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Original Research Article

Pregnancy outcome after first trimester vaginal bleeding

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ABSTRACT

Background: First trimester vaginal bleeding is one of the most common complications in pregnancy threatening its proper development and successful outcome.

Methods: A case-control study was conducted from October 2016 to April 2018 in the department of obstetrics and gynecology SKIMS. 200 cases with vaginal bleeding in first trimester were taken for study. Out of the cases, number of patients who had abortion, ectopic, molar pregnancy or continued their pregnancy beyond 20 weeks was noted. Those who continued their pregnancy were compared with 130 controls for complications developing later in pregnancy.

Results: There was significantly higher incidence of PIH (15.4% of cases, 6.9% of controls, p value = 0.005) and abruption (7.7% and 1.5% among cases and controls respectively with p-value of 0.034) among cases than controls. Mean gestational age at delivery in cases was 35.6±3.63 weeks while in controls it was 38.5±1.94 weeks (p value <0.001). Mean birth-weight of the neonates in cases was 2.16±0.78 kgs while in controls was 3.05±0.53 kgs (p value <0.001). IUGR occurred in 9.2% of cases and 3.1% of controls (p value 0.039). There was significantly higher neonatal ICU admission rate in cases than controls (p value 0.019).

Conclusions: Patients with first trimester vaginal bleeding are at increased risk for spontaneous loss and adverse pregnancy outcome.

Keywords: Abortion, Ectopic, Hypertension, Perinatal morbidity, Preterm delivery, Vaginal bleeding

INTRODUCTION

First trimester vaginal bleeding is one of the most common complications in pregnancy threatening its proper development and successful outcome. Its incidence varies from 15-25%.¹ In 50% of these women pregnancy is non-viable and the bleeding period heralds a miscarriage and the remaining women who continue pregnancy have an increased risk of developing complications later in pregnancy such as preterm delivery, preterm premature rupture of membranes (PPROM), pre-eclampsia, placental abruption and intrauterine growth restriction (IUGR).²⁻⁸ In early pregnancy local haemostatic factors in the uterus during

implantation and decidualization like tissue factor expressed in cytotrophoblasts and systemic factors in the women during the ongoing pregnancy seem to play distinct roles in a successful pregnancy.^{9,10} Dysfunction of any of these factors could lead to an adverse outcome, for example, local formation of thrombin and soluble fms-like tyrosine kinase-1.¹¹ Both of these seem to be involved in the development of placental abruption and pre-eclampsia.⁹

Objectives of this study were;

- To determine pregnancy outcome after first-trimester vaginal bleeding

- To study maternal and perinatal complications if pregnancy continues after first trimester vaginal bleeding.

METHODS

This was a case-control study conducted in the department of obstetrics and gynecology, Sher-i-Kashmir Institute of Medical Sciences, Soura Srinagar. This was conducted over a period of 18 months from October 2016 to April 2018. A total of 330 women were included in the study. They were divided into 2 groups.

Included the women with vaginal bleeding in first trimester.

Inclusion criteria

- Pregnant women with vaginal bleeding
- Gestational age less than 12 weeks.

Exclusion criteria

- Women with non-obstetric cause of vaginal bleeding
- Women with diabetes mellitus, infertility treatment, thrombophilias, blood dyscrasias and uterine structural anomalies.

Controls

Included the normal pregnant women with no vaginal bleeding in first trimester.

Pregnancy outcome was noted in terms of

- Ectopic pregnancy
- Abortion
- Gestational trophoblastic disease
- Continued pregnancy after first trimester vaginal bleeding.

Women who continued their pregnancy were followed regularly up to one week after delivery.

Maternal outcome was noted in terms of pregnancy induced hypertension, abruption, premature rupture of membranes etc.

Fetal outcome was noted in terms of preterm delivery, IUGR/LBW, perinatal mortality, perinatal morbidity (Apgar score, NICU admission).

RESULTS

Table 1 shows outcome of pregnancy after first trimester vaginal bleeding. Out of 200 cases, 130 patients continued their pregnancy, 66 got aborted, 3 patients had ectopic pregnancy while 1 patient had GTD.

Table 1: Outcome of pregnancy in cases.

Outcome	Frequency	Percentage
Ectopic	3	1.5%
Abortion	66	33%
GTD	1	0.5%
Continued pregnancy	130	65%
Total	200	100%

Table 2: Age-wise distribution of cases and controls.

