cases	Percentage
Preterm	63	24.7%
Normal vaginal delivery	56	22.0%
Caesarean section	7	2.7%
Full-term	192	75.3%
Normal vaginal delivery	115	45.1%
Caesarean section	77	30.2%
Total	255	100%

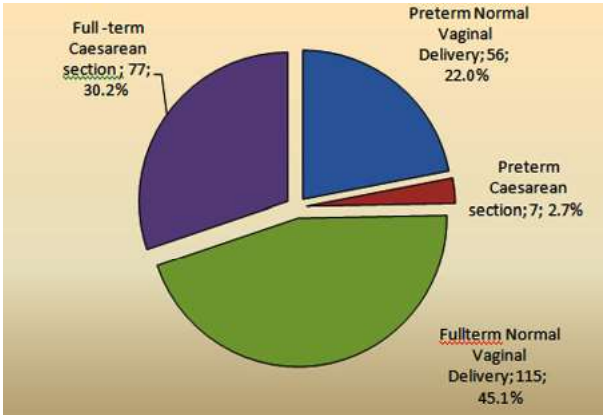

Fig. 5: Pie chart distribution of Outcome of viable pregnancies

Fig. 5: Table 6 and Fig. 5 shows that the mode of delivery in viable pregnancies. Total 255 viable pregnancies were there of which 63 (24.7%) delivered preterm while the remaining 192 (75.3%) delivered full-term. Out of total viable pregnancies, 22% were preterm normal vaginal deliveries, 45.1% were full-term normal vaginal deliveries, 2.7% were preterm cesarean section, and 30.2% full-term caesarean section.

DISCUSSION

Early-pregnancy vaginal bleeding poses a significant risk to the developing embryo and is a source of anxiety for both the patient and the practitioner. Vaginal bleeding during the first trimester is thought to affect 16 to 25% of all pregnant women.

Hence the study was conducted with objectives to study the possible various etiological factors causing bleeding in first trimester, to study incidence of the etiological causes and to know the outcome of these causes with respect to pregnancy.

The present prospective study was conducted among 350 pregnant women having antenatal bleeding in the current pregnancy to study outcome of pregnancy.

Background Characteristics

- In present study out of total 350 women, highest number of women 147 (42%) were in age group 22 to 25 years followed by 95 (27.1%) in 18 to 21 years age group.

This may be largely due to 22 to 25 years of age is the age when women conceive.

HS Kavyashree et al (2019) enrolled 200 patients in study. Out of all patients 40% were in the age group of 21 to 25 years followed by 30% were in the age

group of 26-30 years. It means 70% of patients were in the age group 21 to 30 years. This study is similar with the present study.

In their study, Reem Hasan et al (2010) found a similar pattern the majority of respondents (45.9%) were between the ages of 28 and 34 years.

Amirkhani Z et al (2013) studied in his study 60 women with vaginal bleeding in the first trimester of their pregnancy. Out of all 32 (53.3%) patients found in the age group 25 to 34 years.

- A followed by 105 (30.0%) were second gravid.

HS Kavyashree et al (2019) found 60% were multi gravida and 40% were primigravida in study.

Reem Hasan et al (2010) found 34.8 percent were primipara, and 17.7 percent were multipara.

Amirkhani Z et al (2013) found 32.9 percent of women who prolonged their pregnancy were gravida 1, 60.7 percent were gravida 2 and 3, and 7% were gravida 3 or more.

- In present study out of 350 participants 158 (45.1%) were found spotting, 110 (31.4%) were found moderate and 82 (23.4%) were found High bleeding volume.

Reem Hasan et al (2010) found 75.6 percent of the individuals had spotting, 18.4 percent had mild bleeding, and 6.1 percent had significant bleeding.

- In present study out of 350 women with antenatal first trimester bleeding, 140 (40.0%) were found the history of anaemia and followed by 117 (33.4%) were found the history of threatened abortion.

Amirkhani Z et al (2013) found a similar pattern of observations in their study, finding that 53.3 percent of pregnant women with first trimester bleeding were observed between the ages of 25 and 35 years.

