

# International Journal of Radiology and Diagnostic Imaging



E-ISSN: 2664-4444  
P-ISSN: 2664-4436  
IJRDI 2018; 1(1): 16-18  
Received: 21-11-2017  
Accepted: 24-12-2017

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## Detection of first trimester bleeding: An Ultrasonographic study

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DOI: <http://dx.doi.org/10.33545/26644436.2018.v1.i1a.6>

### Abstract

**Background:** First trimester bleeding is any vaginal bleeding occurring during the first 12 weeks of pregnancy. The present study was conducted to evaluate the cases of first trimester bleeding using ultrasound.

**Materials & Methods:** This study was conducted on 82 pregnant women referred to the department with the complaint of first trimester bleeding. A detailed clinical history and Ultrasound examination (USG) was performed in all patients.

**Results:** 15 cases were seen below 20 years of age, 34 were in 20-25 years age group, 23 were in 25-30 years age group, 10 were beyond 30 years of age. The difference was significant ( $P < 0.05$ ). Ultrasonograph (USG) findings were threatened abortion (62), missed abortion (12), blighted ovum (6), incomplete abortion (8), complete abortion (6), hydatidiform mole (4) and pregnancy with Cu- T (4). The difference was significant ( $P < 0.05$ ). Ultrasound diagnosis was found to be effective than clinical diagnosis alone in detection of threatened abortion, brighted ovum, missed abortion and complete abortion.

**Conclusion:** Ultrasonography is a useful tool in first trimester bleeding

**Keywords:** Abortion, Pregnant, Ultrasonography

### Introduction

First trimester bleeding is any vaginal bleeding occurring during the first 12 weeks of pregnancy and by default it is considered as threatened abortion until a non-threatening cause is identified. It occurs in about a quarter of total number of pregnancies, approximately half of which will go for miscarriages and other half will stop bleeding and complete a normal pregnancy<sup>[1]</sup>. Causes of first trimester bleeding are classified as obstetric and non-obstetric causes. Non obstetric causes include trauma, cervicitis, vaginitis, cystitis, cervical carcinoma or polyps.

Vaginal bleeding occurring in early pregnancy poses a diagnostic challenge to the obstetrician. It is a symptom which frequently heralds an abnormality, interrupting the normal development of an early gestation. It is estimated that 16% of vaginal bleeding occurs during the first trimester in all pregnant women, while the frequency of spontaneous abortion is traditionally estimated as 10-20%<sup>[2]</sup>.

The symptoms and signs of threatened abortion are so variable that the outcome of the pregnancy cannot be reliably predicted by clinical features at presentation. Thus various biochemical and biophysical tests have been applied extensively in attempts to improve the accuracy of predicting the outcome of these pregnancies<sup>[3]</sup>. The first sonographic evidence of pregnancy is the gestational sac within the thickened deciduas<sup>[4]</sup>. This sac, which represents the chorionic cavity, is a small anechoic fluid collection surrounded by an echogenic ring that represents trophoblasts and decidual reaction. With transvaginal ultrasound, it is possible to identify the sac by 4 weeks and 3 days gestation when the mean diameter is 2 to 3 mm. The present study was conducted to evaluate the cases of first trimester bleeding using ultrasound.

### Materials & Methods

This study was conducted in department of Radiodiagnosis. It comprised of 82 pregnant women referred to the department with the complaint of first trimester bleeding. Patients were informed regarding the study and written consent was obtained. Ethical approval was obtained prior to the commencement of the study.

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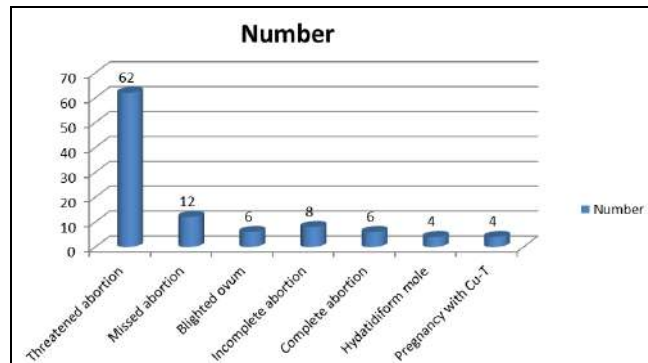
General information such as name, age, etc. was recorded. A detailed clinical history and Ultrasound examination (USG) was performed in all patients. In ultrasound examination following findings viz., size of the uterus, presence of gestational sac, size and location of the gestational sac, gestational age compared to the period of amenorrhoea, whether the margins of the gestational sac are intact or crenated were noted. Results were subjected to statistical analysis. P value < 0.05 was considered significant.

