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Original Research Article

A study of feto-maternal outcome in bleeding per vaginum in first trimester of pregnancy

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ABSTRACT

Background: Bleeding per vaginum in the first trimester is a common obstetric entity. Four major causes of pathological bleeding in 1st trimester are miscarriage, ectopic pregnancy, implantation bleeding of pregnancy and cervical pathology. The purpose of this study was to investigate and understand the effect of first trimester vaginal bleeding on maternal and perinatal outcomes in the local population to which our hospital serves. Objective of this study was to estimate the degree of association between first-trimester bleeding and miscarriage, pregnancy outcomes in women with threatened abortion, various maternal complications and outcome of labor in pregnancy complicated by first-trimester bleeding and adverse fetal outcomes affected with first trimester bleeding.

Methods: This prospective observational study was carried out on 110 women attending hospital with history of first trimester vaginal bleeding at a tertiary health center - sola civil hospital Ahmedabad for a period of twelve months.

Results: Majority (69%) of first trimester bleeding occurs in age group of 21-30 years and majority of patients were primigravida constituting 53% out of 110 patients, 48 patients presented with abortions, out of which 26 had threatened abortion and 22 had other abortions. Primi para with previous history of bleeding per vaginum had more chances to go in full term in present pregnancy.

Conclusions: Patients presenting with heavy bleeding per vaginum ended up in pregnancy loss and thus a poor outcome. In the presence of sub-chorionic hematoma, the prognosis of pregnancy is greatly affected as the risk of pre-term, IUGR and especially miscarriages increase significantly.

Keywords: Abortion, Bleeding per vaginum, H. Mole, Medical termination of pregnancy, Placenta previa, Subchorionic hematoma

INTRODUCTION

Pregnancy is one of the most significant events in a woman's life. First trimester is a dynamic period which spans fertilization, implantation and organogenesis. Bleeding per vaginum in the first trimester is a common obstetric entity complicating 20-25% of all pregnancies.^{1,2} It can cause worry and anxiety for the mother, family as well as the care providers. The significance of bleeding in early pregnancy in a given patient may range from an inconsequential episode to a life-threatening emergency.

Four major causes of pathological bleeding in 1st trimester are miscarriage (threatened, inevitable, incomplete or complete), ectopic pregnancy, implantation bleeding of pregnancy and cervical pathology.³ Half of the women who experience first trimester vaginal bleeding will continue their pregnancies, and the other half will experience an abortion. If pregnancy continues poor maternal and foetal outcome such as preterm delivery, preterm premature rupture of membranes (PPROM), placental abruption, preeclampsia and intra uterine growth restriction (IUGR) may occur suggestive of underlying placental dysfunction. It is also known that

maternal age, systemic diseases such as diabetes mellitus, hypothyroidism, infertility treatment, thrombophilia, maternal weight and uterine structural anomalies increase the risk of abortus imminens.⁴

Objectives of this study were

- To investigate and understand the effect of first trimester vaginal bleeding on maternal and perinatal outcomes in the local population to which our hospital serves.
- To estimate the degree of association between first-trimester bleeding and miscarriage.
- To assess pregnancy outcomes in women with threatened abortion in the first trimester.
- To study various maternal complications and outcome of labour in pregnancy complicated by first-trimester bleeding.
- To study the adverse foetal outcomes affected by first trimester bleeding including preterm delivery, low birth weight and small for gestational age.

METHODS

This prospective observational study was carried out on 110 women attending our hospital with history of first trimester vaginal bleeding at a tertiary health centre - sola civil hospital Ahmedabad from June 2018 to May 2019 for a period of twelve months. Patients with history of amenorrhea and positive urine pregnancy test with bleeding per vaginum in first trimester were included.

Design

In this study took complete history followed by complete examination (general, physical and gynaecological) of all the patients at booking visit. The patients were followed up regularly in antenatal clinic and repeat ultrasound scans were done as required. The design of this study is used to study a relationship between variables. The independent variable here is a history of vaginal bleeding & the dependent variable is the pregnancy outcome. A structured proforma was used to collect information and followed till their pregnancy terminated.

