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EVALUATION OF THE PREGNANCY OUTCOME IN THE FIRST TRIMESTER BLEEDING –AN OPEN PROSPECTIVE STUDY IN A TERTIARY CARE CENTRE

Radiology

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ABSTRACT

Background: First trimester bleeding is a common obstetric problem ranging from insignificant episode to life threatening condition. The common cause of 1st trimester bleeding are various types of miscarriage, ectopic pregnancy and molar pregnancy. Ultrasound is important investigation to see the cause of first trimester bleeding. The study is conducted to evaluate the pregnancy outcome in first trimester bleeding. (Both maternal and perinatal).

Methodology: All patient with definitive diagnosis of pregnancy within 12 weeks and bleeding per vaginum were included in study. Patients were categorized into two category of bleeding (1) light bleeding (defined as spotting) and (2) heavy bleeding (defined as similar to menses). Relevant baseline investigations, Transvaginal sonography and subsequent TAS /TVS, anomaly scan, fetal Doppler study was done. Complication in the antenatal, intarnatal and postnatal period was studied.

Results: Total of 130 patients, 30(23%) aborted in 1-3 weeks, 2 (1.5%) had ectopic pregnancy and rest 98(75%) continued pregnancy. Out of 98 patients , maternal complication were noted in 42.2% women, includes PIH in 30.6%,GDM in 4.0%, preterm birth in 14.2%, placental abruption in 4% , PPROM in 2.1% ,PROM in 4% and oligohydromanious in 2.1%.Two babies had IUGR(2.1%), One baby had IUFD(1.0%),Preterm birth were14.2%.

Conclusion: We conclude that Pregnancy complicated by threatened abortion is at slightly higher risk of obstetric complications like PIH, Placenta previa, abruption and pre term birth, but because the overall prognosis is favorable, these results can be used to help reassure patients and at the same time obstetrician should remain alert for sign of these complications.

KEYWORDS

First trimester bleeding, Ultrasonography, Maternal complication, Pregnancy outcome.

INTRODUCTION

First trimester bleeding is defined as any bleeding occurring before 3 months or 12 weeks of gestational period. Frequent complication of early pregnancy include ectopic pregnancy and miscarriage, both commonly manifest as vaginal bleeding. Incidence of first trimester bleeding is 16-25% of all pregnancy (Slightly higher in cases of twin gestation).About half of these result in pregnancy loss. [1, 2]. In fact spontaneous abortion constitutes the most common cause of early pregnancy.

In many patients first trimester bleeding is self-limiting and is probably due to implantation of the conceptus into the decidualised endometrium. If bleeding and cramping are relatively mild and os is closed then the diagnosis is threatened abortion.

If bleeding is not self-limiting and accompanied by severe pain, uterine contractions and dilated cervix the clinical changes are irreversible. Miscarriage occurs in 50% cases of early gestational bleeding [1,2]Even if pregnancy is continues there are higher chances of pregnancy complication like antepartum hemorrhage , pre term birth , preterm premature rupture of membrane(PPROM) , pregnancy induced hypertension, malpresentation etc.

Ultrasonography is noninvasive, safe, rapid and integral part of basic investigative procedure, has gained wide acceptability. Besides confirming intrauterine pregnancy and fetal viability, ultrasound has been useful in identifying several conditions that lead to vaginal bleeding in early pregnancy. It has been reported that if fetal cardiac activity is confirmed by ultrasound, 95 to 98% of such pregnancies will still continue beyond 20weeks of gestation. [1,3,4]

MATERIALS AND METHODS

The present study is an open, prospective study to analyze the pregnancy outcome in the first trimester bleeding was conducted in tertiary health care center. A total of 130 patients with first trimester bleeding were recruited for the study.

Inclusion criteria:

- Patient with definitive diagnosis of pregnancy within 12 weeks of gestational period and bleeding per vaginum, were included in the study after taking informed consent.
- Pregnancy with gestation > 12 weeks with bleeding.
- All ultrasound confirmed cases of missed abortion, incomplete abortion and complete abortion at the first visit.

