ORIGINAL ARTICLE

ROLE OF PELVIC SONOGRAPHY IN FIRST TRIMESTER BLEEDING

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ABSTRACT: OBJECTIVE: To confirm the clinical diagnosis in patient with first trimester bleeding. To evaluate the role of pelvic ultrasound, in management of first trimester bleeding. To correlate the outcome of pregnancy, with fetal activity seen on pelvic ultrasound. **METHODS:** Study includes all Obstetric cases attending Bhabha Atomic Research Centre and Hospital with history of bleeding per vaginum in first trimester of pregnancy during the study period October 2011 to September 2013. **RESULT:** In our study we have evaluated 100 cases of bleeding in the first trimester of pregnancy to know the role of ultrasound examination. On mere clinical examination, it was not possible to diagnose many cases correctly. There was a disparity of 72% between clinical and sonological diagnosis. Out of 86 cases clinically diagnosed as threatened abortion only 50 cases were confirmed as threatened abortion by ultrasonography. Rest 36 cases were misdiagnosed clinically. Sonographically diagnosed 50 cases were followed and all 50 cases continued as normal pregnancy. 8 cases of these 50 threatened abortions had chorionic hemorrhage in ultrasonography findings, but all 8 cases also continued as normal pregnancy. These 36 clinically misdiagnosed cases were diagnosed correctly on ultrasonography as 12 cases of complete abortion, 4 cases of incomplete abortion, 1 case of inevitable abortion, 11 cases of missed abortion, 1 case of complete mole and 7 cases of blighted ovum. 1 case of complete abortion was diagnosed by sonography only. 3 cases were clinically diagnosed as incomplete abortion, but only 1 was confirmed on sonography, rest 2 cases were case of missed abortion and blighted ovum. All 8 cases of blighted ovum was ultrasonography diagnosis only. None of them could be diagnosed clinically. 3 cases of ectopic pregnancy were diagnosed clinically and also confirmed on ultrasonography. 1 case of complete mole was an ultrasonography diagnosis only. **CONCLUSION:** Bleeding per vaginum in the first trimester is one of the most common causes for the majority of emergency admissions to the obstetrics department and also vaginal bleeding is most frequent indication of first trimester ultrasonography. The common causes of bleeding during first trimester include abortions, ectopic pregnancy and molar pregnancy. Ultrasound is a non-invasive, 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. Ultrasound can assess some findings which are helpful in predicting the prognosis of the pregnancy. Life threatening emergency like ectopic when evaluated by ultrasound gives scope for conservative approach without affecting the fertility status.

KEYWORDS: First trimester bleeding, Pelvic sonography.

INTRODUCTION: In Obstetrics, first trimester bleeding, is bleeding from the vagina during pregnancy in the first trimester. The first trimester extends through completion of 14 weeks.¹

First trimester bleeding is a common occurrence and estimated to occur in approximately 25% of all (clinically recognized) pregnancies.^{2,3}

ORIGINAL ARTICLE

Obstetrics is “bloody business.” The most common indication for emergency referral in early pregnancy is vaginal bleeding. Today an ultrasound assessment of the pregnancy is a natural part of a first-trimester clinical examination.

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 difficult. The causes of bleeding are many and cover a spectrum of conditions ranging from a viable pregnancy to non-viable pregnancy.

Ultrasonographic evaluation is also applied earlier in gestation to provide information to clinicians and patients about the integrity of the pregnancy. 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. Real time sonography is an accurate diagnosis. Ultrasonography is generally considered a safe imaging modality.⁴ World Health Organizations technical report series 875 (1998).⁵ Supports that ultrasound is harmless.

Randomized controlled study have followed children up to ages 8–9, with no significant differences in vision, hearing, school performance, dyslexia, or speech and neurologic development by exposure to ultrasound.⁶ The social phenomena of increasing maternal age predisposing to abortion, general limitation of family size and heightened expectations of normal outcome have produced increased pressure on the obstetrician, thereby giving more importance to ultrasonography.:

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

1. In confirming the pregnancy.
2. To confirm the pregnancy location, revealing whether it is a definitive intrauterine or definitive ectopic gestation.
3. More accurate diagnosis of embryonic and fetal viability, even in the first trimester, through the assessment of cardiac activity.
4. Early pregnancies can be dated accurately by sequential sonographic visualization of the gestational sac, yolk sac, embryonic pole, cardiac activity, and amniotic sac.
5. To confirm or rule out suspected hydatidiform mole.
6. To look for the presence of intrauterine contraceptive device (IUCD) and confirmation of pregnancy associated with IUCD.
7. Helps in early detection of anembryonic pregnancy.
8. Evaluation of threatened, incomplete, complete, inevitable or missed abortion.
9. Helps in prompt management of the patients.
10. It can detect many pregnancy complications, such as placental abnormalities.

