

## Original Research Article

**Ultrasonographic evaluation of Vaginal Bleeding before 12 weeks of gestation**

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**Abstract:** Ultrasound imaging plays a major role in evaluation of pregnancies especially in the first trimester of pregnancy. The aim of this study is to correlate the clinical and ultrasonographic diagnosis of vaginal bleeding in the first 12 weeks of pregnancy and to find out its incidence and to study other associated conditions of vaginal bleeding during pregnancy. 100 patients with vaginal bleeding upto 12<sup>th</sup> weeks of gestation were examined both clinically and ultrasonographically. All the cases were subjected to S&E and HPE. In this study, USG helped in establishing correct diagnosis in 44% of clinically misdiagnosed cases apart from confirming the diagnosis in rest.

**Keywords:** Ultrasonographic diagnosis, Threatened abortion, Missed abortion, Inevitable abortion, Molar pregnancy

**INTRODUCTION**

Ultrasound imaging plays a major role in evaluation of pregnancies especially in the first trimester, as it has not been found to cause any known biological side effects in the fetus at the usual diagnostic frequencies of between 2.5 to 15MHz, even after extensive use in obstetrics for about fifty years[1]. It should, however, be used judiciously as there may be effects to the embryo which have not yet been described.

Obstetric ultrasound was introduced by Ian Donald in the early 1960's and has since been very important in evaluation of the mother and fetus during pregnancy [2]. It has unique features such as its non-invasive nature and the fact that it uses non-ionizing radiation, which gives it special advantage over other imaging modalities. For this reason its value has been established in those areas where these qualities are useful [3], for example, in obstetric and paediatric imaging. Because it is less demanding in terms of the physical infrastructure required, cost of equipment and consumables, the development and expansion of basic ultrasound services is more readily achievable than other imaging modalities [3]. The only drawback is that it is operator dependent, and diagnosis heavily relies on the expertise, technique, training and experience of the operator [3, 4, 5].

Basically, ultrasound imaging is the use of very high frequency sound, generated in an electrically excited crystalline material, to produce images. Extensive scrutiny has established that potential biohazards including increase in tissue temperature and the formation and collapse of bubbles in liquids, which may be caused by the use of ultrasound occur at exposure durations and intensity levels that are hundreds of times above those used in diagnostic imaging. This makes ultrasound one of the safest forms of energy used in medical imaging [3]. Use of Doppler techniques is associated with higher intensity levels of ultrasound than the usual B- mode and M- mode pulsed wave techniques, and its use should therefore be avoided.

**AIMS AND OBJECTIVES:**

- To correlate the clinical and ultrasonographic diagnosis of vaginal bleeding in the first 12 weeks of pregnancy.
- To find out other associated (Gynaecological) condition of vaginal bleeding during pregnancy, if any.
- To find out the incidence of the various causes of vaginal bleeding during first 12 weeks of pregnancy among the studied patients.

**MATERIAL AND METHODS**

The study was conducted in the Department of Obstetrics and Gynaecology, Gauhati Medical College

and Hospital, over a total number of 100 patients who attended Gynaecology out patient department and Emergency Department of the Hospital, over a period of one year from June 2015 to May 2016. They were assessed clinically as well as Ultrasonically in order to correlate the clinical and ultrasonic diagnosis.

**Selection of cases**

Hundred cases with vaginal bleeding within 12 weeks of pregnancy were included in the study. They were subdivided in different weeks of gestation. Per abdominal examination done to note the size of uterus in relation to duration of amenorrhoea, presence of fetal parts and tenderness. Per vaginal examination was done to confirm pregnancy and to ascertain the size of the uterus. This is also done to assess the condition of the cervix, os, any adnexal mass and the source of bleeding.

**Inclusion Criteria**

- Cases with Vaginal Bleeding within 12 Weeks of pregnancy, whatever the amount, in the setting of amenorrhoea of up to 12 weeks or known pregnancy in the first trimester (either from a urine pregnancy detection test (PDT) or  $\beta$ -HCG levels or from a previous ultrasound scan).
- Age 15 to 45 years of age

**Exclusion Criteria**

- Patients with history of induction and expulsion of products of conception.