Exclusion criteria:

Patient fulfilling all the inclusion criteria were included in the study after taking written informed consent. A detailed history and through examination was done in all patients. Patients were categorized into two category of bleeding (1) light bleeding (Defined as spotting only) and (2) heavy bleeding (define as similar to menses), Relevant baseline investigation like urine pregnancy test , beta HCG, Trans vaginal sonography (to look for gestational sac , yolk sac, fetal pole , CRL , FHS) were done in the first visit. Subsequently whenever required TAS /TVS was repeated and anomaly scan and fetal Doppler study was done. After enrolment they were followed up in intranatal period.

Complication in the antenatal , intranatal & postnatal period were studied .Various maternal outcomes like preeclampsia , preterm labor , placental abruption , anemia ,GDM , PPROM, PROM were noted.

Fetal outcome like IUGR (estimated fetal weight by ultrasound examination of < 10 percentile or birth weight of < 10 percentile for gestational age), fetal distress, NICU admission were recorded. Data was analyzed with particular relation to the final outcome of pregnancy and its association with 1st trimester bleeding. The data was entered in MS Excel and analyzed using Epi Info software.

RESULTS:

This was an open prospective study carried out in tertiary care institution and study population included 130women who satisfied the patient inclusion criteria.

Table 1: Distribution of patients according to age. (n=130)

Age group (Years)	No. of patients	No. (%)
20-24	17	13.0
25-29	54	41.5
30-34	50	38.4
35-39	9	6.9

According to above table maximum number of patients in this study group belonged to the age group of 25-29years- 54 patients (41.5%)

Table 2: Distribution of patients according to parity. (n=130)

Parity	No. of Patients	Percentage
Primigravida	73	56.1
Multigravida G2	30	23.0
Multigravida G3	21	16.1
Multigravida G4	6	4.6

Study included Primigravida and multigravidas. In this study maximum patients were Primigravida(56.1%)

Table 3: Distribution of patients according to type of bleeding. (n=130)

Type of bleeding	No. of Patients.	Percentage
Light	84	64.6
Heavy	46	35.3

Table above show the distribution of patients according to the type of bleeding. Out of 130pateintes there were 64.6% patients had light bleeding (defined as spotting only)

Table 4: Distribution of patients according to period of gestation in weeks at which first bleeding episode occur.

Weeks of gestation	Light bleeding	Heavy bleeding	Total	Percentage
6-8	60	21	81	62.3
8.1-10	24	15	39	30.0
10.1-12	5	10	15	7.6

Table 5: Distribution of patients according to Ultrasound findings:

Ultrasound findings	No. of patients Light bleeding	No. of patients Heavy bleeding	Total	Percentage
Intrauterine pregnancy	83	45	128	96.6
Ectopic or Exatrauterine pregnancy	1	1	2	1.5

Table 6: Ultrasound findings in intrauterine pregnancy:

Ultrasound findings	No. of patients Light bleeding	No. of patients Heavy bleeding	Total	Percentage
Single pregnancy	100	16	116	89.2
Twin pregnancy	8	4	12	9.2
Subchorionic hemorrhage	26	19	45	34.6

Table 7: Distribution of patients according to their subsequent events: (n=130)

Patient Distribution	Light bleeding	Heavy bleeding	Total	Percentage	Treatment
Abortion within 1-3 weeks of treatment	5	25	30	23.0	All patients required dilatation and curettage
2nd trimester abortion	1	1	2	1.5	Spontaneous abortion
Continued pregnancy	78	20	98	75.3	Routine antenatal care
Ectopic pregnancy	1	1	2	1.5	Salpingectomy done in both cases

Table 8: Distribution of aborted patients: (n=130)

Weeks of gestation	Light bleeding n=84	Heavy bleeding n=46	Total	Percentage
6-8	6(7.1%)	5(10.8%)	11	8.4
8.1-10	3(3.5%)	6(13.0%)	9	6.9
10.1-12	2(2.3%)	8(17.3%)	10	7.6
Total	11(13.0%)	19(41.3%)	30	23.0

Table 9: Various Maternal complications in pregnancy complicated with first trimester bleeding (n=98)