Inclusion criteria

- Months of amenorrhoea of less than 3 months
- Positive pregnancy test
- Bleeding per vaginum
- Previous regular cycles
- Absence of cervical and vaginal pathology,

Exclusion criteria

- Patient comes with vaginal bleeding following MTP
- All patients with more than 12 completed weeks of gestation
- Bleeding tendencies

- History of mechanical trauma during the present pregnancy
- Patients refusing participation
- Patients with chromosomal abnormalities.

Statistical analysis

- Quantitative variables were compared using Independent t-test/Mann-Whitney test
- Qualitative variables were compared using Chi-Square test/Fisher's Exact test. A p value of < 0.05 was considered statistically significant.

The vaginal bleeding histories included the duration of bleeding in days, the severity of bleeding and associated abdominal pain.

Females with previous short menstrual cycles experience more episodes of bleeding or spotting in their first trimester.

Bleeding was thereafter categorized as spotting, moderate, or heavy bleeding according to the self-assessed degree of vaginal bleeding.

Spotting is bleeding reported by the patient as scant or traces of blood and visualized by the provider as staining of glove or dirty discharge.

Moderate bleeding is reported by the patient as "like menses." It is visualized by the provider as a small amount of blood in the vagina and at the cervix.

Heavy bleeding is reported by the patient as "more than a menses." It is visualized by the provider as a moderate to severe amount of blood in the vagina and at the cervix.

BT, CT, PTINR and APTT was done of all the patients to rule out bleeding tendencies.

Ultrasound examination was done in all subjects who were included in this investigation. All such patients were prospectively followed throughout the pregnancy and intrapartum period and their outcomes were studied. Postpartum follow-up was performed by telephonic talk or medical record review for 3 months.

The fetal outcome of the pregnancy was categorized as

Non-viable outcome (termination of pregnancy before 20 weeks)

- Spontaneous or induced termination
- Congenital malformations which was terminated before 20 weeks viable outcome (continuation of pregnancy after 20 weeks)
- Preterm delivery
- Low birth weight (< 2500 kg)
- Intra uterine growth retardation

- Perinatal death
- NICU admission and
- Full term live birth with healthy fetus.

The maternal outcome (only from those patients in which pregnancy continued beyond 20 weeks) as

- Anemia (pallor and Hb < 10 gm% at the time of bleeding)
- Preeclampsia syndromes
- PPRM (membrane rupture < 37 weeks of gestation)
- Placental abruption
- Placenta previa
- Post-partum hemorrhage,
- Caesarean delivery and
- D and E.

RESULTS

This is a prospective study of first 110 cases of first trimester bleeding from our unit from June 2018 to May 2019, analyzed with regards to fetomaternal outcome.

Observations from this study are as follows

Table 1: Age distribution.

| Age (in years) | Number | Percentage |
|----------------|------------|------------|
| < 20 | 22 | 20% |
| 21-30 | 76 | 69% |
| ≥ 31 | 12 | 11% |
| Total | 110 | 100 |

Table 1 shows that in this study the age group ranged from 18-35 and majority (69%) of first trimester bleeding occurs in age group of 21-30 years.

Table 2 shows that in this study majority of patients were primigravida constituting 53% and multigravida constituting 47%. Considering chi-square test for this, value comes out to be 0.3 when p = 0.5. Hence, the result is not statistically significant.

Table 2: Gravidity distribution.

| Gravidity | Number | % (Present study) |
|--------------|------------|-------------------|
| Primi | 58 | 53.0 |
| Multi | 52 | 47.0 |
| Total | 110 | 100 |

Table 3: Conditions underlying bleeding per vaginam in 1st trimester of pregnancy.

| Condition | Present study |
|-------------------|-----------------------|
| Abortions | Threatened 26 (23.6%) |
| | Other 22 (20%) |
| Ectopic pregnancy | 6 (5.45 %) |
| H. Mole | 2 (1.81 %) |
| Physiological | 54 (49%) |
| N = 110 | |

Table 3 shows that in the present study, out of 110 patients, 48 patients presented with abortions, out of which 26 had threatened abortion and 22 had other abortions like incomplete abortion, blighted ovum, missed abortion, inevitable abortion, etc.

