

First trimester bleeding and feto-maternal outcome: A study at tertiary care centre of southeastern region of Rajasthan.

Outcomes of threatened abortion in pregnancy

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Abstract: Vaginal bleeding in early pregnancy represents a threat to the developing embryo and is a source of anxiety to both pregnant women and obstetrician, with 15-25% incidence it is associated with poor fetomaternal outcomes.

Aim - Determine the feto-maternal outcome in pregnancies complicated with first trimester vaginal bleeding.

Material and methods-It was a prospective observational study done in 200 women over duration of 18 months at jay kay lon hospital, kota, Rajasthan, 100 women with first trimester bleeding taken as cases against 100 women without bleeding as control.

Result-48% cases and 46% controls belonged to the 21-25 years of age group ,64% cases presented before 8 weeks of gestation against 40% of controls, Subchorionic hemorrhage was seen in 12% women. Preterm prelabour rupture of membranes observed in 16 cases against 4 controls, antepartum hemorrhage observed in 10 cases against 2 control group and 8 fetal growth restricted babies amongst cases in comparison to 2 fetal growth restricted in control group.

Conclusion- first trimester vaginal bleeding is associated with a significantly increased number of abortions, ante partum hemorrhage and pre labour rupture of membrane in mothers, more number of fetal growth restricted babies with low birth weight resulting in increased neonatal intensive care unit admissions.

Key words: antepartum hemorrhage ,first trimester, Pregnancy outcome, preterm labour, vaginal bleeding.

Introduction- The first trimester of pregnancy is a dynamic period that spans from ovulation, fertilization, implantation to fetal organogenesis. The blessed moment of being an expecting mother might turn into an agony with the appearance of blood in the early pregnancy. It's a leading cause for first trimester ultrasound examination and is a common cause for emergency admissions in early pregnancy^[1]. The estimated incidence of vaginal bleeding in first trimester is 16-25% ^[2,3]of all pregnant women . In early pregnancy there may be physiologic implantation bleeding, with the rapid growth of the gestational sac and the blood vessels around it causes bleeding which traverse into the vagina and is seen as spotting which will clear up in course of time. During the pre embryonic stage the blastocyst implantation disrupts the endometrial extracellular environment, which results in bleeding which is usually small in amount and self limiting. The leuteo-placental shift occurs around 7week of pregnancy, if the decrease in progesterone during this transition period is sufficient enough to mimic the drop of progesterone level during secretary phase of menstrual cycle, might trigger a bleeding episode. Such kind of episodes depicts poor placental functioning^[4]Amongst various causes for vaginal bleeding, obstetrical causes are abortion, ectopic pregnancy, gestational trophoblastic disease, retrochorionic bleeding, non-obstetrical causes includes cervical polyp, vaginitis, erosion ,bleeding disorders malignancy , ruptured varicose veins and drug induced. Incidence of spontaneous abortion after first trimester vaginal bleeding is around 50% before ultrasonographic evidence of fetal viability and it diminishes to 2-14% after confirmation of viability ^[5]. If pregnancy continues, the poor feto-maternal outcomes such as pre-eclampsia, fetal growth restriction , preterm labour rupture of membranes, placental abruption may occur ^[6,7]. Women may present with slight, bright red vaginal bleeding that is spontaneous in onset and may stop itself, pain in abdomen usually not present but mild backache may occur. A per speculum examination may be required if bleeding continues to rule out any local pathology of external genitalia. A gentle vaginal examination although not harmful, is not usually required unless bleeding becomes heavy or pain supervenes. Urine pregnancy test should always be offered as they quickly tells within a minute whether a woman is pregnant or not. Ultrasound is the primary imaging modality in the evaluation of patients presenting with bleeding in first trimester, it quickly diagnose an intrauterine pregnancy and exclude ectopic gestation, with transvaginal sonography, gestational sac as small as 2-3 mm may be visualized corresponding to 4.5 – 5 weeks of gestation, with crown rump length >3 mm, cardiac activity can usually be seen by TVS ^[8]. Reassurance is required to allay the anxiety of the patient, patient should be advised rest till the fresh bleeding stops for at least 2 days, abstinence and heavy weight lifting should be avoided .ultrasound should be repeated after an interval of 10-14 days to ensure that fetus is doing well. Even if the bleeding stops itself , the chances that pregnancy continues is at higher risk than normal but if the blood loss is massive or sufficient enough that causes anemia in woman then chances of continuation of successful pregnancy are far remote.

