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Maternal and Fetal Outcome in Third Trimester Bleeding

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ABSTRACT

Introduction: Third trimester bleeding is not uncommon and can pose a great challenge to maternal as well as the fetal wellbeing. Various outcomes have been associated with this; out of which mode of delivery and fetal outcome are salient ones.

Objective: To determine the frequencies of various maternal and fetal outcomes with third trimester bleeding.

Methodology: Participants of age between 20 to 40 years with singleton pregnancy of more than 24 weeks gestation presenting with per vaginal bleeding within 24 hours irrespective of the amount of blood loss were followed to look for mode of delivery i.e., normal/ C-section, cesarean hysterectomy and for fetal death.

Results: A total of 91 cases were enrolled. The mean age of the subjects was 27.82 ± 3.92 years. Mean BMI was 28.82 ± 5.34 kg/m^2 and mean duration of gestation presenting with bleeding was 27.08 ± 6.16 weeks. Out of 92, 33 (36.26%) were graduated and 66 (72.53%) were poor. Out of total 91 cases, 13 (14.28%) had normal delivery, 63 (69.23%) had C-section, 8 (8.79%) had cesarean hysterectomy and 10(10.99%) had fetal death with overlapping of more than 1 complication. There was significant difference in terms of C - section which was significantly higher in cases with age 30 to 40 years where this was seen in 27 (84.37%) out of 32 cases as compared to 36 (61.01%) out of 59 cases with age 20-29 years with p= 0.03.

Conclusion: Perinatal complications are common in cases with third trimester bleeding and the most common one is C-section, which is significantly associated with age 30 to 40 years and none of the other confounders is associated with any complication.

Keywords: C-section, bleeding, hysterectomy, fetal death

INTRODUCTION

Pregnancy-related vaginal bleeding is a common occurrence throughout the course of the pregnancy. Rather than fetal, the source is almost frequently maternal. If blood vessels in the decidua (pregnancy endometrium) are disrupted, bleeding may occur. If there are discrete cervical or vaginal lesions, bleeding may occur. Preliminary clinical diagnosis is usually made by the doctor based on gestational age and the type of bleeding the patient is experiencing (light or heavy, associated with pain or painless, intermittent or constant). The original diagnosis is then confirmed

or revised based on the results of additional laboratory and imaging testing.

Between 20 and 40% of pregnant women experience vaginal bleeding throughout the first trimester (0 to 13+6 weeks). It can be light or heavy, intermittent or continuous, painless or painful in any combination. Non-traumatic bleeding in early pregnancy can be caused by four main factors:

- Ectopic pregnancy
- Miscarriage (threatened, inevitable, incomplete, complete)
- Implantation of the pregnancy
- Cervical, vaginal, or uterine pathology (e.g, polyps, inflammation/infection, trophoblastic disease)

Pregnancy-related bleeding is the most prevalent cause of first-trimester haemorrhage that is not traumatic (prevalence of miscarriage 15 to 20 percent of pregnancies). Despite significant bleeding, only 1% of expectantly managed women require transfusions [1]. Despite its rarity (2 percent of pregnancies are ectopic), first-trimester bleeding due to rupture of the extrauterine pregnancy is a life-threatening complication, and thus it must be ruled out in all pregnant women who experience bleeding during the first trimester.

A definitive diagnosis is made when possible, and significant pathology is excluded in the remaining situations when vaginal bleeding in the first trimester cannot be pinpointed with certainty. It's critical to rule out ectopic pregnancy because it's life-threatening. So the first step is to find out if the patient has undergone an ultrasound examination and if so, what the results were. Although prior ultrasounds may have missed a heterotopic pregnancy (i.e. one intrauterine and one extrauterine pregnancy) or a cornual (interstitial) ectopic pregnancy, the differential diagnosis is immediately narrowed when there is documentation that the pregnancy is in the normal intrauterine location. Always have an experienced sonographer check the results once they are certain. Determine if the patient is hemodynamically unstable so that therapy and supportive measures can be started right once.

Determine the extent of the bleeding: Is the woman passing blood clots, or is the blood soaking her clothes?? Is she dizzy or faint? Is there a lot of pain or cramps in her pelvis? Is there any tissue in her uterus? If she says yes to any of these questions,

ectopic pregnancy and miscarriage are considerably more likely diagnoses than implantation bleeding or cervicovaginal cause (e.g, polyps, cervicitis, cancer). The presence of only light, intermittent, painless bleeding, on the other hand, does not rule out the presence of a life-threatening underlying condition, such as ectopic pregnancy. This is critical to keep in mind. What is the medical history of the patient? The likelihood of this condition is increased if you have had an ectopic pregnancy in the past or if you have certain risk factors (such as a history of PID, use of an intrauterine contraceptive device, or pelvic surgery). Bleeding may be linked to an approaching pregnancy loss when there have been previous miscarriages or conditions connected with them (e.g. paternal chromosomal rearrangement, maternal antiphospholipid syndrome, uterine abnormality). Heterotopic pregnancy is more likely if you use assisted reproductive technologies to conceive the child.

