



Pregnancy Outcomes in First Trimester Vaginal Bleeding

Gynaecology

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ABSTRACT

Background: To study pregnancy outcomes in patients presenting with spontaneous vaginal bleeding in first trimester.

Material and Methods: This prospective cohort study was done in a tertiary care Centre over a period of 24 months and included a cohort of 116 patients with first trimester vaginal bleeding (Group A) whose pregnancy outcomes were compared with 106 patients with no such history. (Group B).

Results: Spontaneous abortions, Preterm deliveries and Small for gestational age babies were significantly more in women with history of first trimester vaginal bleeding ($P \leq 0.05$). However, there were no statistical significant differences in the other outcomes (PROM , PPRM, NICU admissions and congenital anomalies) studied.

Conclusion: First trimester vaginal bleeding may be responsible for the development of certain adverse pregnancy outcomes. Hence history of first trimester vaginal bleeding warrants close monitoring of the pregnancy for these adverse outcomes.

KEYWORDS:

First Trimester Vaginal bleeding, Pregnancy outcomes.

Introduction

Bleeding in the first trimester is one of the most common obstetric problems. It is also one of the commonest causes for emergency admissions and unscheduled ultrasound examinations in the first trimester. Nearly 25% of all pregnant women in their first trimester complain of vaginal bleeding.^{1,2} Approximately, one-third of first-trimester bleedings happens in pregnancies that are otherwise normal and no anatomical cause can be established in the vast majority of pregnancies that are complicated by vaginal bleeding.^{3,4} It is estimated that half of the women who experience first-trimester vaginal bleeding will continue with their pregnancies, and other half will eventually abort.⁵ Since most of the times, the origin of the bleeding is the placenta, it has been hypothesized that pregnancies complicated by a first-trimester vaginal bleeding could be at increased risk for "placental related" complications. It has been shown to be associated with an increased risk of poor obstetric outcomes such as preterm delivery, low birth weight, and premature rupture of membranes.^{6,7}

Material and Methods

A prospective study was conducted to know the outcome of pregnancies complicated by first trimester vaginal in a tertiary care hospital affiliated to Armed Forces Medical College, Pune. All antenatal patients in the first trimester in the age group from 19-37 years were eligible to be enrolled in the study. A total of 222 patients were included in the study from 01 Nov 2014 to 31 Oct 2016. The Study group (Group 'A' included 116 pregnant women with history of vaginal bleeding in first trimester and the Control group (Group 'B') included 106 randomly selected pregnant women in the first trimester with no history of vaginal bleeding. Exclusion criteria included patients who conceived after Assisted Reproductive Technologies [Ovulation Induction (OI) Intrauterine Insemination (IUI) ,In vitro Fertilization and Embryo Transfer (IVF-ET)] , Recurrent pregnancy losses , multifetal pregnancies and any pre-existing medical disorder. A detailed obstetrical and medical history was taken, timing of bleeding was noted, thorough examination was done which included general physical examination, and a thorough systemic examination. P/S examination and P/V was done to document the site of bleeding and rule out local cause. Baseline

investigations including Hb, blood grouping and typing, urine examination, and other routine ante natal investigations as and when indicated. USG for gestational age, fetal viability and placental localization were done. The various outcomes studied were recorded in the proforma sheet for each patient and data was entered using EXCEL 2007 and analysed using the by using SPSS (Statistical package for social sciences version) 20.0.

Results

The mean age of patients in the study group was 25.66 ± 4.13 and in the control group was 24.13 ± 3.55 . Out of the 116 patients enrolled in the study group, 24 (20.69%) aborted and 12 out of the remaining 92 patients had pre-term delivery (13.04%). However, 80 patients did deliver at term (86.96%) while in the control group ($n=106$) only three patients aborted (2.91%) and out of the remaining 103 patients, only 3 had preterm delivery (2.91%) and 103 women (97.09%) delivered at term. Women in the study group (Group A) were found to have a 7 fold increased risk of spontaneous abortions as compared to those in Group B. (RR=7.31 ; 95% CI 2.2 – 23.5) which was statistically significant ($p < 0.05$). It was also observed that women with first trimester vaginal bleeding (Group A) were more likely to deliver preterm as compared to those Control group (Group B) which was four fold as compared to the study group which again was significant ($p < 0.05$, RR= 4.47 95% CI 1.3 – 15.27). The findings are summarized in Table 1.