Age (years)	Cases		Controls		p value
	No.	%	No.	%	
20-24	24	12%	12	9.2%	0.908
25-29	92	46%	66	50.8%	
30-34	72	36%	46	35.4%	
≥35	12	6%	6	4.6%	
Total	200	100%	130	100%	
Mean±SD	28.6±3.45		28.9±3.26		

Table 3: Distribution of parity in cases and controls.

Parity	Cases		Controls		p value
	No.	%	No.	%	
Primigravid	90	45%	56	43.1%	0.731
Para 1	67	33.5%	44	33.8%	
Para 2	33	16.5%	26	20.0%	
Para 3	10	5%	4	3.1%	
Total	200	100%	130	100%	

The cases who continued their pregnancy (n = 130) were compared with 130 controls. As per age, parity, previous history of abortion (Tables 2, 3 and 4), no statistical difference was noted between cases and controls.

Table 4: Previous history of abortion in cases and controls.

Previous abortion	Cases		Controls		p value
	No.	%	No.	%	
Yes	36	18%	26	20.0%	0.649
No	164	82%	104	80.0%	
Total	200	100%	130	100%	

Maternal and perinatal complications of cases were compared with those of controls.

Table 5: Comparison based on PIH in cases and controls.

PIH	Cases		Controls		p-value
	No.	%	No.	%	
Present	20	15.4%	9	6.9%	0.030*
Absent	110	84.6%	121	93.1%	
Total	130	100%	130	100%	

*Statistically significant difference (p value < 0.05).

Table 5 shows comparison based on PIH in cases and controls. 15.4% of cases developed PIH while 6.9% controls had PIH, p value was statistically significant.

Table 6: Comparison based on abruption in cases and controls.

Abruption	Cases		Controls		p value
	No.	%	No.	%	
Present	10	7.7%	2	1.5%	0.034*
Absent	120	92.3%	128	98.5%	
Total	130	100%	130	100%	

*Statistically significant difference (p value < 0.05).

Table 7: Comparison based on gestational age (weeks) at delivery in cases and controls.

Gestational age (years)	Cases		Controls		p value
	No.	%	No.	%	
20-28 weeks	8	6.2%	0	0.0%	<0.001*
28-32 weeks	9	6.9%	2	1.5%	
32-37 weeks	41	31.5%	7	5.4%	
≥37 weeks	72	55.4%	121	93.1%	
Total	130	100%	130	100%	
Mean±SD	35.6±3.63		38.5±1.94		

*Statistically significant difference (p value < 0.05).

Table 6 shows comparison based on abruption in cases and controls. 7.7% of cases had abruption while among controls, only 1.5% had abruption, the difference between the two was statistically significant.

Table 7 shows comparison based on gestational age at delivery in cases and controls. Mean gestational age at delivery in cases was 35.6±3.63 weeks while in controls it was 38.5±1.94 weeks with p value of 0.001, the difference between the two was statistically significant.

Table 10: Comparison based on perinatal outcome in cases and controls.

Perinatal outcome	Cases (n = 130)		Controls (n = 130)		p value
	No.	%	No.	%	
IUD	3	2.3%	1	0.8%	0.622
Still birth	3	2.3%	1	0.8%	0.622
Postnatal death	18	13.8%	6	4.6%	0.011*
IUGR	12	9.2%	4	3.1%	0.039*
NICU admission	21	16.2%	9	6.9%	0.019*

*Statistically significant difference (p value < 0.05).

Table 11: Comparison based on birth-weight in cases and controls.

Birth weight (kgs)	N	Mean	SD	Range	p value
Cases	130	2.16	0.78	0.6-3.6	< 0.001*
Controls	130	3.05	0.53	1.0-4.0	

*Statistically significant difference (p value < 0.05).

Table 8: Comparison based on PROM in cases and controls.

PROM	Cases		Controls		p value
	No.	%	No.	%	
Present	32%	24.6%	8%	6.2%	<0.001*
Absent	98%	75.4%	122%	93.8%	
Total	130%	100%	130%	100%	

*Statistically significant difference (p value < 0.05).

Table 8 shows comparison based on PROM in cases and controls. PROM occurred in 24.6% of cases, while among controls it occurred in 6.2%, the difference between the two was statistically significant.

Table 9 shows comparison based on PPH in cases and controls. PPH occurred in 7.7% of cases and 3.1% of controls, the difference was statistically insignificant.

Table 10 shows that there was significantly higher rate of perinatal deaths in cases (13.8%) than controls (4.6%). Similarly, IUGR and Neonatal ICU admission rate was significantly higher in cases than controls.

Table 9: Comparison based on PPH in cases and controls.