MATERIALS AND METHODS: Source of data: Study includes all Obstetric cases attending Bhabha Atomic Research Centre and Hospital with history of bleeding per vaginum in first trimester of pregnancy during the study period October 2011 to September 2013. The study was granted ethical approval from the local ethics committees. All women participated voluntarily, having given their informed consent.

Sample Size: 100 cases who presented with history of bleeding in first trimester of pregnancy have been included in the study.

ORIGINAL ARTICLE

Inclusion Criteria: All patients with clinically suspected first trimester bleeding (<14 completed weeks) of pregnancy.

Exclusion Criteria:

1. All local lesions causing vaginal bleeding.
2. All patients with more than 14 completed weeks of gestation.

METHOD OF COLLECTION OF DATA: It is a hospital based prospective study of patients who present with bleeding per vaginum in the first trimester of pregnancy during the study period.

Clinical details like age, parity, obstetric history, personal history, medical history, past history, menstrual history and details of present pregnancy in terms of period of amenorrhea at the time of first episode of bleeding, amount and duration of bleeding whether associated with pain abdomen or not and history of expulsion of fleshy mass /clots were noted. A detailed clinical examination including complete general physical examination and pelvic examination was done to arrive at a provisional clinical diagnosis.

Patients were then subjected to ultrasound examination. All patients were subjected to transabdominal sonography and transvaginal sonography was preferred whenever transabdominal sonography was inconclusive or equivocal.

Data was collected in a preformed proforma. Clinical and ultrasound findings were correlated. Ultrasonographic evaluation of patients was done using the following machines.

1. Philips IU 22.
2. Samsung medison.

Transabdominal sonography was done in all cases with 2-6 MHz frequency transducer and transvaginal sonography using 5-7 MHz transducer.

100 cases with history of bleeding per vaginum in the first trimester of pregnancy have been subjected for the study.

OBSERVATION AND RESULT:

Age	Number	Percentage
20 to 25 years	15	15
26 to 30 years	44	44
31 to 35 years	28	28
36 to 40 years	8	8
41 and above	5	5
TOTAL	100	100

Table 1: Showing Age Distribution of Subjects in The Study

In the present study, the majority of patients were from the age group of 26 to 30 years, totaling 44 cases (44%). 28 cases (28%) patients were from age group 31 to 35. 15(15%) patients were in age group 20 to 25 years. 8(8%) patients were in age group 36 to 40 years. 5(5%) patients were in age group 41 and above

ORIGINAL ARTICLE

Age group	Number of Cases	Viable Cases	Percentage of Viable Cases (%)
20-24 years	9	5	55.5
25-29 years	43	21	48.83
30 -34 years	34	19	55.88
35-39 years	8	6	75
40 -44 years	5	0	0%
45 and above	1	0	0%
Total	100	50	50

Table 2: Showing Number of Cases and Number of Viable Cases in Different Age Groups

Present study showing number of cases in different age group and number of viable pregnancies in different age group. Maximum numbers of cases were presented at age group of 25 to 29, and maximum viable pregnancies were also in age group 25-29 years which is 21 cases. Lowest viable rate is found above age 40 years which is 0 percent.

Parity Distribution	Number	Percentage (%)
Primigravida	38	38
Multigravida	62	62
Total	100	100

Table 3: Showing parity distributions of subjects studied

In present study majority of incidence of first trimester bleeding pervaginum is seen in multigravida who comprises 62 cases (62%). Primigravida were only 38 cases (38%) who present with bleeding per vaginum in first trimester.

Period of Gestation in weeks	Number of Cases	Percentage (%)
6-7+ 6	45	45
8-9+6	32	32
10-13+6	23	23
Total	100	100

Table 4: Showing distribution of cases according to period of gestation

This study showing incidence of first trimester bleeding is most common during 6 wks to 7+6 wks and comprises 45 cases (45%) and least during 10 wks to 13+6 wks which comprises 23 cases (23%). Incidence of first trimester bleeding is 32 % during 8 wks to 9+6 wks.