The event of first trimester bleeding episode is worrisome to the patient and treating obstetrician, it guides further antenatal care and clinical interventions required . The evidence that first trimester vaginal bleeding leads to fetal abnormality is still not clear. Although the literature supports the poor fetomaternal outcomes in affected pregnancy, but it's not applicable to all cases, as many pregnancies carry on uneventfully after an episode of bleeding till the delivery of a term healthy newborn. So, despite of modality of treatment

the prognosis is very unpredictable, the present study is an effort to study the outcome of pregnancy that has been complicated with bleeding in the first trimester.

Aim of this study was to determine the fetal and maternal outcome in a pregnancy complicated with the first trimester vaginal bleeding.

Materials and methods- It was an descriptive study conducted prospectively in the department of obstetrics and gynecology, at government medical college, kota , Rajasthan over a duration of 18 months i.e. march 2020 to September 2021. Age matched 200 pregnant women attending antenatal clinics were screened for following criteria.

Inclusion criteria-

- a) Women with pregnancy of <12 weeks gestation with vaginal bleeding labeled as cases
- b) Women with pregnancy of <12 weeks gestation with no vaginal bleeding labeled as controls
- c) Normal BMI
- d) Willing for regular antenatal follow up

Exclusion criteria-

- a) Any pathology of uterine cavity or genital tract
- b) Hydatidiform mole
- c) Bleeding disorders
- d) Second trimester vaginal bleeding
- e) Ectopic pregnancy
- f) Women with history of medical termination pills intake
- g) Refusal for follow up

100 women presenting with first trimester bleeding were taken as cases and 100 women without bleeding presented in first trimester were takes as controls.

A sample size of 80 patients in each group was required at 80 % study power and α error of 0.05.the following formula applied to calculate the sample size-

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where, Z= 1.96(the approximate value of the 97.5 percentile point of the normal distribution for a significance level of 0.05) , p is the prevalence, d is the precision level. It was further enhanced and rounded off to 100 patients in each group assuming 25% drop outs in 6 months follow up period.

All eligible women were explained about the purpose of the study and informed written consent taken for participation, detailed history including age, gravida, parity, period of gestation, presenting complaints, personal history , past history followed by general physical and obstetrical examination done in each women. All women were investigated with necessary biochemical , hematological, serological , urinary tests and patients with threatened abortion were managed with complete bed rest till 48 hours of cessation of bleeding, folic acid and progesterone supplementation. Enrolled women were called in follow up antenatal outdoor till abortion or child birth whichever is later. Antenatal complications like pregnancy induced hypertension, preterm labor, pre labor rupture of membranes or ante partum hemorrhage were noted and newborns examined for birth weight and neonatal intensive care unit admissions.

Ethical clearance of the institutional ethical committee obtained before conducting this study. study doesn't involve any invasive procedure, all possible information regarding study was given to the enrolled patient and a written consent obtained with no element of compulsion.

Statistical analysis- It was done using EPI info software .linear variables were presented as mean, standard deviation and were compared by using an unpaired t test, Nominal/categorical variables were described as percentages, compared using the chi-square ttest/ fischer exact test. P value <0.05 was taken as significant.

