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ULTRASOUND IN DIAGNOSING THE CAUSES OF BLEEDING PER VAGINA IN THE FIRST TRIMESTER OF PREGNANCY

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ABSTRACT

Clinical history and pelvic examination are inadequate in assessing the cause and the prognosis. Ultrasound (both trans-abdominal and transvaginal sonography) plays an important role in the evaluation of the causes of the first trimester bleeding, prognosticate and predict the status of abnormal pregnancy. We studied 50 cases of pregnant women who presented with bleeding per vaginum during the first trimester between January 2010 to July 2011. All patients referred to the Dept of Radio diagnosis with history of first trimester bleeding were evaluated with clinical history, clinical examination and ultrasonography as per standard proforma. On ultrasound examination, 28 cases (56%) out of 50 showed Gestational sac out of which 18 cases were of threatened abortion. Out of 21 cases in which Fetal node was visualized, 18 cases showed fetal cardiac activity. 2 cases with absent fetal cardiac activity were diagnosed as inevitable abortion and one case as missed abortion Ultrasound is a non- invasive, non- ionizing, without any proven harmful effects on the developing fetus and easily available method of investigation to assess the patients with first trimester bleeding.

INTRODUCTION

Bleeding per vaginum in the first trimester is one of the most common obstetric problems. It is also one of the commonest cause for the majority of the emergency admissions to the obstetrics department and also a common reason for ultrasound examination in first trimester.

Nearly twenty five percent (25%) of all pregnant women in their first trimester complaints of bleeding [1,2]. In these women who present with bleeding per vaginum, during their first trimester several diagnostic possibilities can be considered. By mere clinical history and examination definitive diagnosis is usually impossible. The causes of bleeding are many and cover a spectrum of conditions ranging from a viable pregnancy to non-viable pregnancy.

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A woman, who presents with poor history, poses a diagnostic challenge both to the obstetrician and the sonologist. Clinical history and pelvic examination are inadequate in assessing the cause and the prognosis. Ultrasound (both trans-abdominal and transvaginal sonography) plays an important role in the evaluation of the causes of the first trimester bleeding, prognosticate and predict the status of abnormal pregnancy [3]. Realtime sonography is a non-invasive modality that is extremely useful to arrive at an accurate diagnosis [4].

Ultrasound in a woman who presents with bleeding in the first trimester helps:

- In confirming the pregnancy.
- To know if the pregnancy is intrauterine or extra uterine.
- To know the period of gestation.
- In early recognition of any associated pelvic abnormality.
- To know the viability of the fetus.
- To confirm or rule out suspected hydatidiform mole.

- To look for the presence of intrauterine contraceptive device (IUCD) and confirmation of pregnancy associated with IUCD.
- Helps in prompt management of the patients.
- Helps in early detection of anembryonic pregnancy which is commonly associated with chromosomal anomalies.
- Evaluation of suspected blighted ovum and threatened, incomplete, complete or missed abortion.
- Localization and textural evaluation of placenta.

In the present study, we have evaluated the role of ultrasound in the accurate diagnosis of causes of bleeding in the first trimester and role of ultrasound in the management of first trimester bleeding.

METHODOLOGY

The main sources of data for this study are patients presenting with bleeding per vagina in first trimester of pregnancy to the department of Radio-Diagnosis Medical College and Research Centre. We studied 50 cases of pregnant women who presented with bleeding per vaginum during the first trimester between January 2010 to July 2011. All patients referred to the Dept of Radio diagnosis with history of first trimester bleeding were evaluated with clinical history, clinical examination and ultrasonography as per standard proforma.

All patients were evaluated using transabdominal sonography and transvaginal ultrasound was preferred whenever transabdominal study was inconclusive or equivocal. Ultrasonographic examination of patients was done using the following machines:

1. Esoate Megas GPX 570FD MK II
2. L & T Medical Sonalisa 32
3. GE LOGIQ α-200

All cases of threatened abortion were followed up till full term and delivery. Follow up ultrasound was performed whenever indicated.

Inclusion criteria

Patients presenting anywhere from first day of last menstrual cycle to 12 weeks of pregnancy with complaints of bleeding per vaginum are included in study.

