Section: Obstetrics and Gynaecology

Original Research Article

CLINICAL AND ULTRASOUND EVALUATION OF BLEEDING IN FIRST TRIMESTER OF PREGNANCY IN A TERTIARY HOSPITAL IN NORTHEAST INDIA

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ABSTRACT

Background: Bleeding per vagina in early pregnancy might results from non-life-threatening conditions like threatened miscarriage to emergency conditions with severe hemorrhage such as incomplete induced or spontaneous abortions and molar pregnancies. So, it is very important to diagnose accurately using various modalities in order to prevent maternal mortality **Materials and Methods:** A Prospective study was conducted in the Department of Obstetrics and Gynaecology, JNIMS, Porompat of Manipur, India among 144 Pregnant women in first trimester pregnancy presented with episode of vaginal bleeding. **Results:** In this study all cases of threatened abortion, missed abortion, incomplete abortion, complete abortion, anembryonic gestation and molar pregnancy were diagnosed accurately on ultrasound with accuracy of 100%. Disparities between Clinical diagnosis and Ultrasound diagnosis, the disparity for Threatened abortion is 27.1%, Incomplete abortion 18.1%, Complete abortion 12.5%, Inevitable abortion 6.2%, Missed abortion11.1%, Blighted ovum 11.1%, Ruptured ectopic pregnancy 9%, Unruptured ectopic pregnancy 2.1%, Molar pregnancy is 2.8%. Ultrasound positively helps in accessing the safe continuation of pregnancy, timely intervention for abnormal pregnancy and avoiding unnecessary intervention in those cases who do not need them.

INTRODUCTION

Bleeding per vaginum in early pregnancy is a common presentation in the emergency room.[1] Vaginal bleeding at any stage of pregnancy is an alarming event that generates significant concerns in both patient and doctor, and it complicates upto a quarter of all pregnancies.[2] Causes range from non-life threatening conditions like threatened miscarriage to emergency conditions with severe hemorrhage such as incomplete induced or spontaneous abortions and molar pregnancies.[3] Bleeding in the first trimester can originate from the uterus, cervix or vagina, or it can be extra genital. Thorough physical examination is essential to differentiate between genital and extra genital causes.[4] The diagnosis is usually clinical and is confirmed by ultrasound. Ultrasound is the mainstay in the definitive diagnosis of cases of first trimester bleeding as it removes uncertainties/ambiguities in the clinical diagnosis.[5] Life threatening conditions like ectopic pregnancy may present with minimal vaginal bleeding, and when there are no obvious hemodynamic changes, the diagnosis may be missed in the absence of ultrasound.[6]

In developing countries like ours, different cadre of trained and untrained health care practitioners attend to pregnant women. Some of them do not have ultrasound machine or clinical acumen to make the diagnosis. Accurate diagnosis is very necessary to enable the clinician to institute appropriate treatment. The implications of false diagnosis can lead to inappropriate treatment. To the best of our knowledge no study has stratified the accuracy of clinical diagnosis of different cadre of healthcare providers. Bleeding per vaginum in early pregnancy poses diagnostic challenges for the obstetrician. Moreover, we can also support in achieving the Sustainable Development Goal (SDG) 3.1 targets to reduce the global maternal mortality ratio (MMR) to less than 70 per 100000 live births by 2030. So, this study is conducted to determine the causes of bleeding per vaginum in the first trimester of pregnancy by thorough clinical examination and ultrasonographic evaluation to determine the exact and accurate cause of vaginal bleeding, so that

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appropriate management can be done which will be beneficial to the patient.

MATERIALS AND METHODS

A Prospective study was conducted in the Department of Obstetrics and Gynaecology, JNIMS, Porompat of Manipur, India from May 2018- April 2021. Study population included all pregnant women coming in OPD/casualty with vaginal bleeding in first trimester reporting in the Department of Obstetrics and Gynaecology, Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur.

