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Original Research Article

## Fetomaternal outcome of pregnancy complicated by first and second trimester vaginal bleeding

Bhamini Jakhetiya, Ruhina Khan\*, Arun Gupta, Rama Chundawat, Meenakshi Singh

Department of Obstetrics and Gynecology, Geetanjali Medical College and Hospital, Udaipur, Rajasthan, India

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**\*Correspondence:**

Dr. Ruhina Khan,

E-mail: [ruhinakhan5@gmail.com](mailto:ruhinakhan5@gmail.com)

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### ABSTRACT

**Background:** To determine the effects of vaginal bleeding occurring in first and second trimester on maternal and fetal outcome.

**Methods:** The present prospective observational study was conducted at department of obstetrics and gynecology, Geetanjali medical college and hospital, Udaipur and 90 Patients with first and second trimester pregnancy (till 24 weeks of gestation) presented with the complaint of vaginal bleeding at antenatal clinic or emergency were included in this study.

**Results:** In our study the result showed that bleeding in early pregnancy is associated with high rate of abortion (32.22%) in which first trimester abortion constitute 44.83% while second trimester abortion constitute around 55.17%. Outcome observed in women having bleeding with SCH 58.4% had caesarean delivery followed by 25% had vaginal delivery, 16.7% had preeclampsia, 8.3% had PPROM and 5.6% had APH. Similarly, in women having bleeding without SCH 64% had caesarean delivery followed by 36% had vaginal delivery, 12% had preeclampsia, PPROM and APH in 8% each and also women having bleeding with SCH, 37.1% had low birth babies, 22.8% had NICU admission and 8.6% had birth asphyxia. Similarly, in women having bleeding without SCH, 16% had low birth babies, 16% had NICU admission and 8% had birth asphyxia.

**Conclusions:** First and second trimester vaginal bleeding is an independent risk factor for an adverse obstetric outcome and this risk factor should be taken into consideration when deciding upon antenatal surveillance and management.

**Keywords:** Antepartum hemorrhage, Low birth weight, Preeclampsia, Subchorionic hemorrhage, Threatened abortion

### INTRODUCTION

Vaginal bleeding during early pregnancy is a common problem and one of the frequent cause of early obstetric ultrasound and emergency admissions. Vaginal bleeding is observed in about one-fourth of total pregnancies.

Threatened abortion complicates around 20-27% of pregnancy.<sup>1,2</sup>

About half of early losses are due to fetal chromosomal defects and implantation failure.<sup>3,4</sup> Defects in placental

growth and differentiation were manifested as preeclampsia in later part of pregnancy.<sup>5</sup>

Maternal factors include age, number of previous abortion, obesity, structural uterine anomalies, endocrinal factors like thyroid disorders, diabetes mellitus, autoimmune diseases, thrombophilic defects, polycystic ovarian disease and luteal phase defects.<sup>6-15</sup>

Stress, active smoking and exposure to environmental tobacco smoke have also been found to be related to a higher risk of abortion.<sup>16-22</sup>

## METHODS

The Present prospective observational study was conducted in the department of Obstetrics and Gynaecology, Geetanjali medical college and hospital, Udaipur after taking ethical clearance from 01 February 19 to 31 July 2020.

The patients presented with an episode of bleeding in first and second trimester in the antenatal clinic and emergency were included after obtaining written informed consent. Patient with ectopic pregnancy, gestational trophoblastic disease, congenital anomalies diagnosed on ultrasonography, local and cervical lesion, bleeding disorder were excluded from study. After taking thorough medical history, complete examination (general, physical, obstetrical,) was done.

All patients underwent antenatal ultrasonography to confirm fetal viability. Termination of pregnancy was done either by medical or surgical method in non-viable fetus. Ultrasonography confirmed viable intra uterine pregnancy and subchorionic bleed was managed conservatively with progesterone and pelvic rest, followed up regularly till their outcome. Women with viable fetus were followed up till delivery and various maternal and neonatal outcomes were recorded and analyzed.

### Statistical analysis

Total 105 patients were enrolled, however, 15 patients defaulted in follow up so excluded and 90 patients were included in final analysis. The collected data was cross checked and entered into Microsoft excel software and

was later exported to SPSS, IBM Inc version 21 for statistical analysis. The descriptive data (categorical) was represented as frequencies.

## RESULTS

According to parity wise distribution, 44.44% women were primigravida and rest were multigravida. Around 40% pregnancy were aborted in primigravida cases as compared to multigravida in which 36% aborted. Though difference was not statistically significant but it was observed that as the gravidity increases, possibility of better outcome of pregnancy also increases.

