European Journal of Molecular & Clinical Medicine

ISSN 2515-8260 Volume 9, Issue 4, Summer 2022

**ORIGINAL RESEARCH**

# TO INVESTIGATE THE USE OF ULTRASOUND IN DIAGNOSING PATIENTS WITH FIRST TRIMESTER BLEEDING AND TO PROGNOSIS AND FORECAST THE OUTCOME OF ABNORMAL PREGNANCIES

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**ABSTRACT**

**Aim: To investigate the use of ultrasound in diagnosing patients with first trimester bleeding and to prognosis and forecast the outcome of abnormal pregnancies**

**Methods: The research included all consecutive individuals having a history of vaginal bleeding in the first trimester of pregnancy. Age, obstetric history, menstruation history, and specifics of the current pregnancy such as period of amenorrhea at the time of the first episode of bleeding, quantity and duration of bleeding, discomfort abdomen, and history of expulsion of fleshy mass/clots were all recorded. Transabdominal sonography was performed on all patients using a GE Logiq P5 Pro ultrasound equipment. When transabdominal sonography was unclear or ambiguous, transvaginal sonography (TVS) was used. The presence or absence of a gestational sac, the location of the gestational sac, the size of the gestational age in comparison to the period of amenorrhea, the margins of the gestational sac, the presence or absence of a foetal pole, crown rump length (CRL), cardiac activity, and the presence of fluid in the cul-de-sac were all noted on an ultrasound.**

**Results: Clinical examination revealed that 74 (74%) of the cases were threatened abortions, 6 (6%) were complete abortions, 4 (4%) were incomplete abortions, and 2 (2%) were missed abortions. Clinically, no blighted ovum or molar pregnancy was suspected. On USG, 55(55%) of 100 cases were classified as threatened abortion, 15(15%) as complete abortion, and 9(9%) as missed abortion and incomplete abortion. There were also 6 (6%) cases of blighted ovum, 3 (3%) cases of ectopic pregnancy, and 2(2%) cases of complete hydatiform mole. The total disparity between clinical and USG**

**diagnosis was present in 61% of cases, and clinical diagnosis was confirmed by USG in 62 cases, indicating clinical diagnosis accuracy of 62%.**

**Conclusions: We conclude that USG is a helpful and readily accessible technique for evaluating individuals with first trimester vaginal haemorrhage. It is quite precise in pinpointing the root of the bleeding problem and helping the doctor decide what course of action to take. In the algorithm for deciding whether or not to intervene and keep the pregnancy going, ultrasound is a useful input.**

**Keywords: USG, Abortions, First trimester, Pregnancy**

## INTRODUCTION

In the first trimester of pregnancy, vaginal bleeding is common and causes worry for both the patient and the obstetrician. It is estimated that between 7% and 24% of first trimester pregnancies will experience bleeding per vaginum. [1] Fifty percent of pregnancies that experience bleeding in the first trimester end in miscarriage. This includes cases of spontaneous abortion, ectopic pregnancy, and gestational trophoblastic disease. [2] It is extremely rare to make a straightforward clinical diagnosis. Examining the pelvis and taking a patient's medical history are often not enough to pinpoint the root of the bleeding or predict its outcome. Bleeding can be caused by a wide variety of medical issues, from a healthy pregnancy to an unhealthy one. Diagnostic ultrasound (including transvaginal and transabdominal sonography) can help determine the likelihood of abnormal pregnancy development and early pregnancy loss. As a non-invasive diagnostic tool, real-time sonography can provide useful information for a patient's care. Sonography has been used in the first trimester to detect skeletal dysplasia, holoprosencephaly, sacrococcygealteratoma, and conjoined twins. Abnormalities in amniotic fluid volume are calculable, especially in high-risk pregnancies. [3-5]

The endovaginal Ultrasound can detect the intrauterine gestational sac at week 5. A proper intrauterine pregnancy diagnosis helps the doctor care for the patient and may also be a psychological boon for the expecting mother. However, the test's applicability may be limited by a dearth of up-to-date ultrasound equipment and appropriately educated personnel. Therefore, the current study was done to investigate the causes of first trimester pregnancy bleeding at our tertiary care centre to identify the leading causes whose knowledge may improve their treatment even in the absence of ultrasound.