ORIGINAL ARTICLE

Ultrasound Diagnosis	Number of Cases	Percentage (%)
Threatened abortion	50	50
Complete abortion	12	12
Incomplete abortion	5	5
Inevitable abortion	2	2
Missed abortion	19	19
Blighted ovum	8	8
Ectopic pregnancy	3	3
Complete mole	1	1
Result	100	100

Table 5: Showing distribution of ultrasound findings in the present study

This study showing majority of cases with first trimester bleeding diagnosed as threatened abortion and comprises 50 cases (50%) of total 100 cases. Rest 50 cases (50%) includes cases which are complete abortion 12 cases (12%), incomplete abortion 5 cases (5%), inevitable abortion 2 cases (2%), missed abortion 19 cases (19%) blighted ovum 8 cases (8%), ectopic gestation 3 cases (3%) and complete Mole 1 cases (1%).

Cases	Clinical Diagnosis	Ultrasonography Diagnosis	Disparity
Threatened abortion	86	50	36
Complete abortion	0	12	12
Incomplete abortion	3	5	2
Inevitable abortion	1	2	1
Missed abortion	7	19	12
Blighted ovum	0	8	8
Ectopic pregnancy	3	3	0
Complete mole	0	1	1
Result	100	100	72

Table 6: Showing disparity between clinical diagnosis and ultrasound diagnosis

The above table and graph shows that out of 86 cases which were clinically diagnosed as threatened abortion, only 50 cases were sonographically confirmed as threatened abortion. There was disparity in 36 cases of threatened abortion which without the aid of ultrasonography would not have received appropriate treatment.

The disparity in case of incomplete abortion was 2 and in missed abortion were 12.

8 cases of Anembryonic gestation and 12 cases of complete abortion were purely a sonographic diagnosis.

The disparity in cases of ectopic was nil, and in case of molar pregnancy disparity was 1.

ORIGINAL ARTICLE

The total disparity between clinical diagnosis and ultrasound diagnosis was present in 72 cases which accounts to 72%. Out of 100 cases, clinical diagnosis was rightly confirmed by sonography in 64 cases indicating total accuracy of clinical diagnosis to be 64%.

Causes	Number	Percentage (%)
Abortion	96	96
Ectopic	3	3
Hydatidiform mole	1	1

Table 7: Showing causes of bleeding per vaginum in the first trimester of pregnancy

The above table and graph shows that the major cause for bleeding per vaginum in first trimester is abortion. In our study out of 100 cases 96 cases accounting to 96 % had abortion as the major cause of bleeding in first trimester. Rest 4 cases were 3 cases of ectopic pregnancy and 1 case of hydatiform mole.

Cases	Number of cases diagnosed clinically	Follow up
Threatened abortion	86	Pregnancy continued-50 Complete abortion-12 Incomplete abortion-4 Inevitable abortion-1 Missed abortion-11 Blighted ovum -7 Vesicular mole-1
Complete abortion	-	-
Incomplete abortion	3	Incomplete abortion -1 Missed abortion-1 Blighted ovum -1
Blighted ovum	-	-
Missed abortion	7	Missed abortion-7
Inevitable abortion	1	Inevitable-1
Ectopic gestation	3	All 3 were confirmed on ultrasonography as ectopic.
Vesicular mole	0	-

Table 8: Follow up of cases diagnosed clinically

86 cases clinically diagnosed as threatened abortion, only 50 cases continued as live pregnancy.

Rest 36 cases misdiagnosed clinically were-12 cases of complete abortion, 4 cases of incomplete abortion, 1 case of inevitable abortion, 11 cases of missed abortion and 7 cases were blighted ovum, and 1 Vesicular mole diagnosed on pelvic ultrasonography.

3 cases clinically diagnosed as incomplete abortion, only 1 was confirmed as incomplete abortion. 1 was a case of blighted ovum, and other was a case of missed abortion.

ORIGINAL ARTICLE

7 cases diagnosed as missed abortion clinically, all 7 confirmed on ultrasonography.

No case of vesicular mole diagnosed clinically.

3 cases of ectopic pregnancy diagnosed clinically were confirmed as ectopic pregnancy on ultrasound.

Cases	Number of Cases Diagnosed on Ultrasound	Follow up of Cases
Threatened abortion	50	In all 50 cases pregnancy continued
Complete abortion	12	All cases were confirmed
Incomplete abortion	5	All cases were confirmed
Missed abortion	19	All cases were confirmed
Inevitable abortion	2	All cases were confirmed
Ectopic gestation	3	All cases were confirmed
Vesicular mole	1	All cases were confirmed
Blighted ovum	8	All cases were confirmed

Table 9: Showing follow up of cases diagnosed on ultrasound

In the present study, out of 50 cases which were diagnosed as threatened abortion on ultrasound, all 50 cases were continued as normal pregnancy. All other causes of bleeding per vaginum were confirmed on ultrasound.