Exclusion criteria

Women of reproductive age with a missed period but negative urine pregnancy test and patients who refuse to get admit to the hospital. All non-obstetrical causes of vaginal bleeding. All patients with more than 12 completed weeks of gestation.

RESULTS:

Table 1. Age distribution of subjects studied

Age in years	Number	%
18-20	13	26.0
21-25	22	44.0
26-30	12	24.0
31-35	3	6.0
Total	**50**	**100.0**

Our study group age ranged from 18 to 35 years. A majority of patients were from the age group of 21-25 years, totaling 22(44%). 12 patients (24%) were between 26-30 years, 13 patients(26%) were < 20 years and the least common age group was between 31-35years constituting only 6%.

Table 2. Parity distribution of subjects studied

Parity distribution	Number	%
Primi	15	30.0
Multi	35	70.0
Total	50	100.0

In the present study 70% of the patients were multipara compared to 30% of primipara.

Table 3. Type of marriage

Type of Marriage	Number	%
Consanguineous	10	20.0
Non-consanguineous	40	80.0
Total	50	100.0

In our study majority of cases were of non-consanguineous marriage (80%).
Consanguineous marriage constituted only 20% of cases.

Table 4. Duration of Amenorrhea

Duration of Amenorrhea	Number	%
< 8 Wk	9	18.0
8-10 Wk	26	52.0
>10 Wk	15	30.0
Total	50	100.0

Our study constituted of patients presenting with amenorrhea in the range of 6 weeks to12 completed weeks of pregnancy. Majority of patients presented between 8-10 weeks ofpregnancy constituting 52%, and least common presentation was less than 8 weeks.

Table 5. Duration of bleeding

Duration of bleeding	Number	%
1-2 days	14	28.0
3-4 days	26	52.0
5-6 days	8	16.0
7-8 days	2	4.0
Total	50	100.0

The duration of bleeding ranges from 1 day to 8 days with majority presenting with 3 to 4 days (52%) of bleeding. Least common was between 7 to 8 days constituted 4 %. 14 patients (28%) presented with 1-2 days of bleeding, 8 (16%) patients presented with 5-6 days of bleeding.

Table 6. Physical examination

Physical examination	Number (n=50)	%
UT size		
<10	22	44.0
10-12	27	54.0
Bulk	1	2.0
Cervix		
Closed	48	96.0
PO	2	4.0
Fornices		
FF	45	90.0
Tenderness	5	10.0

Table 7. Showing findings of ultrasound examination

USG Examination	Number (n=50)	%
GS	28	56.0
YS	21	42.0
FN	18	36.0
FCA	12	24.0
Placenta	6	12.0
SCB	7	14.0
Less Liquor	3	6.0

On ultrasound examination, 28 cases (56%) out of 50 showed Gestational sac out of which 18 cases were of threatened abortion. Out of 21 cases in which Fetal node was visualized, 18 cases showed fetal cardiac activity. 2 cases with absent fetal cardiacactivity were diagnosed as inevitable abortion and one case as missed abortion. Of the 3 cases which demonstrated less liquor, 2 cases were inevitable abortion and one case was threatened abortion. Yolk sac was detected in 12 cases. All were diagnosed as threatened abortion. Placenta was visualized in 6 cases and all were of more than 11 weeks gestation.

Table 8. Comparison of Clinical, USG and Final diagnosis

Clinical findings	Clinical		USG		Final	
	Number	%	Number	%	Number	%
AG	-	-	2	4.0	2	4.0
CA	-	-	6	12.0	5	10.0
EG	4	8.0	4	8.0	5	10.0
HM	1	2.0	2	4.0	2	4.0
IA	16	32.0	10	20.0	10	20.0
In A	2	4.0	4	8.0	4	8.0
MA	1	2.0	4	8.0	4	8.0
TA	26	52.0	18	36.0	18	36.0
TOTAL	50	100.0	50	100.0	50	100.0

There is significant disparity between the clinical diagnosis and final diagnosis whereas ultrasound diagnosis has got greater reliability. There is 100% sensitivity of ultrasound diagnosis in all cases except ectopic gestation in which it has 80% sensitivity.