## METHODS AND MATERIALS

This prospective research was conducted after receiving ethical approval from the institution. The research included all consecutive individuals having a history of vaginal bleeding in the first trimester of pregnancy. Women with non-obstetric causes of vaginal bleeding were eliminated, as were all women with more than 12 weeks of gestation. Age, obstetric history, menstruation history, and specifics of the current pregnancy such as period of amenorrhea at the time of the first episode of bleeding, quantity and duration of bleeding, discomfort abdomen, and history of expulsion of fleshy mass/clots were all recorded. Transabdominal sonography was performed on all patients using a GE Logiq P5 Pro ultrasound equipment. When transabdominal sonography was unclear or ambiguous, transvaginal sonography (TVS) was used. The presence or absence of a gestational sac, the location of the gestational sac, the

size of the gestational age in comparison to the period of amenorrhea, the margins of the gestational sac, the presence or absence of a foetal pole, crown rump length (CRL), cardiac activity, and the presence of fluid in the cul-de-sac were all noted on an ultrasound. The adnexa on both sides were examined to rule out ectopic pregnancy and other disease. Clinical results confirmed USG findings.

## RESULTS

The research included 100 pregnant women in their first trimester who were experiencing vaginal bleeding. The majority of the patients were between the ages of 25 -35. 59(59%), followed by above 35years. There were 58 (58%) primigravida cases and 42 (42%) multigravida cases. 70 cases (70%) had uterine sizes of 10 weeks or less, and 30 (30%) had uterine sizes of 10 to 12 weeks. Cervical Os was open in 14 (14%) patients and closed in 86 (86%). Fornices were not present in 85 patients (85%), but forniceal tenderness was present in 15 (15%). Clinical examination revealed that 74 (74%) of the cases were threatened abortions, 6 (6%) were complete abortions, 4 (4%) were incomplete abortions, and 2 (2%) were missed abortions (Table 2). Clinically, no blighted ovum or molar pregnancy was suspected. On USG, 55(55%) of 100 cases were classified as threatened abortion, 15(15%) as complete abortion, and 9(9%) as missed abortion and incomplete abortion (Table 3). There were also 6 (6%) cases of blighted ovum, 3 (3%) cases of ectopic pregnancy, and 2(2%) cases of complete hydatiform mole. The total disparity between clinical and USG diagnosis was present in 61% of cases, and clinical diagnosis was confirmed by USG in 62 cases, indicating clinical diagnosis accuracy of 62%. In the follow-up, 55 cases of threatened abortion on clinical examination were confirmed by USG, with 42 cases continuing to term gestation and the rest ending in abortions.

**Table 1 Demographic profile of the patients**

| Age in years | Number of patients | Percentage |
|---|---|---|
| 18-25 | 11 | 11 |
| 25-35 | 59 | 59 |
| Above 35 | 30 | 30 |
| Gravida | | |
| Primigravida | 58 | 58 |
| Multigravida | 42 | 42 |
| Cervical Os | | |
| Open | 14 | 14 |
| closed | 86 | 86 |
| Forniceal tenderness | | |
| Present | 15 | 15 |
| Absent | 85 | 85 |

**Table 2: Diagnosis on Clinical Examination**

| Clinical Diagnosis | No of Patients | Percentage |
|---|---|---|
| Threatened Abortion | 74 | 74 |
| Missed Abortion | 2 | 2 |
| Blighted Ovum | 0 | 0 |
| Incomplete Abortion | 4 | 4 |
| Complete Abortion | 6 | 6 |
| Ectopic Pregnancy | 14 | 14 |
| Molar Pregnancy | 0 | 0 |