Second and Third Trimester Bleeding

Vaginal bleeding is less common in the second trimester (14+0 to 27+6 weeks) and third trimester (28+0 weeks to delivery). The major causes of bleeding at these times are:

- Bloody show associated with labor (by definition, labor occurs after 24 weeks) or, less commonly, cervical insufficiency
- Miscarriage (by definition, miscarriage occurs before 24 weeks)
- Placenta previa
- Abruptio placenta
- Uterine rupture (rare)
- Vasa previa (rare)

All hemodynamically unstable women should have hemoglobin/hematocrit and coagulation testing performed (hypotension, tachycardia, orthostasis, syncope). Women with severe vaginal bleeding, especially if it is chronic, may benefit from a baseline hemoglobin/hematocrit measurement. To summaries, it should be assumed that when an ultrasound no longer detects the fetal heartbeat, then the fetus has died. However, this can be an observer's error and should be validated with an ultrasound from consultant radiologist. In contrast, doppler confirmation of fetal heart activity is more accurate and reliable. An examination of the abdomen is

carried out to check for any pain or other abnormalities and the size of the uterus. Uterine fundus is palpable between the symphysis pubis and umbilicus at 16 weeks of pregnancy and at 20 weeks of pregnancy, it is palpable near the umbilicus. Patient is placed in lithotomy position after abdominal inspection. To perform internal examination, a speculum is placed in the vagina. According to the information presented above, a physical examination may reveal a source of bleeding unrelated to pregnancy, such as cervical ectropion, an abnormal growth, or a laceration. Cervical insufficiency or an impending miscarriage can be diagnosed without the need of any further tests if contractions are present and a dilated cervix or fetal membranes are visible.

In the second trimester, transvaginal ultrasonography is the gold standard for assessing bleeding. Placenta previa, decidual bleeding, and symptoms of cervical insufficiency are the main concerns. The abruptio placenta is a condition in which the placenta separates abruptly from the uterus. Bleeding in the second and third trimesters is linked to a poor pregnancy outcome, especially preterm birth, just like it is in the first trimester. Unfavorable outcomes are associated with both the amount of bleeding (worse outcome with heavier bleeding) and the source (bleeding from a non-previa source is more likely to be problematic) [2]. The risk of preterm birth is increased by twice to thrice in the second half of pregnancy if there is antepartum hemorrhage of unknown cause [3, 4]. In the second and third trimesters, the treatment of pregnant women with vaginal bleeding is dependent on a variety of criteria, including gestational age, origin of bleeding, severity and fetal condition.

METHODOLOGY

This study was a descriptive case series study, conducted at Department of Obs and Gynae, Bahawal Victoria Hospital, Bahawalpur from 1st January, 2021 to 1st July, 2021. The sample size was calculated as 91 by keeping the confidence interval equal to 95% and the margin of error equal to 7.5% and the anticipated normal delivery in cases of 3rd trimester bleeding as 15.67%.

Sample Selection

Inclusion Criteria:

1.Age 20-40 years

2. Patients with singleton pregnancy of more than 24 weeks gestation (assessed from history of amenorrhea and previous medical record) presenting with per vaginal bleeding within 24 hours irrespective of the amount of blood loss.

Exclusion Criteria:

1- Cases with more than one pregnancy (assessed by USG).
2- Cases with history of chronic liver, renal or cardiac disease (assessed by history and medical record).
3- Cases with known history of HTN, DM and smoking (assessed by history and medical record).
4- Cases with bleeding disorders e.g, Von Willibrand's Disease, DIC etc.(assessed by medical record).

Data Collection Procedure:

After the approval from ethical committee of Bahawal Victoria Hospital, Bahawalpur, an informed consent was taken from each patient fulfilling the inclusion criteria. Socio-demographic data like age, BMI (weight in kg/ height in meter^2) where height (in meters by wall mounted scale) and weight (in kg by electronic weighing scale), number of gravidity, parity, educational status (graduate/ undergraduate), socioeconomic status (good/ poor) and duration of gestation at bleeding (weeks) was taken at Department of Obs/ Gynae BVH, BWP and recorded on a specially designed proforma (attached). Then all these cases were followed at every 4 weeks to assess for the mode of delivery as normal vaginal delivery, C-section, cesarean hysterectomy and for fetal death as per operational definition. There was no case of loss to follow up. The results were noted and recorded on the same proforma.