PPH	Cases		Controls		p value
	No.	%	No.	%	
Present	10	7.7%	4	3.1%	0.169
Absent	120	92.3%	126	96.9%	
Total	130	100%	130	100%	

Table 11 shows that mean birthweight of neonates born to cases was 2.16±0.78 kgs, while of those born to controls was 3.05±0.53 kgs, the difference between the two was statistically significant.

Table 12 shows that mean Apgar score (1 minute) of neonates born to cases was 6.5 ± 2.87 , while those of controls was 7.1 ± 2.49 , the difference between the two

groups being statistically insignificant. Similarly, the difference in Apgar score at 5 minutes of birth between cases and controls was statistically insignificant.

Table 12: Comparison based on Apgar score in cases and controls.

Apgar score	Cases (n = 130)		Controls (n = 130)		p value
	Mean	SD	Mean	SD	
1 minute	6.5	2.87	7.1	2.49	0.073
5 minutes	7.4	3.21	8.0	2.37	0.087

DISCUSSION

First trimester vaginal bleeding is not only associated with miscarriage but also with a higher rate of pregnancy complications. If on ultrasound a viable fetus is observed and there is a blood collection or clot around the fetal sac, it seems worthwhile to advise the patient to take bed rest. However, there is no evidence that this measure is beneficial. Neither progesterone nor hCG injections have demonstrated to be beneficial in improving pregnancy outcome. Because of impaired placentation spontaneous abortion may occur in early pregnancy while preterm delivery, PROM, placental abruption and preeclampsia may happen in later period.^{5,12}

Out of these 200 cases, 66 women (33%) aborted, 3 (1.5%) had ectopic pregnancy, 1 (0.5%) had GTD while 130 (65%) women continued their pregnancy beyond 20 weeks (Table 1). The miscarriage rate in this study was consistent with that of Mustafa G et al, who found miscarriage rate of 34% in their study.¹³ Davari-Tanha et al, reported miscarriage rate of 42.7%.¹⁴

In this study, 15.4% of cases developed PIH while only 6.9% of controls had PIH in later gestation. The incidence of PIH was significantly more common in cases as compared to controls with a p value of 0.005 (Table 5). This study results were also consistent with Sarmalkar MS et al, the incidence of PIH in their study was 15%.¹⁵ Similar results were shown by Lykke et al, who found significantly increased incidence of hypertensive disorders of pregnancy in the subjects with history of first trimester vaginal bleeding as compared to controls (p value <0.001).¹² In this study 7.7% of the cases developed abruption as compared to 1.5% of controls, the difference This being statistically significant (p value 0.034) (Table 6). results were consistent with a study conducted by Davari et al, who found abruption significantly more common in the cases (5.7%) than controls (1.5%) with p value of 0.015.¹⁴ In this study mean gestational age at delivery in cases was 35.6 ± 3.63 weeks while in controls it was 38.5 ± 1.94 weeks (p value <0.001). This shows that the rate of preterm delivery was significantly higher in cases as compared to controls. Similar results were found in a study conducted by Davari et al.¹⁴ In this study revealed PROM in 24.6% of cases and in 6.2% of controls, showing significantly

higher incidence in cases as compared to controls (p <0.001).

The incidence of IUGR in this study was 9.2% in cases and 3.1% in controls, the difference between the two being statistically significant (p value 0.039). This was consistent with the study conducted by Lykke et al.¹² Mean birth-weight of the neonates in cases was 2.16 ± 0.78 kg while in controls was 3.05 ± 0.53 kg. The difference between the two was statistically significant with p value <0.001. The results were consistent with Agrawal S et al, mean birth weight in cases was 2.47 kg while in controls was 2.94 kg (p value 0.0001).¹⁶ There was significantly higher neonatal ICU admission rate in cases than controls (p value 0.019).

CONCLUSION

Vaginal bleeding is a relatively common complaint in the pregnant women in first trimester.

Patients with first trimester vaginal bleeding are at increased risk for spontaneous loss and adverse pregnancy outcome.

Maternal morbidity is increased in terms of PIH and abruption and the stress due to vaginal bleeding.

There is increased risk of preterm delivery, IUGR, LBW, NICU admission and postnatal death among neonates born to mothers who had first trimester vaginal bleeding.

Affected pregnancies require close surveillance and obstetrician should remain alert for signs of these complications.

Prematurity is the main poor outcome predicted following first trimester vaginal bleeding. Knowledge of this increased risk may facilitate decision making regarding management like timely administration of corticosteroids or decisions regarding mode, place and timing of delivery.

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