Inclusion Criteria

- Pregnant women in first trimester of pregnancy with episode of vaginal bleeding.

Exclusion Criteria

- Subjects who were unwilling to be part of the study were excluded.
- Subjects who were in a critical condition and were not in position to give an interview were excluded.
- Non obstetric causes for vaginal bleeding in first trimester of pregnancy.

Sample size and sampling: Sample size of 144 was calculated using a prevalence of 40%, allowable error of 8% and 95% confidence level and fulfilled the inclusion criteria during the study period was taken up in the study. Patients were selected using convenience sampling method.

Ethical considerations: Ethical approval was taken from the institutional Ethics Committee, JNIMS, before commencing the study. Written informed consent was obtained from each study participant. Confidentiality was maintained during the study by giving a unique code for each study participant and by not mentioning their names. Those found to have vaginal bleeding were advised for transvaginal ultrasonography for confirmation of the diagnosis as well as to know the condition of the embryo or fetus and placental localization and to seek proper treatment and management.

Data analysis: Data was recorded in pre-designed proforma. The particulars, investigations, treatment, examinations, history, follow-up details etc. were recorded at the relevant time. Data collected was entered in MS excel and later was transferred to Statistical Package of Social Science (SPSS) version 22. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to summarize the findings. Pearson's Chi square test and Odds ratio with corresponding 95% confidence intervals was used to find the association between the dependent and independent variable. A probability value of <0.05 was considered significant.

RESULTS

In this study the age group ranged from 16-45 years. The mean age group is 28.18 ± 6.337. Majority of them were in the age group of 26-30 years constituting percentage of 36.1%. 37 (25.7%) were in the age group 21-25 years, 21 cases (14.6%) in the age group 36-45 years, 19 cases (13.2%) were in the age group of 31-35, 15 (10.4%) in the age group 16-20 years constituting the minor proportion.

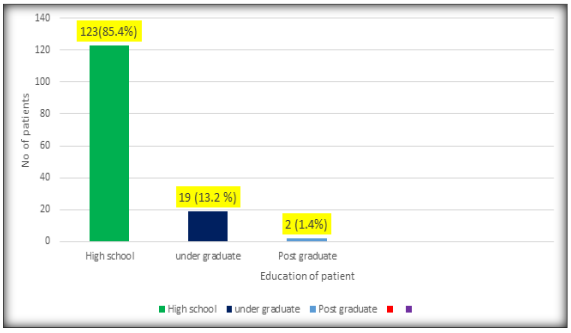

Figure 1: Bar diagram showing educational status of the patients

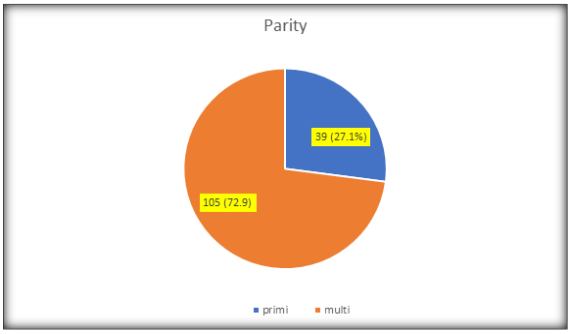

Figure 2: Pie chart showing parity of the patients

Majority of the patients educational status is High school, constituting 123 cases (85.4%), 19 cases (19%) are under graduates, minority of them are postgraduates constituting (1.4%) 2 cases.

Table 1: Age distribution of the respondents

Age in years	Frequency	Percentage
16-20	15	10.4
21-25	37	25.7
26-30	52	36.1
31-35	19	13.2
36-45	21	14.6
Total	144	100.0
Mean ± SD	28.18 ± 6.337	

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Table 2: Distribution of the respondents by Socio-economic status

Socio-economic status	Frequency	Percentage
Low	42	29.2
Lower middle	100	69.4
Upper middle	2	1.4
Total	144	100.0

Majority of patients belongs to Lower middle class constituting 100 cases (69.4%), 42 cases (29.2%) belong to lower class, 2 cases (1.4%) belong to upper middle class.