DISCUSSION

Bleeding per vaginum in the first trimester is one of the most common obstetric problems. It is also one of the commonest cause for the majority of the emergency admissions to the obstetrics department and also a common reason for ultrasound examination in first trimester. Nearly twenty five percent (25%) of all pregnant women in their first trimester complaints of bleeding. In these women who present with bleeding per vaginum, during their first trimester several diagnostic possibilities can be considered. By mere clinical history and examination definitive diagnosis is usually impossible. The causes of bleeding are many and cover a spectrum of conditions ranging from a viable pregnancy to non-viable pregnancy.

Ultrasonography has opened new dimensions in early pregnancy bleeding so that specific treatment, medical or surgical, can be immediately instituted. Accurate diagnosis of nature of the pregnancy (viable or non-viable) can avoid unnecessary hormonal treatment and prolonged hospitalization. It also indicates the need for a Dilatation and Curettage by diagnosing retained products of conception in the uterine cavity. Ultrasonographic examination provides good index for evacuation in cases of abortion. Curettage is necessary if residual contents are seen but not when the uterus though bulky appears empty.

A normal pregnancy with excellent chances for a viable birth could be differentiated using USG from a pathological pregnancy which warrants an immediate termination. The Sonographic landmarks of the first trimester of pregnancy have been well recognized and they include identification of gestational sac, fetal pole, fetal cardiac activity, movements, yolk sac and amnion. The invaluable role of these landmarks, gestational sac and fetal biometry in diagnosing pathological pregnancies and redicting the pregnancy outcome has been clearly documented. A woman, who presents with poor history, poses a diagnostic challenge both to the obstetrician and the sonologist. Clinical history and pelvic examination are inadequate in assessing the cause and the prognosis. Ultrasound (both trans-abdominal and transvaginal sonography) plays an important role in the evaluation of the causes of the first trimester bleeding, prognosticate and predict the status of abnormal pregnancy. Realtime sonography is a non-invasive modality that is extremely useful to arrive at an accurate diagnosis.

Table 9. Shows comparison of causes of bleeding in the first trimester of pregnancy with few studies

Study	P Reddi Rani et al [5]		Rama Sofat et al [6]		Present study	
Cause of bleeding	No	%	No	%	No	%
Various types of abortions	61	61	70	77.5	43	86
Ectopic pregnancy	21	21	8	10	5	10
H.Mole	18	18	5	5.5	2	4

In present study, various abortions contributed to a major chunk of First trimester bleeding constituting 86% with ectopic pregnancy and H Mole making up the rest of the cases with frequencies of 10% and 4% respectively, when compared with P. Reddi Rani et al. and Rama Sofat et al.

Table 10. Prevalence of subchorionic bleeds in TA comparison with few studies
Available

Studies	No. of cases	Percentage
Steven R. et al in 1983[7]	10	20
Jan Fog Pedersen et al [8] in 1990	62	18
Present study	5	27

In our study, out of 18 cases of sonologically diagnosed threatened abortion; subchorionic bleed was noted in 5 cases; one out of which spontaneously aborted. Remaining 4 continued to term gestation. When compared to the Steven R. et al and Jan Fog Pedersen et al, our study has got slightly more incidence of subchorionic bleeds.

Table 11. Showing comparison of Clinical vs. USG diagnosis of few studies

Study	Clinical diagnosis	USG diagnosis	Disparity	
			No.	%
Jaideep malhotra et al in 1987 [9]	150	102	48	32
P Reddi Rani et al in 2000 [5]	100	58	42	42
Present study	50	18	32	64

In our study, only 18 clinically diagnosed cases were confirmed on ultrasound with a disparity of 64%. The present study, when compared to jaideep malhotra et al and P Reddi Ran et al has got more disparity between clinical and ultrasound diagnosis.

CONCLUSION

Ultrasound is a noninvasive, non-ionizing and easily available method of investigation to assess the patients with first trimester bleeding which is highly accurate in diagnosing the actual causes of bleeding and guides the clinician in choosing the appropriate line of management and prevents mismanagement of the cases

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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