**Table 3: Diagnosis on Ultrasonography**

| USG Diagnosis | No of Patients | Percentage |
|---|---|---|
| Threatened Abortion | 55 | 55 |
| Missed Abortion | 9 | 9 |
| Blighted Ovum | 6 | 6 |
| Incomplete Abortion | 9 | 9 |
| Complete Abortion | 15 | 15 |
| Ectopic Pregnancy | 3 | 3 |
| Molar Pregnancy | 2 | 2 |

## DISCUSSION

One of the most common obstetric complications is bleeding per vaginum in the first trimester of pregnancy. Bleeding during the first trimester of pregnancy is a common reason for hospitalisation because it indicates an abnormality that is interfering with the normal development of the baby. [6] The need for hormone therapy and hospitalisation can be avoided if USG can determine whether or not a pregnancy will be viable. [7] This can only be determined by USG, as it is nearly impossible to determine from a patient's history or a clinical examination. The gestational sac, foetal pole, foetal movements, yolk sac, and amnion can all be seen clearly on an ultrasound by the end of the first trimester, as has been well documented. [8]

USG found that 55 cases (55%) were classified as threatened abortion, 15 cases (15%) as full abortion, and 9 cases (9%) each as missed abortion and incomplete abortion. There were also 6 cases of blighted ovum (6%), 3 cases of ectopic pregnancy (3%), and 2 cases of a complete hydatidiform mole (2%). Subchorionic bleeds of varying sizes have been observed in roughly half of patients with threatened abortion. The findings mirrored those of a study by Shivagamma et al.[6] who found subchorionic bleeds in roughly the same proportion of pregnancies.

USG was able to accurately diagnose all cases of complete abortion, missed abortion, blighted ovum, and incomplete abortion, allowing for early decision for termination in all cases. On USG, a complete abortion was clearly visible as an empty uterus with normal endometrial echoes. Our research is consistent with that of the prior research. [9,10] This helped minimise unneeded intervention and allowed for quicker hospital release. USG also

successfully diagnosed and managed ectopic and molar pregnancies, resulting in decreased patient morbidity and mortality.

There was a total discrepancy of 61% between clinical diagnosis and USG diagnosis, and USG confirmed the clinical diagnosis in 62% of cases, indicating that clinical diagnosis was accurate in 62% of cases. Similarities exist between the current study and the one by Ghorade et al. [11] In their research, Sofat et al.[9] correlated and compared the results of clinical diagnosis with those of ultrasound. They discovered that ultrasound was significantly more accurate than clinical diagnosis in cases of threatened abortion (30%), missed abortion (40%) and molar pregnancy (95%) and incomplete abortion (35%). In a prospective study involving 150 patients with first trimester bleeding, Malhotra J. et al.[12] found that in 32% of clinically misdiagnosed cases, ultrasonography helped establish the correct diagnosis. He came to the conclusion that ultrasonography was the only imaging modality that allowed for an accurate diagnostic and prognostic assessment of first trimester bleeding.

Some diagnoses, such as molar pregnancy and ectopic pregnancy, would be missed without confirmation of the result because of low concordance and incorrect diagnosis. More people will get sick and some may even die as a result of this. 13 There is a risk of delayed or no treatment as a result of overdiagnosis in cases of threatened abortion, which is typically managed conservatively. [13]

## CONCLUSIONS

Time of the First Trimester Anxiety is felt by both the patient and the physician when vaginal bleeding occurs during pregnancy. In many cases, a clinical history and pelvic exam alone are not enough to determine the reason of bleeding or the pregnancy's prognosis. Ultrasound hysteroscopy (USG) is a noninvasive diagnostic method that may help figure out what's causing vaginal bleeding in the first trimester. It's also useful in the algorithm for deciding whether or not to terminate a pregnancy and when to intervene if there are signs of an abnormality. In our research, we found that the clinical diagnostic and USG diagnosis were highly discordant. Diagnosing first trimester vaginal bleeding correctly is essential for effective case management, although this might be challenging in the absence of USG.

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