According to the findings of the Snell et al (2009) study, vaginal bleeding occurs in 15-25 percent of pregnancies, with half of these women continuing their pregnancy.

- In present study in ultrasound 64(18.3%) were found having gestational sac followed by fetal pole 47(13.4%), fetal cardiac activity present 31 (8.9%).

In a study by HS Kavyashree et al (2019) found the inspection of the uterus and pregnant sac by ultrasound was shown to be the first necessary action for diagnosing the cause of bleeding. Transvaginal sonograms were performed on all pregnant women with h/o vaginal bleeding in the first trimester. Gestational sac was seen in 66 percent of participants, foetal pole in 48 percent, foetal cardiac activity in 32 percent, sub chorionic haemorrhage in 18 percent, low placenta in 5.5 percent, ectopic pregnancy in 4%, and molar pregnancy in 2.5 percent.

- In present study 97 (27.7%) were found the complication of preeclampsia followed by 70 (20%) were found premature labour. Whereas 42 (12%) were found the complication of PPROM and same for GDM. 81 (23.1%) participants were found the complication of colour Doppler changes followed by premature delivery 68 (19.4%).

According to research by Saraswat et al (2010) and Siddiqui et al (2009) women who had bleeding in the first trimester of pregnancy were more likely to have bleeding in the second and third trimesters due to the risk of placenta praevia, placenta disruption, and bleeding from an unknown source.

According to certain research, women who experience first trimester bleeding have a 2 to 4 times higher risk of preterm rupture of foetal membranes than women who do not.

Common complication in HS Kavyashree et al (2019) study found LBW, Placenta Previa, PROM, Preterm labour, IUGR, IUD, and perinatal death were all common problems for those who bled moderately in the first trimester.

Abortion, premature birth, and placenta disruption are the most prevalent problems of first trimester bleeding in pregnancy, according to several research, including Weiss et al (2004).

- In present study, 95 (27.1%) participants were found non-viable foetus, while remaining 255 (72.9%) were viable pregnancies. 30 (31.6%) participants were having spontaneous complete abortion and 54 (56.8%) were having spontaneous incomplete abortions. There were 11 (11.6%) cases diagnosed having ectopic pregnancies among the total cases of 95 non-viable pregnancies.

In the study HS Kavyashree et al (2019) found 64 (32%) of the 200 participants had a viable pregnancy in USG and were threatened with abortion, and they were followed up on. Non-viable pregnancy affected 136 (68%) of the women.

According to Dogra et al (2005), spontaneous abortion, EP, and trophoblastic disorders in pregnancy are three common causes of first trimester bleeding. Abortion and EP are the most common causes of first semester bleeding and there

were obvious genetic problems in more than half of spontaneous abortions.

- In present study total 255 viable pregnancies were there from which 63 (24.7%) delivered preterm while remaining 192 (75.3%) delivered full-term. Out of total viable pregnancies 22% were preterm normal vaginal deliveries, 45.1% were full-term normal vaginal deliveries, 2.7% were preterm caesarean section and 30.2% full term caesarean section.

During the follow-up in HS Kavyashree et al (2019) study, it was discovered that 67 percent of 64 participants with viable pregnancies had term deliveries, 15.6 percent had preterm deliveries, and 17.2 percent had abortions. Among the 53 women who gave birth, 81 percent had a vaginal delivery and 19 percent had a lower caesarian section.

- In the present study, out of 95 participants in non-viable pregnancy 49 (51.6%) were found high bleeding volume. Out of 255 viable pregnancy 142 (55.7%) were found spotting. Higher proportion of non-viable pregnancies were associated with higher bleeding volume ($p<0.01$).

In the study HS Kavyashree et al (2019) found that out of 136 patients in non variable group 60 (44%) were found spotting followed by 44 (32%) moderate and 32 (24%) severe. In variable group out of 64 patients 40 (62.5%) were found spotting. Patient with molar gestation and ectopic presented with moderate amount of flow. 15.7 percent (n=10) of those who had significant bleeding in the first trimester continued to bleed in the second trimester, and all 10 patients miscarried.

