

STUDY OF OUTCOME OF PREGNANCIES COMPLICATED BY FIRST TRIMESTER BLEEDING

Venu Gupta¹, Surabhi Katyal¹, Shiv Kumar Singh²

¹Assistant Professor, Department of Obstetrics and Gynecology, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India.

²Professor, Department of Anaesthesia, School of Medical Sciences & Research, Sharda University, Greater Noida, Uttar Pradesh, India.

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Corresponding Author:
Dr. Surabhi Katyal,
Email: surabhikatyal2@gmail.com

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Abstract

Background: Vaginal bleeding in the first trimester of pregnancy is a common obstetric problem and causes worry and anxiety both to the patient and the obstetrician. It occurs in approximately 16-25% of all pregnant women. If pregnancy continues after threatened miscarriage in later pregnancy it can be associated with several complications both maternal and fetal. Hence this study was undertaken with the following objectives. The objective is to study the outcome of pregnancies complicated by first-trimester bleeding in women attending the antenatal clinics. Analysis of outcome of singleton intrauterine pregnancies in patients with bleeding in the first trimester as assessed by clinical and sonographic findings. A critical evaluation of the management of such cases and the development of a departmental protocol for the same. **Materials and Methods:** The study included 100 pregnant women in their first trimester with vaginal bleeding at the OBGY department of Saraswathi Institute of Medical Sciences Hospital, Hapur, from August 2023 to May 2024. In all cases, a detailed history of duration of amenorrhea, bleeding, pain abdomen, vomiting, fever, drug intake, and relevant examination was performed. Investigations and ultrasound scanning were done, and the outcome of the pregnancy was evaluated. **Result:** Out of a total of 100 cases, 71 subjects had threatened miscarriage. Other 29 subjects had various types of miscarriages (Missed miscarriage-10, incomplete miscarriage-11 complete miscarriage-4, inevitable miscarriage-2 and blighted ovum- 2 subjects). In later follow-up, 12.7% of threatened miscarriage subjects had a spontaneous miscarriage rate. Women with first-trimester bleeding who continued pregnancies were associated with an increased risk of preterm deliveries (OR- 3.75), and PPROM (OR-9) which was statistically significant. Risk for other complications such as IUGR, LBW, APH, and Gestational HTN were also high when compared with women without a history of threatened miscarriage, but this was not statistically significant. Prevalence of hematoma was 33.8%. There was no effect of hematoma on miscarriage rates and preterm deliveries. **Conclusion:** Bleeding in the first trimester doesn't always lead to miscarriage. 71% of women in a recent study continued their pregnancy despite threatened miscarriage. In the present study, it was found that there was increased risk of preterm delivery (p value=0.012) and PPROM (p value=0.009). The risk of gestational hypertension, LBW, IUGR, APH was not found to be statistically significant in threatened miscarriage subjects in the present study. Intrauterine hematomas were common on ultrasonography, with a 33.8% prevalence among subjects with threatened miscarriage. The presence of intrauterine (subchorionic) hematoma does not always mean a poor prognosis. In the present study there was no difference in rates of miscarriages and preterm deliveries in subjects with or without hematoma. We treated women with threatened miscarriage using progesterone supplementation.

INTRODUCTION

Vaginal bleeding during the first trimester of pregnancy is common, affecting about 16-25% of

pregnancies.^[1] The important causes of first-trimester vaginal bleeding are failing intrauterine pregnancy (Threatened, inevitable, complete, incomplete, missed miscarriage, Blighted ovum), Ectopic

pregnancy, Molar pregnancy, Cervical causes like polyp, growth, erosion. Maternal complications include higher risk of gestational hypertension, antepartum hemorrhage, preterm labor, and cesarean delivery. Fetuses have a higher likelihood of growth restrictions, low Apgar scores, and low birth weights. Some studies say first trimester bleeding is associated with adverse outcome,^[2] but this is statistically independent of the presence or absence of hematoma. A recent study of 100 subjects with first-trimester bleeding used clinical symptoms and ultrasound findings for diagnosis. Antenatal follow-up was conducted for threatened miscarriages until delivery. This study aimed to investigate the incidence of viable and non-viable pregnancies in women experiencing first-trimester vaginal bleeding. We also observed complications during follow-up of women with threatened miscarriages to improve future counseling and antenatal care for couples.