Table 4: Relation of history of previous pregnancy outcome in present pregnancy.

| Outcome in current pregnancy | Primigravida | Multigravidae |
|------------------------------|---------------------------------------|---------------|
| Viable | Full term | 24 |
| | Pre-term | 8 |
| | IUGR+full term | 1 |
| | Perinatal mortality/still birth | 1 |
| Nonviable | Missed abortion | 6 |
| | Incomplete abortion | 2 |
| | Inevitable abortion | 3 |
| | Blighted ovum | 2 |
| | Ectopic pregnancy | 2 |
| | Vesicular mole | 1 |
| | Second trimester abortion/anencephaly | 2 |

Out of 110, 2 patients had H. Mole and 6 had ectopic pregnancy. The rest 54 patients probably had physiological conditions underlying bleeding PV in 1st trimester of pregnancy like implantation bleed and Hartman's sign.

Table 4 shows that in primigravida with previous history of bleeding per vaginam had more chances to go in full term in present pregnancy in comparison to multigravida. Only one case of still birth noted in multipara.

Table 5 shows that in 8-10 weeks pregnancy in USG scan there was 38% comes in bleeding per vaginum and 22% were in more than 10 weeks pregnancy.

Table 5: Gestational age according to USG at the time of bleeding.

| USG finding | Gestational age in weeks | Number | % (Present study) |
|----------------|--------------------------|------------|-------------------|
| IUGS | 4-6 | 12 | 11 |
| | 6-8 | 24 | 22 |
| | 8-10 | 42 | 38 |
| | >10 | 24 | 22 |
| Vesicular mole | | 2 | 1.91 |
| Ectopic | | 6 | 5.09 |
| Total | | 110 | 100 |

In this study, Table 6 shows that out of 110; sub-chorionic bleed was noted in 10 cases, 2 spontaneously aborted, 8 continued to term gestation of which, 5 were born full term health, 1 full term IUGR, 2 were preterm birth.

Hence favourable outcome was seen in 5 patients with SCH Hence, 50% of patients with SCH had favourable outcome and rest 50% had unfavourable outcome. Out of the rest 100 cases with no SCH, favourable outcome was noted in 82 patients.

In this Table 7, all pregnancies with non-viable outcomes were excluded and only the ones with viable outcomes were studied further. Out of 77, 48 patients (62.3%) had vaginal delivery and 29 (37.6%) had caesarean section and the commonest indication was foetal distress (66%). The rate of caesarean section (38%) is significantly high compared to that of the background population in which the rate of caesarean is 17.2%.

Table 6: Presence of sub chorionic hematoma (SCH) and outcome.

| Outcome | (Present study) % | |
|------------------|----------------------|----|
| SCH (N = 10) | Favourable outcome | 50 |
| | Spontaneous abortion | 20 |
| | IUGR | 10 |
| | Preterm | 10 |
| No SCH (N = 100) | Favourable outcome | 82 |

Table 7: Mode of delivery.

| Mode of delivery | N = 77 | Present study (%) | Total (%) |
|------------------|--------|-------------------|-----------|
| FTND | 39 | 50.6 | 62 |
| PTVD | 9 | 11.6 | |
| FTCS | 24 | 31.6 | 38 |
| PTCS | 5 | 6.4 | |

DISCUSSION

In comparison with Williams et al, in which 86.5% patients were from 20-34 years.³ Also, 20% patients were of teenage pregnancy which is a significantly high rate compared to the background population in which 8% patients were of teenage pregnancy (NFHS-4, 2016-2018) where in our study the age group ranged from 18-35 and majority (69%) of first trimester bleeding occurs in age group of 21-30 years.