Majority of the cases in the present study are multigravida contributing of about 105 cases (72.9%), 39 cases (27.1%) are primigravida as shown in [Figure 2].

Table 3: Distribution of the respondents by pain abdomen

Pain abdomen	Frequency	Percentage
Yes	82	56.9
No	62	43.1
Total	144	100.0

In the present study 82 cases (56.9%) had associated pain abdomen in the first trimester vaginal bleeding. 62 cases (43.1%) presented without pain over abdomen.

Majority of them presented with scanty bleeding constituting of about 91 cases (63.3%), 45 cases (31.2%) presented with moderate bleeding, 8 cases (5.5%) presented with excessive bleeding as shown in [Figure 3].

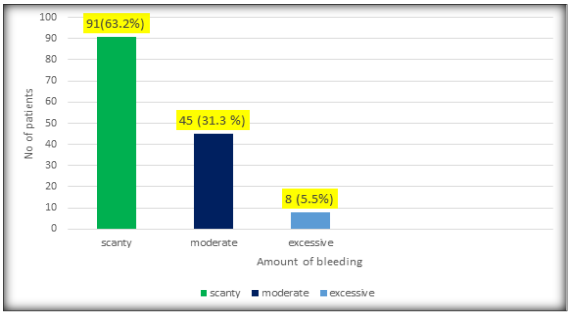

Figure 3: Bar diagram showing distribution of cases according to the amount of bleeding.

Table 4: Table showing clinical diagnosis

Clinical diagnosis	Frequency	Percentage
Threatened abortion	42	29.2
Incomplete abortion	52	36.1
Missed abortion	38	26.4
Ectopic pregnancy	12	8.3
Total	144	100.0

In clinical diagnosis, majority of the cases presented with first trimester vaginal bleeding were diagnosed as Incomplete Abortion constituting 52 cases (36.1%) out of 144 cases, 42 cases (29.2%) were diagnosed as Threatened Abortion, 38 cases (26.4%) were diagnosed as missed abortion, 12 cases (8.3%) were diagnosed as Etopic pregnancy.

Table 5: Table showing USG diagnosis

USG diagnosis	Frequency	Percentage
Threatened abortion	39	27.1
Incomplete abortion	26	18.1
Complete abortion	18	12.5
Inevitable abortion	9	6.3
Missed abortion	16	11.1
Blighted ovum	16	11.1
Ruptured ectopic	13	9
Unruptured ectopic	3	2.1
Molar pregnancy	4	2.8
Total	144	100.0

According to ultrasound diagnosis, among the cases presented with first trimester vaginal bleeding, majority of the cases were diagnosed as Threatened abortion constituting 39 cases (27.1%). 26 cases (18.1%) were diagnosed as Incomplete abortion, 18 cases (12.5%) were diagnosed as complete abortion, 16 cases (11.1%) were diagnosed as missed abortion, 16 cases (11.1%) were diagnosed as Blighted Ovum, 13 cases (9%) were diagnosed as Ruptured Ectopic pregnancy, 9 cases (6.3%) were diagnosed as Inevitable abortion, 4 cases (2.8%) were diagnosed as Molar pregnancy. 3 cases (2.1%) were diagnosed as Unruptured Ectopic pregnancy.

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Table 6: Table showing comparison between clinical diagnosis and USG diagnosis on viability

Clinical diagnosis	USG Diagnosis		total
	Viable	Non-viable	
Viable	26(81.9)	16(38.1)	42(100.0)
Non-viable	13(12.7)	89(87.3)	102(100.0)
Total	39(/27.1)	105(72.9)	144(100.0)

Senstivity = $\frac{26}{13+26} \times 100$ = 66.6%

Specificity = $\frac{89}{16+89} \times 100$ = 84.7%

Positive predictive value = $\frac{26}{26+16} \times 100$ = 61.9%

Negative Predictive Value = $\frac{89}{89+13} \times 100$ =87.2%

P value < 0.001 (statistically significant).