- Patients without PV bleeding.
- Patients with pregnancy beyond the first trimester (greater than 12 weeks gestation).
- Patients who decline to participate in the study.

**Data Analysis**

Patient history and ultrasound findings were documented on a data collection sheet, and subsequently the information was fed into a database. Subsequently, tables, pie charts and bar charts were used to present the data.

**RESULTS AND OBSERVATIONS**

A total of 100 patients were studied during the period. All patients who were sure of their last menstrual period were taken. Their assessed being order to co-relate clinical and ultrasound diagnosis and also to find out various causes of vaginal bleeding in first 12 weeks of pregnancy. The results and observation of this study are as follows:

**Clinical Diagnosis:**

Clinically the cases were diagnosed as Threatened abortion (36%), Molar pregnancy (11%), Inevitable abortion (26%), Septic abortion (5%), Incomplete abortion (17%, Complete abortiton (2%), Ectopic pregnancy (3%). Maximum number of cases were diagnosed clinically as threatened abortion (36%).

**Table-1: Showing clinical diagnosis**

| Sl. No. | Clinical Diagnosis  | No. Of Cases | Percentage |
|---------|---------------------|--------------|------------|
| 1       | Threatened abortion | 36           | 36         |
| 2       | Molar pregnancy     | 11           | 11         |
| 3       | Inevitable abortion | 26           | 26         |
| 4       | Septic abortion     | 5            | 5          |
| 5       | Incomplete abortion | 17           | 17         |
| 6       | Complete abortion   | 2            | 2          |
| 7       | Ectopic pregnancy   | 3            | 3          |

**Sonographic diagnosis:**

Among 100 cases studied sonographically with history of bleeding p/v upto 12 weeks of gestation, Threatened abortiton 10%, Inevitable abortiton 8%, Missed abortion were 22%, Complete molar pregnancy

were 10%, Partial molar pregnancy 1%, Blighted ova 4%, Incomple abortion were 35%, Complete abortion 2%, Ectopic pregnancy 3%, and Septic abortion 5%. Maximum no. Of cases (35%) found were incomplete abortion.

**Table-2: Showing sonographic diagnosis**

| Sl. No. | Sonographic diagnosis    | No. Of cases | Percentage |
|---------|--------------------------|--------------|------------|
| 1       | Threatened abortion      | 10           | 10         |
| 2       | Inevitable abortion      | 8            | 8          |
| 3       | Missed abortion          | 22           | 22         |
| 4       | Complete Molar pregnancy | 10           | 10         |
| 5       | Partial Molar pregnancy  | 1            | 1          |
| 6       | Blighted ova             | 4            | 4          |
| 7       | Incomplete abortion      | 35           | 35         |
| 8       | Complete abortion        | 2            | 2          |
| 9       | Ectopic pregnancy        | 3            | 3          |
| 10      | Septic abortion          | 5            | 5          |

**Accuracy and Discrepancy of Clinical diagnosis with USG diagnosis:**

100 cases were studied during this period out of 36 cases clinically diagnosed as Threatened abortion, only 10 cases (27.77%) the diagnosis was confirmed as Threatened abortion. Other 26 cases (72.22%) were diagnosed as Missed abortion (22 cases) and Blighted ova (4 cases).

Out of 11 cases, clinically diagnosed as molar pregnancy, 10 (90.9%) cases were confirmed ultrasonographically as complete molar pregnancy and 1 (9.09%) case confirmed as partial molar pregnancy.

Out of 26 cases, clinically diagnosed as inevitable abortion, ultrasonographically only 8 (30.76%) cases confirmed as inevitable abortion and 18 (69.23%) cases confirmed as incomplete abortion.

Out of 5 cases, clinically diagnosed as septic abortion, ultrasonographically 5 (100%) cases confirmed as septic abortion.

Out of 2 cases, clinically diagnosed as complete abortion, ultrasonographically 2 (100%) cases confirmed as complete abortion.

Out of 3 cases, clinically diagnosed as ectopic pregnancy, ultrasonographically 3(100%) cases confirmed as ectopic pregnancy.