MATERIALS AND METHODS

This is a descriptive study in which 100 cases of pregnant women in the first trimester who presented with vaginal bleeding in the department of OBGY, Saraswathi Institute of Medical Sciences Hospital, Hapur, during the study period September 2023 to May 2024 were included.

Patient's history was taken, examinations and ultrasound scanning were done, and pregnancy outcome was assessed as viable or non-viable, which included miscarriages. Threatened miscarriages were monitored until delivery and complications were assessed. A comparison of complication risks was made with 75 women without threatened miscarriage history. Ectopic gestation, Molar Pregnancy, Cervical causes of bleeding like polyps, erosion, growth were excluded. Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean SD (Min-Max) and results on categorical measurements are presented in number (%). Significance is assessed at 5 % level of significance. Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. p-value: $P \leq 0.01$ is considered as strongly significant. The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft Word and Excel have been used to generate graphs, tables etc.

RESULTS

Both study and control groups had individuals aged 17-40 years, with 74% and 78.8% aged 21-30 years, respectively. The groups were age-matched with a non-significant p-value of 0.364. [Table 1] The 21-30 age group was the most common, possibly due to the majority of pregnant women visiting the

Hospital's OPD being in this age range. The study found that 51% of subjects experienced abdominal pain. Among the 29 subjects with non-viable gestation, 86.2% had abdominal pain, while only 36.6% of the 71 subjects with viable gestation had it. The study found a statistically significant association between abdominal pain and non-viable gestation. [Table 2]

In the study, total subjects were categorised in 6 groups after satisfying inclusion and exclusion criteria. These groups were threatened miscarriage (TM), Missed miscarriage (MM), Incomplete miscarriage (IM), Complete miscarriage (CM), Blighted ovum (BO) and Inevitable Miscarriage (Ine M). Out of a total of 100 subjects, a maximum of subjects (71 %) were diagnosed with TM and they continued their pregnancy. [Table 3]

In the present study [Table 4], follow-up of threatened miscarriage subjects was done. Out of these 71 subjects, 62 subjects (87.3 %) had favourable outcomes (their pregnancy was continued beyond 28 weeks of gestation age (viability)). Of these 62 subjects, in 46 subjects (64.8 %) pregnancy was continued till term (≥ 37 weeks GA). Preterm delivery was seen in 15 subjects (21.1%). The remaining 9 TM subjects (12.7 %) presented with miscarriage (unfavourable outcome).

In the present study, out of a total of 71 subjects of the threatened miscarriage group, a total of 24 subjects (33.8 %) had hematoma on ultrasound scanning. Out of the 24 subjects, 21 (87.5%) had a favourable outcome while 3 (12.5%) had an unfavourable outcome resulting in a miscarriage. In the present study, a total of 62 pregnancies continued beyond viability. Out of these, 21 subjects had intrauterine hematoma. In this group, preterm delivery was seen in 5 subjects (23.8 %). In 41 subject's hematoma was absent. In hematoma absent group preterm delivery was seen in 10 subjects (24.3%). In the present study, follow up of threatened miscarriage subjects was done till delivery. A total of 71 subjects had threatened miscarriage. In threatened miscarriage group risk association of different complication was evaluated. A total of 15 (21.1 %) subjects had preterm delivery, 9 (12.7%) subjects had PPRM, 15 (21.1%) subjects delivered a low-birth-weight baby, 10 (14.1%) subjects had gestational hypertension, 7 (9.9%) subjects delivered IUGR babies and 5 (7.04%) had APH. Cervical cerclage was done in 3 subjects. [Table 5]