Result and discussions- This study was done at tertiary care hospital of government medical college, Kota , Rajasthan ,which is a referral centre for entire hadoti region. In our study 48% cases and 46% controls belonged to the age group of 21-25 years.51% of enrolled women had literacy status between primary to higher secondary.55% women were Muslim and 45% were Hindu. Women divided in cases and controls were matched in terms of age, parity, socioeconomic status, religion and no statistically significant difference detected in these parameters. In women belongs to cases 64% presented before 8 weeks of gestation while 60% of controls reported after 9 weeks of gestation, it may be because of anxiety related to threatened miscarriage leading to attend antenatal clinics as early as possible. These results were comparable to the study conducted by John J et al in 2006 over 428 women, the mean gestational age at presentation to antenatal clinic was 8 weeks in women with first trimester bleeding and 11 weeks in women without bleeding ^[9]. In our study 68% women had spotting per vaginum, 20% had moderate bleeding while 12 % had severe bleeding per vaginum. In a study conducted by Rai P et al, 70% women had spotting, 20% had moderate bleeding to heavy bleeding in 10% ^[10]. Subchorionic hemorrhage(SCH) was seen in 12% women presenting with first trimester vaginal bleeding. Our study revealed 8 fetal growth restricted(FGR) babies amongst cases and 2 FGR in control group, but the result was insignificant with a p value of 0.104 , Ahmed et al in 2012 conducted a study over 134 women, 11.2% cases and 2.2% in controls resulted in FGR babies and results were statistically insignificant ^[11]. Preterm prelabour rupture of memberanes observed in 16 women in cases against 4 women in controls with the p value =0.009 which was a statistically significant difference . The study conducted by Dadhkah F et al in 2010 showed similar results with 10.2% cases and 4.8% controls resulted in PPRM out of 500 patients in each group^[7]. Antepartum hemorrhage observed in 10 women in cases against 2 women in control group, with the p value of 0.037 which was significant, out of 10 women 6 women had placenta previa while 4 women had abruption placenta. In a study conducted by Mulik V et al , antepartum hemorrhage was observed in 6.8% cases ^[12], Wijeseriwardana A et al in 2006, found an increased prevalence of placenta previa in the study population however the result was statistically not significant ^[13]. In terms of increased blood pressure during pregnancy and first trimester bleeding, our study showed statistically insignificant results in both groups, 10% cases and 6%

controls were found to have hypertensive disorder of pregnancy. None of our enrolled patient had antepartum eclampsia. Ahmed SR et al in 2012 found that 4.4% women in control group and 5.6% women with first trimester vaginal bleeding resulted in hypertensive disorders with a p value of >0.05 which was insignificant [11].

Our study showed a higher rate of preterm deliveries in cases, 44% of cases and 10% controls were found to have preterm deliveries with a p value of <0.05, study conducted by John J et al in 2006, found that 11.9% women of first trimester bleeding delivered prematurely against 5.6% of controls [9]. In a study conducted by Dadkah F et al (2010) observed 1000 women and found that spontaneous preterm delivery seen in 126 women amongst 500 cases and 47 controls out of 500, with a highly significant result [7]. A statistically significant difference was observed in the birth weight of newborns between both groups, 20 babies were born with low birth weight in comparison to 8 babies of controls. Both induced and spontaneous preterm deliveries for various indications are the predictable factors for LWB. Similar results obtained by Ahmed SR et al in 2012 with a mean birth weight of 2.4±1.13kg in cases and 3.1±0.36 in controls .[11]

Our study showed that 16 pregnancy aborted spontaneously, 4 had intrauterine fetal deaths(IUFD) while remaining 80 were alive preterm and term newborns amongst cases, out of 4 IUFD , 2 women had subchorionic hemorrhage detected in USG in first trimester scan, while 2 women presented as antepartum hemorrhage between 32-35 weeks of gestation. In a study conducted by Tanha FD et al in 2008, 150 women with first trimester vaginal bleeding and 450 age matched controls were observed, IUFD was found in 14.1%cases and 1.3% of controls and results were not significant statistically[15] .

Limitation- one of the limitation of our study is determination of frequency of bleeding that might affect the outcome was not calculated, women with very light bleeding who didn't report to our hospital were missed from this study. As women with first trimester bleeding received more comprehensive antenatal care during follow up visits due to which some complications possibly could have been averted.

Conclusion- The first trimester vaginal bleeding is associated with significantly increased number of abortions, ante partum hemorrhage and pre labour rupture of membrane in mothers, more number of low birth weight newborns resulting in increased neonatal intensive care unit admissions. This study is important in raising awareness among healthcare professionals as well as women in emphasizing the importance of antenatal surveillance in first trimester bleeding. Hence, first trimester bleeding warrants a woman to have regular antenatal check up at nearby health facility, treating doctor should ensure that these women should deliver at a tertiary care centre to reduce maternal and fetal morbidity.