Weeks of gestation	Light bleeding		Heavy bleeding		Total	Percentage (%)
	n=72	p-value	n=26	p-value		
PIH	19(26%)	0.05*	11(40.7%)	0.04*	30	30.6
GDM	1(1.3%)	0.6	3(11.1%)	0.8	4	4.0
ABRUPTION	2(2.7%)	0.09	2(7.6%)	0.07	4	4.0
PLAENTA PREVIA	4(5.4%)	0.78	3(11.1%)	0.06	7	7.1
IUGR	2(2.7%)	0.04*	3(11.1%)	0.01*	5	5.1
OLIGOHYDROAMNIOUS	2(2.7%)	0.9	0	-	2	2.1
PPROM	1(1.3%)	0.6	1(3.8%)	0.04*	2	2.1
PROM	2(2.7%)	0.5	2(7.6%)	0.06	4	4.0
PRETERM LABOR	8(10.9%)	0.03*	6(23.0%)	0.02*	14	14.2

*Statistically significant

Out of 98 patients 42.2% patients had a maternal complication out them most frequent complication was PIH, in 30.6% cases.

Table 10: Delivery according to gestational age (n=98)

Delivery gestational weeks	Light bleeding n=72	Heavy bleeding n=26	Total N=98	Percentage
< 34 weeks	2(2.7%)	3(11.1%)	5	5.1
34- 37 weeks	7(9.7%)	3(11.1%)	11	11.2
>37 weeks	63(87.5%)	20(76.9%)	83	83.6

Table 11: Distribution of patients according to mode of delivery (n=98)

Mode of delivery	Light bleeding n=72	Heavy bleeding n=26	Total N=98	Percentage
LSCS	39(54.1%)	18(69.2%)	57	58.2
Vaginal delivery	33(45.3%)	8(30.7%)	41	41.8

Table 12: Fetal complication in pregnancy complicated with first trimester bleeding (n=98)

Fetal complication	Light bleeding n=72	Heavy bleeding n=26	Total N=98	Percentage
IUGR	2(2.7%)	3(11.1%)	5	5.1
IUFD	1(1.3%)	0	1	1.0
PRETERM	8(11.1%)	6(23.0%)	14	14.2
NICU Admission	5(6.9%)	4(15.3%)	9	9.1

Table 13: Distribution of patients according to fetal birth weight

Fetal weight (in Kg)	Light bleeding n=72	Heavy bleeding n=26	Total N=98	Percentage
0.5-1.5	2	2	4	4.0
1.6-2.5	32	10	42	42.2
2.6-3.5	48	12	60	61.2
3.6-4	4	0	4	4.0

Maximum fetal birth weight is between 2.6-3.5 kg (61.2%)

DISCUSSION

First trimester bleeding is common complication that affects 16 to 25% of all pregnancies [1,2].

In general, the incidence of spontaneous abortion after first trimester bleeding is quoted to be 50% before sonographic evaluation for fetal viability. If a viable fetus is noted at ultrasound after first trimester vaginal bleeding, 95% to 98% of such pregnancies will still continue beyond 20weeks of gestation. [1,4].

A total of 130 patients were included in our study, among them 2 were ectopic pregnancy, 30 patients aborted in a short duration of conservative treatment.

A Potential limitation of this study is that the severity of vaginal bleeding was based on a subjective description by the patient.

In some patients 1st trimester vaginal bleeding may indicate underlying placental dysfunction, which may manifest later in the pregnancy of various outcomes that have also been observed. In our study pregnancy

complications in the form of pregnancy induce hypertension (PIH), abruption, gestational diabetes (GDM) and preterm prelabor rupture of membrane, oligohydramnios were studied.

In 1993, Verma at al [22] reported that pregnancy induced hypertension was significantly more common in subjects with threatened abortion and viable pregnancy as compared with subjects without vaginal bleeding. In a study done by Weiss et al found patients with light bleeding were statistically more likely to have preeclampsia , while Wijesiriwardana et al[23] found no such association . In our study we found PIH in 40.7% of cases of heavy bleeding as compared to light bleeding with p vale 0.04 which is statistically significant as shown in table 9.

We compared our study with the Weiss et al [6] study and Wijesiriwardana et al [23] study.

Table 14: comparison of obstetric outcome in present study and other author's study.