Out of 100 subjects, 71 had threatened miscarriage and 29 had other types of miscarriages. Complications included PTL, LBW, GHTN, PPRM, IUGR, and APH. PTL, PPRM, and APH were significantly more prevalent in the threatened miscarriage group, while no significant differences were observed in LBW, GHTN, and IUGR. Overall subjects with first-trimester bleeding had a higher risk of preterm delivery than control subjects without bleeding i.e. from 5.6% to 21.1% (OR 3.75). The risk of PPRM was also higher in threatened miscarriage subjects than in control subjects with no history of

bleeding i.e. from 1.4 % to 12.7% (OR 9). LBW risk was seen in cases and controls respectively at 21.1% & 18.3% (OR- 1.15) respectively, and the risk of IUGR was seen respectively at 9.9% & 4.2% (OR 2.33). In the present study risk of GHTN was seen slightly more in controls than cases i.e. 16.9% & 14.1 & respectively (OR 0.83). The risk of APH was 7.1%

in cases and 2.8% in controls (OR 2.5). In 3 subjects of the threatened miscarriage group, cervical cerclage was done. Out of a total of 71 subjects with threatened miscarriage, 61 subjects were managed with bed rest and progesterone supplement. In case of non-viable gestation, medical termination or D&C was done. [Table 6]

Table 1: Age-wise comparison between Study group and control group.

Age in years	Study group	Control Group
21-30	74(74.0%)	56(78.8%)
31-40	18(18.0%)	10(14.1%)
Total	100(100.0)	71(100.0%)
Mean ±SD	26.61±4.73	25.97±4.19

Table 2: Pain abdomen distribution in viable and non-viable gestation

Pain abdomen	Viable Gestation	Non-Viable Gestation	Total
Absent	45(63.4%)	4(13.8%)	49(49%)
Present	26(36.6%)	25(86.2%)	51(51%)
Total	71(100%)	29(100%)	100(100%)

Table 3: Distribution of study subjects based on diagnosis

Diagnosis	No. of subjects	%
TM	71	71.0
MM	10	10.0
IM	11	11.0
CM	4	4.0
BO	2	2.0
Ine M	2	2.0
Total	100	100.0

Table 4: Pregnancy outcome of threatened miscarriage subjects (Follow-up of TM subjects)

Pregnancy outcome	Number of subjects (n=71)	%
Term	46	64.8
Pre-term	15	21.1
Abortion	9	12.7
Lost-to follow up	1	1.4
Total	71	100.0

Table 5: Comparison of complications in threatened miscarriage subjects (case) and subjects without history of threatened miscarriage (control) studied

Complications	Threatened miscarriage Subjects (Cases)	Controls	P value	OR
PTL	15(21.1%)	4(5.6%)	0.012*	3.75
LBW	15(21.1%)	13(18.3%)	0.673	1.15
GHTN	10(14.1%)	12(16.9%)	0.643	0.83
PPROM	9(12.7%)	1(1.4%)	0.009**	9.00
IUGR	7(9.9%)	3(4.2%)	0.190	2.33
APH	5(7.1%)	2(2.8%)	0.245	2.50

Table 6: Management of subjects with first-trimester vaginal bleeding:

Management	Number of patients (n=100)	%
Antenatal check-up	71	71.0
• P supplement	61	61.0
• No treatment	10	10.0
Dilatation & Evacuation	7	7.0
MTP	18	18.0
Spontaneous CM	4	4.0