Data Analysis:

Data was analyzed with the help of SPSS version 21. Quantitative variables like age, BMI, duration of gestation at bleeding were presented in terms of mean ± SD (Standard Deviation). Frequency & percentages were calculated for gravida, parity, socioeconomic status, educational status and outcome variable i.e. normal delivery, C-section, cesarean hysterectomy and fetal death detected as yes or no. Effect modifiers were controlled through stratification of age, BMI, duration of gestation at bleeding, gravida, parity, socioeconomic status and

educational status to see the effect on outcome variables. Post stratification chi square test was applied. P-value≤ 0.05 was taken as significant.

R E S U L T S

In this study there were 91 cases enrolled. The mean age of the subjects was 27.82±3.92 years as in table 1. Mean BMI was 28.82±5.34 and mean duration of gestation presenting with bleeding was 27.08±6.16 weeks (table **1**). Out of 91, 71 (78.02%) participants had multigravida and were multiparous. Out of 92, 33 (36.26%) were graduated and 66 (72.53%) were poor. Out of total 91 cases, 13 (14.28%) had normal delivery, 63(69.23%) had C section, 8 (8.79%) had cesarean hysterectomy and 10 (10.99%) had fetal death with overlapping of more than 1 complication as in table **2**. There was no significant difference in terms of any confounding variables with different outcome i.e. normal delivery, c section, cesarean hysterectomy and fetal death with age, gestational age, BMI, gravida, parity, socioeconomic status and educational status (tables **3-6**) except for C section which was significantly higher in cases with age 30 to 40 years where this was seen in 27 (84.37%) out of 32 cases as compared to 36 (61.01%) out of 59 cases with age 20-29 years with p= 0.03 as in table **4**.

Table 1. Age, BMI and Duration of Gestation in Study Subjects N= 91.

	Age (years)	BMI	Duration of gestation
Mean	27.82	28.82	27.08
Standard Deviation	3.92	5.34	6.16
Minimum	21	26	25
Maximum	39	33	31

Table 2. Outcome in Study Subjects N= 91.

Outcome	Number	Percentages
Normal delivery	13	14.28
C-section	63	69.23
Cesarean hysterectomy	08	8.79
Fetal death	10	10.99
Total	**91**	**100**

Table 3. Normal Delivery with Respect to Age, BMI, Duration of Gestation, Gravida, Parity, Socioeconomic Status and Educational Status N= 91.

Variables		Normal delivery		Total	p
		Yes	No		
Age	20-29	10	49	59	0.53
	30-40	3	29	32	
BMI	Up to29	7	43	50	1.0
	> 29	6	35	41	
Duration of gestation	25-29	11	61	72	0.72
	> 29	02	17	19	
Gravida	Single	03	17	20	1.0
	Multigravida	10	61	71	
Parity	Nulliparous	3	17	20	1.0
	Multiparous	10	61	71	
Socioeconomic status	Poor	11	55	66	0.
	Good	2	23	25	
Educational status	Graduate	5	28	33	1.
	Undergraduate	8	50	58	

Table 4. C-Section with Respect To Age, BMI, Duration Of Gestation, Gravida, Parity, Socioeconomic Status and Educational Status N=9.

Variables		C Section		Total	p
		Yes	No		
Age	20-29	36	23	59	0.03
	30-40	27	5	32	
BMI	Up to29	39	11	50	0.07
	> 29	24	17	41	
Duration of gestation	25-29	47	25	72	0.16
	> 29	16	3	19	
Gravida	Single	12	8	20	0.41
	Multigravida	51	20	71	
Parity	Nulliparous	12	8	20	0.41
	Multiparous	51	20	71	
Socioeconomic status	Poor	47	19	66	0.61
	Good	16	9	25	
Educational status	Graduate	23	10	33	1.0
	Undergraduate	40	18	58	

Table 5. Cesarean Hysterectomy with Respect to Age, BMI, Duration Of Gestation, Gravida, Parity, Socioeconomic Status and Educational Status.

Variables		CESEREAN HYSTRECTOMY		Total	p
		Yes	No		
Age	20-29	36	23	59	0.25
	30-40	27	5	32	
BMI	Up to29	39	11	50	0.13
	> 29	24	17	41	
Duration of gestation	25-29	47	25	72	0.19
	> 29	16	3	19	
Gravida	Single	1	19	20	0.68
	Multigravida	7	64	71	
Parity	Nulliparous	1	19	20	0.68
	Multiparous	7	64	71	
Socioeconomic status	Poor	4	62	66	0.20
	Good	4	21	25	
Educational status	Graduate	3	30	33	1.0
	Undergraduate	5	54	58	

Table 6. Fetal Death with Respect to Age, BMI, Duration of Gestation, Gravida, Parity, Socioeconomic Status and Educational Status N=91.