In present study majority of pregnant women had normal BMI. Cases with BMI >30, 33.33% pregnancy were continued and rest were aborted. The difference was statistically significant with p value <0.05.

According to severity of bleeding, 50% women had spotting, 42% had bleeding while rest had passage of clots. We also found that majority (71.42%) of pt cases having passage of clots majority (71.42%) eventually ended up in abortion. The difference was statistically significant with p-value less than 0.05 (Table 1).

Mean gestational age of bleeding was 12.7±4.8 weeks. Women having first trimester bleeding, mostly (31.1%) were in gestational age 6-9 weeks which was statistically significant while (36.34%) of abortion occur in 10-12 weeks.

In women with second trimester bleeding, majority (50%) of abortion occur in 17-20 weeks followed by 45% were in 13-16 weeks (Table 2).

**Table 1: Maternal factors and outcome.**

Obstetrics score	Total cases (%)	Pregnancy continued (%)	Pregnancy aborted (%)
Primigravida	40 (44.44)	24 (60)	16 (40)
Multigravida	50 (55.55)	37 (74)	13 (36)
<b>BMI (KG/m<sup>2</sup>)</b>			
Low (<18)	6 (6.67)	5 (83.33)	1 (16.66)
Normal (18-24.9)	5 (65.55)	44 (74.57)	15 (25.42)
High (25-29.9)	16 (17.78)	9 (56.25)	7 (43.75)
Obese (>30)	9 (10)	3 (33.33)	6 (66.66)
<b>Complaints</b>			
Spotting	45 (50)	43 (95.55)	2 (4.44)
Bleeding	38 (42.23)	16 (42.1)	22 (57.8)
Clots passage	7 (7.77)	2 (28.58)	5 (71.42)
<b>Total</b>	90	61	29

**Table 2: Distribution of cases according to bleeding at gestational age.**

	Gestational age (weeks)	Frequency (%)	Pregnancy continued	Pregnancy aborted	P value
<b>First trimester</b>	6-9 weeks	28 (31.1)	23 (82.14)	5 (17.86)	0.0001
	10-12 weeks	22 (24.4)	14 (63.64)	8 (36.34)	0.0210

Continued.

	Gestational age (weeks)	Frequency (%)	Pregnancy continued	Pregnancy aborted	P value
<b>Second trimester</b>	13-16 weeks	20 (22.2)	11 (55)	9 (45)	0.2981
	17-20 weeks	12 (13.3)	6 (50)	6 (50)	1.0
	21-24 weeks	8 (8.9)	7 (87.5)	1 (12.5)	0.0001
<b>Total</b>		90 (100)	61 (67.78)	29 (32.23)	
<b>Mean±SD</b>		12.7±4.8			

**Table 3: Maternal risk factors and outcome.**

Risk factors	Frequency (N=90)	Percentage	Pregnancy continued (N=61)	Pregnancy aborted (N=29)
<b>Hypothyroidism</b>	19	17.8	11 (18%)	8 (27.6%)
<b>IVF conceived</b>	7	3.3	4 (6.6%)	3 (10.3%)
<b>Infertility treated</b>	5	5.55	3 (4.9%)	2 (6.9%)
<b>Multiple abortions</b>	10	9	5 (8.2%)	5 (17.2%)
<b>Substance abuse</b>	12	14.44	4 (6.6%)	8 (27.6%)
<b>Obesity</b>	9	10	3 (4.9%)	6 (20.7%)

**Table 4: Maternal outcome in cases of bleeding with and without subchorionic hematoma.**

Maternal Outcome	Bleeding with subchorionic hematoma (N=36)	Bleeding Without subchorionic hematoma(N=25)
<b>Antepartum hemorrhage (APH)</b>	2 (5.6%)	2 (8%)
<b>Preeclampsia</b>	6 (16.7%)	3 (12%)
<b>PPROM</b>	3 (8.3%)	2 (8%)
<b>Vaginal delivery</b>	9 (25%)	9 (36%)
<b>Caesarean delivery</b>	21 (58.4%)	16 (64%)

**Table 5: Fetal outcome in cases of bleeding with and without subchorionic hematoma.**

Fetal outcome	Bleeding with subchorionic hematoma (N=36)	Bleeding without subchorionic hematoma (N=25)
<b>Birth weight &lt;2.5kg</b>	13 (37.1%)	4 (16%)
<b>Birth asphyxia</b>	3 (8.6%)	2 (8%)
<b>NICU Admission</b>	8 (22.8%)	4 (16%)

According to risk factors, hypothyroidism being major cause in 17.8% followed by 14.44% cases with substance abuse, obesity in 10%, 9% with history of multiple abortions, 5.5 % infertility treated while 3.3% were IVF conceived (Table 3).