DISCUSSION

Obstetricians often encounter vaginal bleeding in early pregnancy, which can indicate life-threatening situations like ectopic or molar pregnancies that require immediate management. First-trimester vaginal bleeding is one of the most common complications in pregnancy with an incidence of 15-25%. About half of these will end in miscarriage

within 20 weeks of gestation³ and those women who continue their pregnancy have an increased risk of developing complications later in pregnancy.^[4-7] Bleeding in first trimester may be associated with a chronic inflammatory reaction in the deciduas which results in persistent myometrial activity and expulsion of pregnancy.^[8] Our study explores first-trimester vaginal bleeding in pregnancies. Ultrasound distinguishes between

viable and non-viable pregnancies, including threatened miscarriage and non-viable types like missed miscarriage, blighted ovum, and different types of miscarriage. Our hospital protocol includes progesterone supplements to lower the risk of miscarriage. In the present study out of total 71 threatened miscarriage subjects, 9 subjects (12.7%) in later follow-up presented with miscarriages. Thus, overall miscarriage rate in present study was 12.7% while in study done by Geneveive L. Bennett et al⁹ in 1996 overall miscarriage rate was 9.3 % whereas in study done by Poullose T et al¹⁰ in 2006, overall miscarriage rate was 11.1%.

In a study of 71 subjects who had threatened miscarriage, 24(33.8%) had intrauterine hematoma, which is higher than previous studies. Steven R et al,^[11] found the prevalence to be 20% in 1983, Pedersen et al,^[12] 18% in 1990, and Poullose T et al,^[10] 14% in 2006. In our study, the miscarriage rate was 12.5% with hematoma and 12.8% without hematoma, indicating that the presence of hematoma did not make a significant difference in miscarriage. Pedersen JF et al,^[12] study also found no difference in spontaneous abortion rate with or without hematoma. However, Poullose T et al,^[10] study showed that women with hematoma had a 2.6 times higher risk of miscarriage than those without hematoma (23% versus 9%). Our study found that the presence of hematoma did not affect the rate of preterm delivery (23.8% in the hematoma-present group). Previous studies by Pedersen JF et al,^[12] and Sandor Nagy et al,^[13] in 1990 and 2003 respectively found similar results. In the present study, a statistically significant association was found between vaginal bleeding in first trimester and preterm delivery (p value- 0.012) and PPROM (P value- 0.009). In the present study, preterm delivery was 3.7-fold higher in the threatened miscarriage group than the control group, which was higher than the risk found (OR 2.4) in 1992 by Sipila et al.^[14] Arafa et al,^[15] in 2000 also found (OR 1.7) significant association between threatened miscarriage and preterm delivery. Ajith Wijeseriwardana et al,^[16] in 2006 Houssain et al,^[17] in 2007 and also found significant association between threatened miscarriage and preterm delivery.

In the present study, association between PPROM and threatened miscarriage was found to be strong (OR 9) and statistically significant (p value-0.009) which was higher when compared to studies done before by Saraswat et al⁵ (OR1.78) and Weiss et al,^[4] (OR3.2). In the present study, risk of gestational hypertension was not significantly altered by vaginal bleeding in first trimester (OR 0.83). The same conclusion was made in one systematic review done by Saraswat L et al,^[5] in 2010. The present study showed that though there was some association between threatened miscarriage and LBW (OR- 1.15), this association was not statistically Significant (p value-0.673) whereas Saraswat et al,^[5] proved significant association. This opposite result could be due to the small sample size and small number of

subjects in both groups. Hence further large-scale studies are required in our hospital to overcome this limitation. The study found a possible link (OR-2.33) between IUGR and threatened miscarriage group, but it did not reach statistical significance (p value- 0.19). This opposite result may be due to the small sample size and low number of subjects in both groups.

CONCLUSION

Findings from the present study demonstrate bleeding in early pregnancy doesn't always lead to miscarriage. 71% of women who experienced threatened miscarriage in the first trimester continued their pregnancy in our study. In subjects with threatened miscarriage, it was found that there was an increased risk of preterm delivery (p value- 0.012) and PPROM (p value- 0.009) in present study. In the present study there was no difference in rates of miscarriages and preterm deliveries in subjects with or without hematoma. We treated threatened miscarriage in women with progesterone supplementation. However, the study is limited by a small sample size and a small control group (only 10), making a comparison impossible.

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