A total of 17 patients underwent Premature Rupture of Membranes (PROM) out of which 9 were (9.78%) in Group A and 8 (7.77%) were in Group B ($p = 0.05$) but the difference was not statistically significant. A total of 14 patients underwent Preterm Premature Rupture of Membranes (PPROM) too 9 (9.78%) in Group A and 5 (4.85%) in Group B but the difference was not statistically significant ($p = 0.267$). Out of the 195 new born babies were delivered in all, 92 in Group A and 103 in Group B, number of babies with SGA were 23, 18 (19.57%) in group A and 5 (4.85%) in Group B the difference being statistically significant ($P=0.006$). A total of 7 new born babies required NICU admission 3 (3.26%) in Group A and 4 (3.88%) in Group B ($p = 0.999$) with no statistically significant difference. (Table 2)

Discussion

Literature on the impact of first trimester vaginal bleeding on the pregnancy outcome has shown a definite increase in certain adverse outcomes. First trimester vaginal bleeding has been shown to be important predictor of adverse fetal outcome with increased risk of preterm delivery, delivery of low birth weight infant, and abortions.⁸⁻

¹¹ The incidence of spontaneous abortions after an episode of first trimester vaginal bleeding has been studied in the past with the incidences ranging between 16.6% and 34 %. In a study done by Patel NG et al in 2014 the incidence of spontaneous abortion in patients who had bleeding in first trimester was 16.6%.¹² In other studies, Amirkhani et al demonstrated an incidence of spontaneous abortion of 20% and G Mustafa et al in 2009 showed an incidence of 34% in patients who had history of first trimester vaginal bleeding.^{13,14} In our study the incidence of spontaneous abortions(both first and second trimester) in Group A was 20.69 % as compared to 2.83% in Group B and this was statistically significant. Our while in agreement with the previous studies in fact showed that women with first trimester vaginal bleeding were at increased risk for spontaneous abortions with a relative risk of 7.31.

Our study also revealed an increased risk of preterm birth with an incidence of 13.04% in Group A as compared to 2.91% in Group B with a statistically significant difference and a relative risk of 4.4. In a study done by Arafa et al in 2000 incidence of preterm delivery was 26.19% in patients who had early pregnancy vaginal bleeding. Both Batzofin et al and Williams et al reported that patients with bleeding had double the risk of preterm delivery compared with patients without bleeding though the latter study was limited only to first trimester bleeding.^{4,15,16} However, studies by Strobino and Pantel-Silverman failed to show any association between preterm delivery before 36weeks of gestation and light vaginal bleeding in the first or second trimester of pregnancy.¹⁷

Another pregnancy outcome that has been commonly studied for its association with first trimester vaginal bleeding is the risk of PROM and PPROM and various studies have differed on this account. Although the cause of PROM and PPROM is unclear, it is hypothesized that disruption of the chorionic-amniotic plane by adjacent hemorrhage may make the membranes more susceptible to rupture. Alternatively, the prolonged presence of blood may act as a nidus for intrauterine infection. Persistent or recurrent placental hemorrhage could also stimulate subclinical uterine contractions that result in cervical change and eventual ruptured membranes. The study done by Amirkhani et al in 2013 revealed an incidence of 8.3% of PROM in pregnant patients who had first trimester vaginal bleeding. While Hossain et al in 2007 showed a tenfold risk of PROM in patients with vaginal bleeding in first trimester, the study by Williams et al showed no such association. In our study, the incidence of PROM in Group A was 9.78% as compared to 7.77% in Group B and the difference was not statistically significant.¹⁸ Our study showed that women with first trimester vaginal bleeding were not at increased risk for PROM as compared to those who had no history of first trimester vaginal bleeding. In our study incidence of PPROM was 9.48% in Group A as compared to 6.4% in Group B which was once again not significant. In a study done by Davari-Tanha et al in 2008 16% of patients had PPROM and Hossain et al in 2007 showed incidence of 4.19%.^{19,20} Our findings do not corroborate these studies which may be due to relatively small sample size.