Study by Amirkhani Z et al, Karnatak, India 2013.⁴ Majority of cases were primigravida 56.7% and multigravida comprised of remaining 43.3%. where in our study majority of patients were primigravida constituting 53% and multigravida constituting 47%.

As in Figure 1 shows in Rani PR et al, 61% were abortion and 21% ectopic pregnancy where in our study 43.6% abortion and in Sofat R et al, 70% were abortion.^{5,6}

In present study, out of 110 patients with 1st trimester bleeding per vaginum, 58 patients were primigravida in whom miscarriage rate was 56.7% (Amirkhani Z et al).⁴ Out of these 110, 52 were multigravidae of which 34 patients had a history of previous viable outcome and 18 had a history of previous non-viable outcome. 24.5% cases of previous pregnancy spontaneous miscarriage were associated with present pregnancy abortion and 19% cases of previous pregnancy induced miscarriage were associated with present pregnancy abortion (Sipla P et al).⁷ Out of 52 multi-gravida, 44 had viable outcomes in current pregnancy while the rest 18 had nonviable outcomes. It suggests that history of abortion in previous pregnancy is a very strong predisposing factor for poor outcome in current pregnancy.

In this study majority 42 (38%) of first trimester bleeding patients presented at 8-10 weeks which is comparable with Bharadvaj N et al, where 35% patient presented between 8-10 weeks.⁸ Hence the study shows congruence as per history and USG findings.

In this study Table 6 shows that out of 110; sub-chorionic bleed was noted in 10 cases, 2 spontaneously aborted, 8 continued to term gestation of which, 5 were born full term health, 1 full term IUGR, 2 were preterm birth, In Maso et al shows that favorable outcome was 61.5% in sub chorionic hematoma where in our study it was 50%.⁹

Table 8 shows that First trimester bleeding is also significantly associated with adverse maternal outcome observed in our 70 cases that extended beyond 20 weeks of pregnancy. Rest 40 did not extend beyond 20 weeks. out of the 70, anemia 23 (31%), placenta previa 2 (2.8%), placenta abruption 6 (8.5%), PPRM 14 (20%) and PIH 6 (8.5%). Hence, significant maternal morbidities are associated with patients who had bleeding per vaginum in their first trimester. thus, bleeding per vaginum can

prognosticate the complications in the pregnancy (Table 8).

Table 9 shows first trimester bleeding is associated with increased rates of certain adverse fetal outcome. Observed in our cases: 16 (20.7%) were preterm delivery, 6 (8.6%) were IUGR. Perinatal death was 5 (6.49%), out of which 4 (80%) were still births due to abruptio placenta and rest 1 (20%) was early neonatal death within 1 week of NICU admission due to preterm IUGR (Table 9).

CONCLUSION

There is a strong association between first trimester vaginal bleeding and adverse pregnancy outcome. The probability of abortion and adverse pregnancy outcome increases as the amount and duration of bleeding increases especially when accompanied with abdominal pain. The most common bleeding presentation in the study population was spotting per vaginum and most of these patients had a favourable outcome. Patients presenting with moderate amount of bleeding per vaginum were associated with strong underlying pathology and are not to be underestimated. Almost all the patients presenting with heavy bleeding per vaginum ended up in pregnancy loss and thus a poor outcome. In the presence of sub-chorionic hematoma, the prognosis of pregnancy is greatly affected as the risk of pre-term, IUGR and especially miscarriages increase significantly. In the women who experience first trimester vaginal bleeding, education and proper counselling of probable pregnancy outcomes can assist them to cope with their concerns and allay their anxiety. In view of high incidence of abortions and complications associated with first trimester bleeding there is a necessity of proper programming in care and also education of women belonging to the high-risk group. Identifying the risk factors associated with first trimester bleeding per vaginum; timely and appropriate management will be very helpful in reducing the complications like abortions, preterm birth, hypertensive disorders of pregnancy, antepartum and postpartum haemorrhage, etc. This will go a long way in reducing maternal and perinatal morbidity and mortality and overall pregnancy loss.

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