Tables-

Table no.1 – Distribution of women according to gestational age at presentation-

Gestational age (wks)	Cases No.	%	Controls No.	%
12				
Total	0		0	

Table no.2. Distribution of women according to presence of sub chorionic hemorrhage in transvaginal sonography-

Subchorionic hemorrhage	Cases no.	%	Controls no.	%	Total
Present					%
50%					5%
50%					5%
Total	0	0	0	0	0

Table no.3. Distribution of women as per their antenatal complications-

Complications	Cases no.	%	Controls no.	%	Total %
PROM – present					
Present					
PH- present					
Present					
Good pressure- normal					

gestational hypertension					5
eclampsia					5
GR- present					
absent					

PPROM-Prelabor rupture of membranes, APH-Antepartum hemorrhage, FGR-Fetal growth restriction

Table no.4. Distribution of women according to obstetrical outcome-

Outcome	cases	controls
abortion		
live issue		
FD		

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Conflict of interest- we are declaring that we don't have any conflict of interest in this study.

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References-

- Zhila Ak ,Meisam Akhaghdoost M A, Gelareih Rabie ,Salehi. Maternal and perinatal outcome in pregnant women with first trimester vaginal bleeding.J Farm Reproduct Health.2013;7(2)57-61.
- Goldman JA,Ashkenazi J , Ben David M, Feldberg D,Dicker D,Voliovotz I.First trimester bleeding in clinical IVF pregnancies.Human Reproduct.1988;3(6)807-9.
- Stabile I, Campbell S, Grudzinskas JG.Ultrasound and circulating placental protein measurements in complications of early pregnancy. Br J Obstet Gynaecol1989.;96(10): 1182-91.
- Csapo Ai,PulkkinenM. Indispensability of the human corpus leuteum in the maintenance of early pregnancy.lutectomy evidenceObstet Gynecol Surv.1978,33:69-81.
- Sumathy K K.A comparative study of ultrasonographic evaluation of vaginal bleeding in pregnancy with clinical examination .Int J Reprod Contracept Obstet GYnaecol. Apr; 20198(4);1250-1253
- Everenos A, Gungor AGulerman C, Cosar E.Obstetric outcomes of patients with abortus imminens in the first trimester. Arch Gynecol obstet,2014, 289(3)499-504.doi:10.1007/s00404-013-2979-5
- Dadkhah F, Kashanian m , Eliasi G A.Comparison between the pregnancy outcome in both with or without threatened abortion. Early Human Dev. 2010, 86(3);193-196.doi;10.1016/j.earlhumdev.2010.02.0058
- Philip J S,Catherine AJ, Monicah AF.Value and limitations of obstetrical ultrasound.Can Fam Phys ,1992,8:121-8.
- John J, Jauniaux E. Threatened miscarriage as a predictor of obstetric outcome, obstet gynecol. 2006;107:845-50
- Rai P, Kumari G, Kumari k, Jaiswal D. Evaluation of perinatal outcome in women presented with first trimester vaginal bleeding: our experience.Inter J Reprod Contracept Obstet Gynecol. 2017;6(3);829-32
- Ahmed S R, El Sammani Mel K, Alsheeha M A, Aitallah AS, Jabin khan F. Pregnancy outcome in women with threatened miscarriage: A year study.Materia socio-medica, 2012;24(1);26-8.
- Mulik V, Bethel J, Bhai k.A retrospective population based study of primigravida women on the potential effect of threatened miscarriage on obstetric outcome. J Obstet Gynecol; 2004;24(3)249-53.
- Wijesiriwardana A, Bhattacharya S, Shetty A, Smith N.Obstetric outcome in a woman with threatened miscarriage in the first trimester.Obstet Gynecol, 2006;107:845-50.
- Davari Tanha F,Shariat M, Kaveeh M, Ebrahimi M , Javalvand S. Threatened abortion: a risk factor for poor pregnancy outcome. Acta Med Iran, 2008;46:314-20.