Variables		FETAL DEATH		Total	p
		Yes	No		
Age	20-29	9	50	59	0.09
	30-40	1	31	32	
BMI	Up to29	4	46	50	0.33
	> 29	6	35	41	
Duration of gestation	25-29	09	63	72	0.68
	> 29	01	18	19	
Gravida	Single	02	18	20	1.0
	Multigravida	08	63	71	
Parity	Nulliparous	02	18	20	1.0
	Multiparous	08	63	71	
Socioeconomic status	Poor	6	60	66	0.45
	Good	4	21	25	
Educational status	Graduate	3	30	33	0.74
	Undergraduate	7	51	58	

DISCUSSION

Vaginalbleedingiscommonespeciallyinthefirstpartofthe pregnancyand is one of the most common cause of presentation to the obstetric clinics and emergencies. Bleeding in particular after mid pregnancy is associated with increased maternal and fetal risks. It is estimated that 15% to 25% of all pregnancies suffer 1st trimester bleeding while 3.8% in the third trimester. The data has revealed that vaginal bleeding is associated with a two-fold increased risk of other complications during the pregnancy[5, 6].

There are multiple causes of per vaginal bleeding and range from minor lesions to fatal underlying conditions. It can be assessed by detailed history, physical examination, ultrasonography for placental location or even other investigations depending upon the clinical guidance. A brief period of observation canals differentiate minor from serious causes of vaginal bleeding [7].

Cervicitis, cervical ectropion, polyps and other bleeding disorders are possible underlying benign causes. The other serious placental abnormalities include placenta previa, placental abruption and morbidly adherent placenta, which can result in fatal bleeding and warrant emergency interventions; hence need detailed examination and diagnostic evaluation. They can interfere the normal delivery and can pose the danger of emergency cesarean section, uncontrolled bleeding can also result in hysterectomy

and can affect the fetal life as well in various ways[8-10].

In the present study, out of total 91 cases, 13 (14.28%) had normal delivery, 63(69.23%) had C-section,8(8.79%) had cesarean hysterectomy and10(10.99%) had fetal death with overlapping of more than 1 complication. These results were comparable with the findings of the previous studies. According to a study done by Purohit A et al, the so far found only study in data to look for outcome in 3rd trimester bleeding, normal delivery was seen in 21(15.67%),C-section in 105 (78.35%), cesarean hysterectomy in 8 (5.97%) cases and fetal death in combination was seen in 17(32.07%) of cases[11].

There are number of underlying causes that lead to bleeding and can impact the pregnancy at any stage in terms of various outcomes; but there are certain number of cases where there is no obvious causes and this is seen in around two percent of the cases out of total pregnancies. The data has shown the poor and unwanted outcomes in these cases as well regarding mother as well as fetal outcomes.

In a study, the cases were included that presented with third trimester and no overall incidence was seen. However, the results from the previous studies have shown that there is an incidence rate of around 2.7% to 5.3% of total pregnancies and these highest rates is seen to be reported at tertiary obstetric hospital for Western Australia compared with the rate

of 2.2% for other level 2 obstetric hospitals in the metropolitan Perth Western Australia area. This can be explained by the simple factor that the most complicated cases were referred to the more specialized areas. According to their analysis regarding various outcomes, C-section was again the most common one and was seen in more than 75% of the cases [3].This was also supported by the findings of the other studies which also found a high degree of adverse outcomes especially in the cases that had bleeding in their earlier part of the second half; though this was slightly contradictory to the present study as this study included the cases only in their last trimester. They found that highest number of cases ended up either in the form of pre term delivery or fetal deaths. And less than 5% cases resulted in cesarean hysterectomy due to excessive blood loss[12-15].

In the present study, there was no significant difference in terms of any confounding variables with different outcome i.e. normal delivery, C-section, cesarean hysterectomy and fetal death with age, gestational age, BMI, gravida, parity, socioeconomic status and educational status, except for C-section which was significantly higher in cases with age 30 to 40 years where this was seen in 27 (84.37%) out of 32 cases as compared to 36 (61.01%) out of 59 cases with age 20-29 years with p= 0.03. This was also supported by the data of the previous studies. According to a study done by Chan et al, they also found a significantly higher number of cases in higher age groups; though the similar cut off values were not used. This can be explained by the factor that these were probably the cases which had also previous history of C-section which is one risk factor for next cesarean section[15].

There were few limitations of this study as this study did not look for overall incidence of the third trimester bleeding; for which data is already scarce and also did not look for the causes of underlying disorders that led to the third trimester bleeding and obviously there were number of other outcomes which could have been studied. However, there were many strengthening points as well, as this study highlighted a very uncommon and under rated entity.

CONCLUSION

Perinatal complications are common in cases with third trimester bleeding and the most common one is the risk of C-section, which is significantly associated with age 30 to 40 years and none of the other confounders is associated with any complication.

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