In our study a total of 195 new born babies were delivered, out of which 92 were in Group A and 103 were in Group B. In Group A the number of SGA babies were 18 (19.57%), AGA 70 (76.09%) and LGA were 4 (4.35%) where as in Group B the number of babies with SGA were 5(4.85 %), AGA 92 (89.32%) and LGA were 6 (5.83%). Our study showed an incidence of SGA of 19.57% in Group A as compared to 4.85% in Group B which was statistically significant (p=0.006). However we didn't find any significant differences in rates of AGA and LGA babies. The results of studies conducted by Betzofin et al (16), Ananth CV, and Verma et al did show increased chances of growth restriction in patients with first trimester vaginal bleeding and were

consistent with our study.^{21,22} However, Mau G et al. and Yang et al in their study did not show any increase in frequency of small for gestational age babies in pregnancies complicated by early gestational bleeding.^{23,24}

A history of first trimester vaginal bleeding hence needs to be taken seriously and warrants surveillance for development of complications later in pregnancy. The role of progesterone supplementation, antibiotics for prevention of bacterial vaginosis and other infections and monitoring of cervical length and finally monitoring of fetal growth and tests of fetal well being later in pregnancy need to be evaluated in this group of patients as may have a role in the management of these pregnancies.²⁵ Knowledge of this increased risk may also facilitate decision making regarding management, for example, timely administration of corticosteroids or decisions regarding mode, place, and timing of delivery, which will inevitably improve neonatal outcome.

The main advantage of our study was that it is a prospective cohort study in which pregnancy outcomes in patients first trimester vaginal bleeding were compared with patients with normal first trimester. However, our study had limitations too. The relative small sample size, unmatched control group, and the fact that the interventions for management of first trimester vaginal bleeding were not standardized in the study group need to be corrected in future studies. Also, patients were not followed in the postpartum period and hence the perinatal and neonatal periods of these newborns were not completely studied.

Conclusion

In conclusion, based on the findings of this study, supported adequately by available literature, it would be reasonable to conclude that, patients with first-trimester vaginal bleeding are at increased risk for spontaneous abortions and certain adverse pregnancy outcomes in the form of pre-term birth and low birth weight. Hence it would be prudent to consider stricter monitoring of these pregnancies in the form of progesterone support, cervical length monitoring and surveillance for fetal growth abnormalities and extending high risk pregnancy care to those with higher perceived risk of such adverse pregnancy outcomes.

Table 1: Pregnancy Outcomes in Group A and Group B

Outcomes	Group 'A' (n=116)		Group 'B' (n=106)		P-value	RR(95%CI)
	N	%	n	%		
Age (Mean ± SD)	25.66yrs ± 4.13		24.13 yrs ± 3.55			
Spontaneous Abortions (Both 1 st Trimester and 2 nd Trimester)	24	20.69	3	2.91	< 0.001	7.31 (2.2 -23.5)
Pre term delivery	12	13.04	3	2.91	0.008	4.47 (1.3 – 15.27)
PROM	9	9.78	8	7.77	0.652	1.26 (0.5 – 3.1)
PPROM	9	9.78	5	4.85	0.267	2.01 (0.7 -5.7)
Delivery at term	80	86.96	100	97.09	0.00	0.89 (0.82 – 0.97)
Birth weight						
SGA	18	19.57	5	4.85	0.006	
AGA	70	76.09	92	89.32		
LGA	4	4.35	6	5.83		
NICU Admission	3	3.26	4	3.88	0.999	0.84 (0.19 – 3.65)

Table – 2 - Effect of first trimester vaginal bleeding on the neonatal birth weight

Pregnancy outcome		Group ' A ' n=92		Group ' B ' n=103	
		n	%	n	%
Pre term	SGA	8	66.67	1	33.33
	AGA	3	25.00	1	33.33
	LGA	1	8.33	1	33.33
	Total	12		3	
Term	SGA	10	12.50	4	4.00
	AGA	67	83.75	91	91.00
	LGA	3	3.75	5	5.00
	Total	80		100	

References:

- Cunningham FG. Williams's Obstetrics. 23rd Edition. New York: McGraw-Hill; 2010: 825-9.
- Nyberg DA, Filly RA, Filho DL, Laing FC, Mahony BS. Abnormal pregnancy: early diagnosis by US and serum chorionic gonadotropin levels. *Radiology*. 1986;158(2):393-6.
- Yazigi R, Saunders E, Gast M. Hormonal therapy during pregnancy. *Contemp Ob Gyn*. 1991;61:78.
- Williams MA, Mittendorf R, Lieberman E, Monson RR. Adverse infant outcomes associated with first-trimester vaginal bleeding. *Obstet Gynecol*. 1991;78(1):14-8.
- Kutteh W, Carr B. Diagnosis and management of recurrent pregnancy loss. *Female Patient Q*. 1993;18:85-98.
- Mulik V, Bethel J, Bhal K. A retrospective population based study of primigravida women on the potential effect of threatened miscarriage on obstetric outcome. *J Obstet Gynaecol*. 2004 Apr;24(3):249-253
- Saraswat L, Bhattacharya S, Maheshwari A, Bhattacharya S. Maternal and perinatal outcome in women with threatened miscarriage in the first trimester: a systematic review. *BJOG* 2010;117:245-57.
- Karim SA, Bakhtawar I, Butta AT, Jalil M. Effect of first and second trimester vaginal bleeding on pregnancy outcome. *J Pak Med Assoc* 1998;48:40-2.
- Adelusi B, Dada OA. Prognosis of pregnancies after threatened abortion. *Int J Gynaecol Obstet* 1980;18:444-7.
- SJ Funderburk D, Burthrie. Outcome of pregnancies complicated by early vaginal bleeding. *Brit J Obstet Gynaecol* 1980;87:100-105.
- Berkowitz GS, Harlap S, Beck GJ, Freeman DH, Balas M. Early gestational bleeding and pregnancy outcome: a multivariable analysis. *Int J Epidemiol* 1983;12:165-173.
- Patel NG et al. Study of outcome of pregnancy in patients with first-trimester bleeding per vaginum. *Int J Adv Med*. 2014 Nov;1(3):230-233
- Amirkhani Z, Akhlaghdoust M, Abedian M, et al. Maternal and Perinatal Outcomes in Pregnant Women with First Trimester Vaginal Bleeding. *Journal of Family & Reproductive Health*. 2013;7(2):57-61.
- G Mustafa, R Khurshid, Mushtaq, I ul shamas, S Mir. Pregnancy Outcome of Patients Complicated by Threatened Abortion. *Int J Gynaecol Obstet* 2009;14(1)
- Arafa M, Abdel Fataah M, Abou Seid H, ElKhouly A. Outcomes of pregnancies complicated by early vaginal bleeding. *East Med Health J* 2000;6:457-64
- Batzofin JH, Fielding WL, Friedman EA. Effect of vaginal bleeding in early pregnancy on outcome. *Obstet Gynecol*. 1984 Apr;63(4):515-518.
- Strobino B, Pantel-Silverman J. Gestational vaginal bleeding and pregnancy outcome. *Am J Epidemiol*. 1989 Apr;129(4):806-815.
- Hossain R, Harris T, Lohsoonthorn V, Williams MA. Risk of preterm delivery in relation to vaginal bleeding in early pregnancy. *Eur J Obstet Gynecol Reprod Biol* 2007;135:158-63.
- Hosseini Maryam Sadat Yaghoubipour Soghra, et al. Late Pregnancy Outcomes in Women with Vaginal Bleeding in Their First Trimester. *J Obstet Gynecol India* 2013; 63(5):311-315
- Davari-Tanha F, Shariat M, Kaveh M, Ebrahimi M, Jalalvand S. Threatened abortion: a risk factor for poor pregnancy outcome. *Acta Med Iran* 2008;46:314-20.
- Ananth CV, Savitz DA. Vaginal bleeding and adverse reproductive outcomes: a meta-analysis. *Paediatr Perinat Epidemiol* 1999;8:62-78.
- Verma SK, Premi HR, et al. Perinatal outcome of pregnancies complicated by threatened abortion. *J Indian Med Assoc* 1994;92:364-5.
- Man G. Risk of prematurity and reported bleeding in pregnancy. *Z Guburtshilfe Perinatal* 1997;181:17-9.
- Yang J, Savitz DA. The effect of vaginal bleeding during pregnancy on preterm and small for gestational age births. *Paediatr Perinat Epidemiol* 2001;15(1):34-9
- Iams JD. Prediction and early detection of preterm labor. *Obstet Gynecol* 2003;101:402-12