- In present study out of total 95 non-viable pregnancies, highest number of pregnancies 51 (53.7%) were terminated by surgical intervention followed by 34 (35.8%) were spontaneous termination. Only 10 (10.5%) were terminated medically.

HS Kavyashree et al (2019) found among Non-viable pregnancy 123 aborted, 5 had molar gestation and 8 had ectopic gestation which were terminated.

There was no link between the pregnancy outcome and the gestation age at the time of bleeding in study (P=0.09) by Amirkhani Z et al (2013). 25 percent of the women whose pregnancies were terminated due to an ectopic pregnancy (EP) diagnosis were 15-24 years old, and 75 percent were 25-34 years old. All of the women who had their pregnancy terminated for other reasons were between the ages of 25 and 34 years. 22.2 percent of women who had their pregnancy terminated for reasons other than EP were pregnant. There was a significant correlation between termination of pregnancy and the number of previous pregnancies (P=0.03).

- In present study out of 255 participants 230 (90.2%) were found more than 7 APGAR score at 1 min followed by 25 (9.8%) were found less than 7. Out of 255 participants 225 (88.2%) were found more than 7 APGAR score at 5 min followed by 30 (11.8%) were found less than 7.

Amirkhani Z et al (2013) found out of 60 patients 7 (11.7%) were found less than 7 the APGAR score at 5 min.

- In present study out of 255 participants normal birth weight was found in 169 (66.3%) where as low birth weight found in 71 (27.8%).

In study Amirkhani Z et al (2013) found the newborns of the women who were studied, the mean (SD) birth weight was 3106 369 grams. The mean (SD) gestational age at the end of pregnancy in the women investigated was 274 15 days.

- In present study out of 255 cases, 212 neonates (83.1%) didn't require NICU admission whereas 47 (16.9%) were required NICU admission.

Amirkhani Z et al (2013) found out of 60 patients 10 (16.7%) of neonates were required to NICU admission.

Saraswat et al (2010) conducted a systematic review and found that bleeding during the first trimester has no effect on the delivery route. However, some studies have found that the likelihood of a caesarean section in women who are bleeding is higher than in women who are not bleeding.

In other words, such pregnancies resulted in growth failure, and the newborn was born with a low birth weight as a result of the early delivery. Many studies have found that neonates with low birth weight and Apgar scores of less than 7 in pregnancies with first trimester bleeding have a higher mortality rate, but the mortality rate of newborns has varied.

The average age of pregnancy was 16.3 weeks in Yasaee et al (2006) study, which was conducted on 161 individuals with vaginal haemorrhage over a 10-year period in Tehran's Taleghani hospital.

The most crucial diagnostic actions in pregnancies with first trimester bleeding, according to Deutchman et al. (2009) and Thorstensen et al. (2000), are transvaginal ultrasonography and measuring the growing serum level of HCG.

Embryos of 5 mm and smaller without a heartbeat resulted in pregnancy failure in pregnant women with vaginal haemorrhage, according to Aziz S, Cho RC, and Bater DB.

After sonography of pregnancies with first trimester bleed and a small intrauterine gestational sac without a demonstrable embryo, Falco P, Zagonari S, Gabrielli S discovered that in cases of threatened abortion, the demonstration of an intrauterine gestational sec 16mm without an embryo by transvaginal sonography may be compatible with a viable pregnancy. They suggested that this discovery was linked to a dismal prognosis, with two-thirds of patients miscarrying.

CONCLUSION

Although bleeding in first trimester does not necessarily lead to miscarriage. But it causes tremendous amount of anxiety to the patient, especially primigravids. It has also been seen that pregnancies complicated with bleeding in first trimester are likely to have adverse effects further in pregnancy. Women and obstetricians should consider the outcome of continued pregnancies after the first firmest bleeding when planning antenatal care and clinical interventions during pregnancy. We need more researches on bleeding in pregnancy to improve our better understanding and knowledge so that we can better plan the continued pregnancy as well as council the patient in better way.

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