Women having bleeding with SCH 16.7% had preeclampsia, preterm premature rupture of membranes (PPROM) and antepartum hemorrhage (APH) noted in 8.3% and 5.6% respectively.

A total 58.4% had caesarean delivery followed by vaginal delivery in 25 %, Similarly, in women having bleeding without SCH, 12% had preeclampsia, 8% with APH and another 8% with PPRM, 64% had caesarean delivery followed by 36% had vaginal delivery (Table 4).

In our study women having bleeding with SCH, 37.1% had low birth babies, 22.8% had NICU admission and

8.6% had birth asphyxia. Similarly, in women having bleeding without SCH, 16% had low birth babies, 16% had NICU admission and 8% had birth asphyxia (Table 5).

## DISCUSSION

In our study we observed that bleeding in early pregnancy is associated with high rate of abortions (32.22%) i.e. 29 out of 90 cases.

Parity is not directly related to abortion but our study demonstrated that in continued pregnancy, significant proportion were in multigravida as compared to primigravida. In study conducted by Sivasane et al found that out of total 95 patients, 44 patients were primigravida, 51 were multigravida. 45% aborted in primigravida and 37.3% in multigravida.

High BMI and obesity is significant risk factor for abortion as 66.66% pregnancies were aborted, rest continued. Sivasane et al found that incidence of abortion went on increasing to 83% in overweight and 100% in obese patients so study showed higher the BMI, higher will be the chances of pregnancy loss.

We also found that in cases having passage of clots majority (71.42%) eventually ended up in abortion. The difference was statistically significant with p-value less than 0.05 and our study corresponded to Sivasane et al.<sup>23</sup>

The mean gestational age at bleed was 12.7±4.7 weeks and in 50 cases having first trimester bleeding (6-12weeks), 26% aborted which was statistically significant. In our study incidence of first trimester bleeding was 55.55% while second trimester bleeding occurs in 44.44% in total cases. In women with second trimester bleeding, majority (50%) of abortion occur in 17-20 weeks followed by 45% were in 13-16 weeks. Contradictory to our study, Kamble et al found that incidence of abortion was higher in patients with first trimester bleeding in less than 6 weeks of gestation (77%) whereas it was significantly less after 10 weeks of gestation (7%).<sup>24</sup>

Among the total number of our cases we found higher prevalence of several risk factors which contributed for early pregnancy losses were hypothyroidism, substance abuse, obesity, history of recurrent abortion, patient conceived after infertility treatments and IVF. Sharma et al found a significant association of thyroid function with an abortion rate of 14.63% in their study group, i.e., pregnant women with hypothyroidism (and 4.96% in their control group).<sup>25</sup> Studies of George L. et al and Neilson A. et al reported association of abortion with tobacco and smoking respectively.<sup>21,22</sup>

In our study, we observed that out of total 61 continued pregnancies, 36 had subchorionic hematoma while 25 had normal ultrasound findings after episode of bleeding. We compared the maternal outcome in patients with or without hematoma and observed higher incidence of preeclampsia, preterm labour, caesarean section in patients with hematoma. Similar to our study, Tuuli et al and Nagy et al had observed high incidence of preeclampsia, preterm labour, caesarean section in hematoma cases.<sup>26,27</sup>

Neonatal outcome in cases with SCH, 37.1% had low birth babies, 22.8% NICU admission and 8.6% had birth asphyxia. Similarly, in women having bleeding without SCH, 16% had low birth babies, 16% NICU admission and 8% had birth asphyxia. Similar to our study, Peixoto et al (2018), they reported no significant difference in regards to the prevalence of low birth weight in cases with intrauterine hematoma and without intrauterine hematoma, the caesarean section rate (68% versus 81%, p=0.130), preterm delivery (16% versus 16%, p>0.999).<sup>28</sup>

## CONCLUSION

All the patients with first and second trimester pregnancy bleeding should be treated as high risk group and managed with multidisciplinary approach at tertiary care centre. Also we conclude that early pregnancy bleeding with subchorionic haemorrhage has higher incidence of ante-partum haemorrhage, preterm premature rupture of membranes, Preeclampsia and low birth weight as compared to the bleeding in absence of subchorionic haemorrhage.

Therefore, patients with subchorionic haemorrhage should be strictly monitored for the aforementioned complications to optimize maternal and neonatal outcome.

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