Out of 17 cases, clinically diagnosed as incomplete abortion, ultrasonographically 17(100%) cases confirmed as incomplete abortion.



**Fig-1-Blighted Ovum on Ultrasonography**



**Fig-2: Partial Mole on Ultrasonography**

## DISCUSSION:

Clinically Threatened Abortion, Missed Abortion, Molar pregnancy and Ectopic Pregnancy are diagnosed whenever a patient present with vaginal bleeding in first 12 wks of pregnancy. Threatened abortion is estimated to occur in 16-25% of all pregnancies [6].

All women with vaginal bleeding in early pregnancy are subjected to pelvic examination and the state of the cervix is important to diagnose inevitable abortion when Cervix will be dilated but in cases with closed Cervix it is very difficult to arrive at a definite diagnosis and consequently the clinical management suffers.

Ultrasound examination has proved very useful in these cases as it helps in immediately differentiating the various causes of vaginal bleeding and enables the clinician to manage the cases accordingly.

### Clinical Diagnosis:

The cases presenting with bleeding P/V within 12 weeks of pregnancy are clinically diagnosed as threatened abortion, molar pregnancy, Inevitable abortion, Septic abortion, Incomplete abortion, Complete abortion, Ectopic pregnancy in these study. The previous workers had conducted similar clinical diagnosis. In the present work the cases of Delayed mens and Pregnancy with uterine fibroid are excluded. Das *et al* [7], Rajan *et al*[8], Sofat *et al* [9], Gorade *et al* [10] had included those few entities in their study. So, due to exclusion and inclusion criteria, my study differs with other study in case of clinical diagnosis of threatened abortion.

### Accuracy of clinical diagnosis after USG evaluation:

In the present study USG helped in establishing correct diagnosis in 44% of clinically misdiagnosed cases apart from confirming the diagnosis in rest. Malhotra *et al* [11] job served that USG helped them in getting correct diagnosis in 32% of clinically mistaken diagnosis. Sofat *et al* [9] in her study concluded ultrasonography has an edge over clinical diagnosis by about 40% in missed abortion and 35% in incomplete abortion.

Sofat *et al* [9] confirmed 72.5% cases as threatened abortion, Gorade[10] in his study confirmed 70% cases by USG, out of which 68% cases were found as threatened aborton, the rest were found to be molar pregnancy, missed abortion, blighted ovum, incomplete abortion etc. In the present study USG confirmed the diagnosis of threatened abortion in 27.77% cases. In cases with clinical diagnosis of molar pregnancy, USG established the diagnosis in 100% in the present study whereas Sofat *et al* [9] and Gorade *et al* [10] found it to be 80% and 66% respectively.

Diagnosis of ectopic pregnancy is often difficult when the clinical feature is not classical. USG confirmed 100% cases as ectopic pregnancy in present study, whereas Das *et al* [7] observed it to be 67.8% and Gorade *et al* [10] observed it to be 60% in their study. Considering all the findings it was confirmed that ultrasonography is an excellent tool in the management of early pregnancy bleeding, prognosticating the safe continuation of pregnancy, timely intervention of abnormal pregnancies and avoiding unnecessary intervention in those who do not need them.

## CONCLUSION

The sonographic examination is hence an useful tool for the diagnosis of normal pregnancy and detecting any abnormality of it. Vaginal bleeding is very common complaint found in the women with pregnancy upto 12 weeks. The outcome of pregnancy in threatened abortion can be assessed very well by this method. The diagnosis of ectopic pregnancy and molar pregnancy is facilitated by USG examination but along with this in most of the cases qualitative and quantitative examination of  $\beta$ -HCG is also necessary. This is only easily available method which makes the diagnosis of blighted ovum possible. It also helps in differentiating threatened abortion from complete abortion and prevents unnecessary curttage of the uterus. Missed abortion cases were easily diagnosed and differentiated from threatened abortion by USG and it helps preventing unnecessary hospitalization. USG along with  $\beta$ -HCG estimation and histopathological examination helps in the diagnosis of molar pregnancy particularly if correlated with the clinical finding of a "large for date" uterus. In cases of pregnancy upto 12 weeks, besides clinical evaluation, ultrasonographic assessment is very valuable.

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