Maternal complication	Present study	Weiss et al	Wijesiriwardana et al
Pre-eclampsia	30.6%	20.5%	5.7%
GDM	4.0%	-	-
Preterm birth	14.2%	22.9%	13.3%
Placenta previa	7.1%	2.1%	0.3%
Abruption	4.0%	4.0%	0.6%
PPROM	6.1%	7.6%	0.7%

In present study and Weiss et al [6] there were high incidence of PIH and preterm birth and in Wijesiriwardana et al [23] study preterm birth has highest incidence .

Table 15: Fetal complications in present study and author's study.

Fetal complications	Present study	Weiss et al	Wijesiriwardana et al
IUGR	5.1%	4.3%	9.6%
IUFD	1.0%	-	-
Preterm birth	14.2%	22.9%	9.7%
NICU Admission	9.1%	9.1%	16.7%

In Wijesiriwardana et al [23] study higher incidence of IUGR and in our study preterm birth had higher incidence.

Weiss et al study [6] increase incidence of placental abruption in both heavy and light bleeding groups, while Wijesiriwardana et al study [23] found no such association. In our study we also found association of placental abruption in both groups but there was no statistical significance.

Weiss et al study [6] found higher incidence of placenta previa among the patients with heavy bleeding .Wijesiriwardana et al study [23] also suggest a trend toward an increased prevalence of placenta previa in the study population. Das et al reported an increase risk for low lying placenta among women with threatened miscarriage. Mulik et al [27] also found an increased risk of placenta previa at 37 weeks in women who experienced a 1st trimester bleeding. In our study we also found placenta previa in 5.1% of case of light bleeding and in 11.1% cases of heavy bleeding with overall incidence of placenta previa was 7.1%.

Weiss et al study [6] found an association between threatened abortion and PPROM in group of heavy bleeding. However Wijesiriwardana et al study [23] did not found association. In our study we observed PPROM 1.3% cases of light bleeding and 3.8% cases of heavy bleeding .The p value for this came 0.04 that is significant.

In Weiss et al study risk of delivery before 37 weeks significantly increased in women irrespective of whether they had light of heavy bleeding .Wijesiriwardana et al also found association between threatened miscarriage and preterm delivery. Betsofin et al [24] and Williams et al [25] reported that threatened abortion doubled the risk of delivery before 37 weeks. While Strobino and Pantel-Silvrman [26] did not found association between preterm delivery and light vaginal bleeding in 1st trimester. In our study we analysed the preterm birth before 34 weeks and in between 34-37 weeks separately, because both the groups could have significant impact on neonatal care and outcome. In our study 10.0% of light bleeding and 23.6% of heavy bleeding cases had preterm delivery. As the p-value came 0.02 is statistically significant. Our study also showed significant association between threatened abortion and preterm delivery. It could be speculated that the presence of blood after threatened miscarriage with disruption of the chorioamniotic space and resultant chronic inflammatory reaction, might precipitate preterm labour.

Wijesiriwardana et al [23] showed higher incidence of elective caesarean delivery among the study group but Weiss et al , there was no association with caesarean .In our study 58.2% patients had caesarean delivery which included both preterm and full term. This difference might be due to the cumulative effect of placenta previa, malpresentation and previous caesarean delivery.

Weiss et al [6] found the IUGR was associated with the patients of heavy bleeding. Haddow et al [28] also reported the increase risk of low birth weight in pregnancies complicated with first trimester bleeding .in our study found 2.7% cases of light bleeding and 11.1% cases of heavy bleeding had IUGR. In this case p-value came 0.01 which is statistically significant. IUGR may be due to some degree of placental insufficiency secondary to scarring at the site of placental bleeding.

CONCLUSION

USG is the first and important investigation to see the exact cause of bleeding in first trimester and also helpful in the management aspect of patients who continued the pregnancy and fetal growth.

From our study we would like to conclude that pregnancy complicated by threatened miscarriage is at a slightly higher risk of obstetric complications likely PIH, Placenta previa, abruption and preterm birth.

Because the overall prognosis is favorable, these results can be used to help reassure patients with threatened abortion during the first trimester. At the same time obstetrician should be aware of the adverse outcomes that are associated with first trimester bleeding and remain alert for signs of these complications.

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