39 out of 42 cases of suspected viable intrauterine gestation on clinical examination were confirmed which shows less false positive cases.

In diagnosing nonviable pregnancies, clinical diagnosis has got very poor statistical correlation with a Sensitivity of 66.6%, Specificity of 84.7%, Positive predictive value of 61.9%, Negative predictive value of 87.2%.

The above table shows disparity between Clinical diagnosis and Ultrasound diagnosis, the disparity for Threatened abortion is 27.1%, Incomplete abortion 18.1%, Complete abortion 12.5%, Inevitable abortion 6.2%, Missed abortion11.1%, Blighted ovum 11.1%, Ruptured ectopic pregnancy 9%, Unruptured ectopic pregnancy 2.1%, Molar pregnancy is 2.8%.

DISCUSSION

In this study, majority of the bleeding occurs in 6-8 weeks in 65.3% of cases and combined or 6-10 weeks accounted for 90.3%. In the study by Bharadwaj N et al,[8] study also, majority of the bleeding occurred in 6-10 weeks in 55% of cases. In the present study various abortions contributed to a major cause of first trimester bleeding constituting 86.1%. In Rani PR et al9 and Bhargava SK et al studies also abortion is the leading cause of early pregnancy bleeding with an incidence of 61% and 81.6% respectively. The incidence of ectopic pregnancy is 11.1% in this study while in Bhargava SK10 et al and Rani PR et al,[9] studies it is 13% and 21% respectively. The incidence of molar pregnancy in present study is 2.8% compared to other studies of Rani PR et al,[9] and Bhargava SK et al,[10] who had an incidence of 18% and 4.35% respectively. In this study out of 39 cases of sonographically diagnosed threatened abortion, subchorionic bleed was noted in 12 cases which constitutes 30%, when compared to Goldstein SR et al,[11] and Pedersen JF et al.[12] This study has got increased incidence of subchorionic bleeds. In this study the incidence of viable pregnancies on ultrasound is 27.1% and 72.9 % of non-viable pregnancies which is similar to Schauberger CW et al,[13] study. Hertz JB et al,[14] and Stabile I et al,[15] had an incidence of 58% and 64% of viable pregnancies and 42% and 36% of non-viable pregnancies respectively.

In our study 75 clinically diagnosed cases were confirmed on ultrasound with disparity of 52%. The present study is comparable to Ghorade TG et al,[16] study. Khanna A et al,[17] Rani PR et al,[9] has got disparity of 50% and 42% between clinical and ultrasound diagnosis respectively.

In this study all cases of threatened abortion, missed abortion, incomplete abortion, complete abortion, anembryonic gestation and molar pregnancy were diagnosed accurately on ultrasound with accuracy of 100%. The results of present study are comparable with Sofat R et al,[18] and Bharadwaj N et al,[8] in diagnosing, missed abortion, incomplete abortion, anembryonic gestation and Hydatidiform mole with 100% accuracy.

CONCLUSION

Ultrasound is a very valuable tool in the diagnosis of various causes of bleeding per vaginum in first trimester of pregnancy. It not only helps in ruling out the dilemma when assessed clinically but also is more accurate, safe, non-invasive and quick in diagnosis and management of such cases. Sonar is the only imaging modality which is easily accessible and by which an accurate assessment of the first trimester bleeding can be done from diagnostic and prognostic point of view. Ultrasound positively helps in accessing the safe continuation of pregnancy, timely intervention for abnormal pregnancy and avoiding unnecessary intervention in those cases who do not need them. Anembryonic gestation is diagnosed only by sonography. In present study it has helped in establishing the correct diagnosis of the clinically misdiagnosed cases apart from confirming the diagnosis in the others. Till now it was thought that nothing was better than the two fingers of an obstetrician, but today Ultrasound has a definite edge over it in the first trimester.

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