Management	Number of Cases	Percentage (%)
Conservative	62	62
Instrumental evacuation	35	35
Laparotomy	2	2
Termination by medical method (inj methotrexate)	1	1
Total	100	100

Table 10: Showing management of cases of first trimester bleeding

Out of 100 cases, 62 cases were managed conservatively as 50 cases were diagnose as viable pregnancy on ultrasound and 12 cases were complete abortion on ultrasound.

35 cases underwent instrumental evacuation as they were non-viable.

2 cases underwent laparotomy and 1 case terminated by injection methotrexate.

DISCUSSION: Age group showing maximum incidence of bleeding pervaginum is 26-30 years and constitute 44%. Studies have shown increased risk of abortion with advancing maternal age and parity.

In our study 5 cases were in age 41 and above and all were nonviable pregnancies and hence terminated.

Advancing maternal age is associated with adverse pregnancy outcome, this is also studied by Andrew Cziezel, Zoltan Bogнар and Magda Rockenbauer.⁷ in their study incidence of spontaneous abortion is 50% after age of 40 years

ORIGINAL ARTICLE

In study done by Uerpairojkiet et al,⁸ maximum viable pregnancy rate was obtained in age group 25 to 29 years and it was 49%, which is comparable to our study in which viable pregnancy outcome in age group 25 to 29 years is 48%.

In study done by Uerpairojlit et al, least viability is obtained in age group 40 to 44 years which was 0%, which is similar to present study in which also viability is 0% in age group 40-44 years.

Increase in parity is associated with increased risk of spontaneous abortion and hence first trimester bleeding per vaginum. In present study 62% women were multigravida and 38 percent women primigravida. This is similar to study done by Andrew Cziezel, Zoltan Bogнар and Magda Rockenbauer⁷ they have also found increase incidence of spontaneous abortion with advancing parity

In present study 45% of patients had bleeding in between 6-8 weeks of gestation which is not comparable to Neelam Bharadwaj study. It is 30% in Neelam Bhardwaj study.⁹

In our study, 32% of cases had bleeding in between 8-10 weeks compared to 35% of Neelam Bharadwaj's study.

In our study 23% had bleeding between 10-13+6 weeks, but this is not comparable because 22% of Neelam Bhardwaj had included cases up to 12 wks only as per old definition.

In our study, all cases of threatened abortion, missed abortion, incomplete abortion, Blighted ovum, Hydatidiform Mole, ectopic gestation, complete abortion and inevitable abortion were diagnosed correctly on ultrasound with an accuracy of 100%. The results of present study are comparable with Rama Sofat¹⁰ and Neelam SB⁹ in diagnosing threatened abortion, missed abortion, blighted ovum and H Mole with 100% accuracy.

In present study various abortions contributed to a major chunk of First trimester bleeding constituting 96%. Ectopic pregnancy and H Mole making up the rest of the cases with frequencies of 3% and 1 % respectively, when compared with P. Reddi Rani et al.¹¹ and Rama Sofat et al¹⁰. Study group also abortion is the leading cause of early pregnancy bleeding with an incidence of 61% and 77.5 % respectively

In our study, out of 96 cases of sonologically diagnosed threatened abortion; chorionic bleed was noted in 8 cases; All 8 cases continued to term gestation. When compared to the Steven R. et al¹² and Jan Fog Pedersen et al,¹³ our study has got slightly less incidence of chorionic bleeds.

In our study 100 clinically diagnosed cases were confirmed on ultrasound with disparity of 36%. The present study is not comparable to T G Ghorade's¹⁴ and P Reddi Rani¹¹ who has got disparity of 50%, 68 % and 42% between clinical and ultrasound diagnosis respectively.

CONCLUSION: Bleeding per vaginum in the first trimester is one of the most common causes for the majority of emergency admissions to the obstetrics department and also vaginal bleeding is most frequent indication of first trimester ultrasonography.

The common causes of bleeding during first trimester include abortions, ectopic pregnancy and molar pregnancy. Ultrasound is a non-invasive, 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.

Life threatening emergency like ectopic when evaluated by ultrasound gives scope for conservative approach without affecting the fertility status

ORIGINAL ARTICLE

RECOMMENDATIONS:

1. All patient presenting with history of first trimester bleeding per vaginum should be attended as emergency as cases like ruptured ectopic can be life threatening.
2. All patients presenting with history of first trimester bleeding per vaginum should be evaluated properly.
3. Clinical examination should include per speculum and per vaginal examination.
4. Pelvic ultrasound is highly recommended in all cases presenting with history of first trimester bleeding for early diagnosis.

Management should be done after confirmation with pelvic ultrasound finding and not merely by clinical findings.

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ORIGINAL ARTICLE

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