**Results**

**Table I:** Age wise distribution of patients

Age group (years)	Number	P value
< 20 years	15	0.01
20-25 years	34	
25-30 years	23	
>30 years	10	
Total	82	

Table I shows that 15 cases were seen below 20 years of age, 34 were in 20-25 years age group, 23 were in 25-30 years age group, 10 were beyond 30 years of age. The difference was significant (P < 0.05).



**Graph I:** Age wise distribution

Table I shows that ultrasonograph (USG) findings were threatened abortion (62), missed abortion (12), blighted ovum (6), incomplete abortion (8), complete abortion (6), hydatidiform mole (4) and pregnancy with Cu- T (4). The difference was significant (P < 0.05).

**Table II:** Comparison of clinical diagnosis with ultrasound diagnosis

Ultrasound findings	USG	Clinical
Threatened abortion	62	60
Missed abortion	12	11
Blighted ovum	6	5
Incomplete abortion	8	8
Complete abortion	6	5
Hydatidiform mole	4	6
Pregnancy with Cu-T	4	5

Table II shows that ultrasound diagnosis was found to be effective than clinical diagnosis alone in detection of threatened abortion, brighted ovum, missed abortion and complete abortion.

**Discussion**

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 foetus at the usual diagnostic frequencies between 2.5 to 15MHz, even after extensive use in obstetrics for about fifty years [6] Ultrasonography has opened new dimensions in the diagnosis of first trimester bleeding so that specific treatment with medical or surgical can be immediately instituted accordingly [7] Accurate diagnosis of nature of the pregnancy (viable/non-viable) can avoid unnecessary hormonal treatment and prolonged hospitalization to the patients, unnecessary curettages and its complications such as septicaemia. Ultrasound will guide clinician for early diagnosis of nature of pregnancy and thereby helps to appropriate management and to prevent unnecessary complications by misdiagnosis [8]. The present study was conducted to evaluate the cases of first trimester bleeding using ultrasound.

In this study, 15 cases were seen below 20 years of age, 34 were in 20-25 years age group, 23 were in 25-30 years age group, 10 were beyond 30 years of age. Ultrasonograph (USG) findings were threatened abortion (62), missed abortion (12), blighted ovum (6), incomplete abortion (8), complete abortion (6), hydatidiform mole (4) and pregnancy with Cu- T (4). Our results are in agreement with Barone CM [8].

We observed that ultrasound diagnosis was found to be effective than clinical diagnosis alone in detection of threatened abortion, brighted ovum, missed abortion and complete abortion. Achiron R *et al.* [9] in their study found that out of 102 cases of first trimester bleeding, 58 cases were diagnosed as threatened abortion clinically and ultrasound examination confirmed 40 cases. Out of 58 cases of threatened abortions, 31 cases continued to term gestation with success full outcome of 30.4%. All cases of threatened abortion (n=45), Incomplete abortion (n=25), Complete abortion (n=11), Missed abortion (n=6), Ectopic gestation (n=6), Inevitable abortion (n=3), Hydatidiform Mole (n=3), Early Embryonic Demice (n=1), An-embryonic Gestation (n=2) and were correctly diagnosed on USG and managed accordingly. Out of 102 cases all 102 cases were correctly diagnosed on ultrasound with 100% accuracy and sensitivity compared to 65 out of 102 cases on clinical diagnosis with a disparity of 36.2%.

Wittmann *et al.* [10] conducted a study to assess the outcome of threatened abortion following treatment. Total 70 cases of threatened abortion were selected. Out of 70 cases, subchorionic haematoma was found in 30 (42.9%) cases. There were 12 (17.1%) patients who spontaneously aborted after diagnosis of threatened abortion during hospital stay, 5 (7.1%) aborted on subsequent visits while 53 (75.8%) continued pregnancy till term. Among those who continued pregnancy intrauterine growth retardation was seen in 7 (13.2%), antepartum hemorrhage in 4 (7.5%), preterm premature rupture of membrane in 3 (5.66%) and IUD in 3 (5.66%). Spontaneous abortion was found more in cases with subchorionic hematoma of size more than 20 cm<sup>2</sup>.

**Conclusion**

Authors suggested that ultrasound diagnosis was effective than clinical diagnosis alone in detection of threatened abortion, brighted ovum, missed abortion and complete abortion. Ultrasonography is a useful tool in first trimester bleeding.

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