

ROLE OF TRANSVAGINAL SONOGRAPHY IN FIRST TRIMESTER BLEEDING: A CROSS SECTIONAL STUDY

Radio-Diagnosis

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ABSTRACT

Introduction: First trimester bleeding has several causes such as Incomplete miscarriage, Hydatiform mole, subchorionic hemorrhage, embryonic mortality, anembryonic pregnancy, failed intrauterine pregnancy, total miscarriage, and ectopic pregnancy. Transvaginal and trans abdominal techniques are used to examine first-trimester hemorrhage, transvaginal being preferred & better method. **Aims and objectives:** To evaluate various causes of first trimester bleeding and role of TVS in first trimester bleeding. **Material And Methods:** This cross-sectional study was conducted on 50 patients in the Department of Radiodiagnosis at Rajshree Medical Research Institute, Bareilly, Uttar Pradesh from 1st February 2021 to 31st July 2022. **Results:** Majority of participants were aged 19–25yrs (56.0%).USG Diagnosis showed Threatened abortion among 36.0%,Incomplete abortion among 22.0%, Complete abortion among 12.0%, Missed abortion among 8.0%,Ectopic gestation among 8.0%, Inevitable abortion among 6.0%,Anembryonic gestation among 4.0% and Hydatidiform mole among 4.0%.There was complete concordance between USG and Final Diagnosis.

KEYWORDS

First trimester bleeding, TVS.

INTRODUCTION

First trimester bleeding has several causes. Incomplete miscarriage, gestational trophoblastic illness, subchorionic haemorrhage, embryonic mortality, anembryonic pregnancy, failed intrauterine pregnancy, total miscarriage, and ectopic pregnancy.

Early pregnancy loss is nonviable intrauterine pregnancy with an empty gestational sac or embryo or fetus without fetal heart activity before 12 weeks and 6 days of gestation. Miscarriage is the loss of a fetal pregnancy.^[1]

In most cases, a patient's clinical history and exam cannot provide a firm diagnosis.Obstetricians and sonologists may have trouble diagnosing patients with poor medical histories. An ultrasound is crucial for determining the origin of first-trimester bleeding, assessing the pregnancy's condition, and deciding how to proceed.

Transvaginal and trans abdominal techniques are used to examine first-trimester haemorrhage. First, trans abdominal scan uses 2to5 MHz transducer. This enables for an unimpeded large view, including adnexal masses. Endovaginal probes work at 8 to 10 MHz.These allow for more precise inspection of uterus and ovaries and a possible early diagnosis.

The present study is undertaken to identify the common causes of First Trimester Bleeding at Rajshree Medical Research Institute,Bareilly, Uttar Pradesh.

OBJECTIVES:

To evaluate various causes of first trimester bleeding and role of TVS in first trimester bleeding.

METHODOLOGY

The present cross-sectional study was conducted on 50 patients in the Department of Radiodiagnosis at Rajshree Medical Research Institute, Bareilly Uttar Pradesh. Serial USG was done in cases of discrepancy.

Patient in age group of 18-45 years during first 12 weeks of pregnancy with complaints of bleeding per vagina and positive urine pregnancy test were included in study.

Women of reproductive age with a missed period with negative urine pregnancy test, those with more than 12 completed weeks of gestation& not consenting to participate in the study were not included

EQUIPMENT: Samsung SonoAce X7 ultrasound machine with 2.0 to 5MHz convex transducer and 4.0 to 9Mhz transvaginal transducer.

TECHNIQUE: Informed consent for Trans vaginal sonography was

taken. Examination by Trans vaginal sonography was preferred in all cases, Transabdominal sonography was added wherever required. The uterus and adnexa was evaluated for presence of intrauterine or extra uterine pregnancy. Gestational age was ascertained by Gestational sac or fetal pole size, presence of fetal pole / fetus or yolk sac was evaluated, presence or absence of fetal heart rate, abnormal or normal heart rate, and subchorionic bleed, in absence of intrauterine pregnancy adnexal mass with fluid or presence of fluid in upper abdomen was ascertained. The first definitive finding to suggest early pregnancy is visualization of the gestational sac.

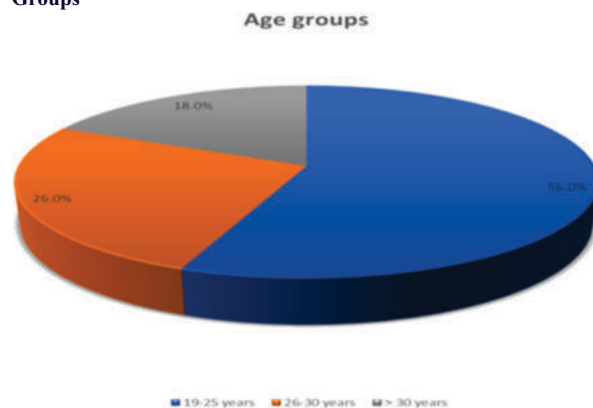
Statistical Analysis

Data was analyzed using Statistical Package for Social Sciences 16.0 (SPSS, IBM). Values was presented as actual number, percentage, mean and standard deviation (mean $\pm$ SD). The p-value of <0.05 was considered as statistically significant.

OBSERVATIONS AND RESULTS

50 patients with first trimester bleeding underwent transvaginal sonography.

Table 1: Distribution Of Study Population According To Age Groups

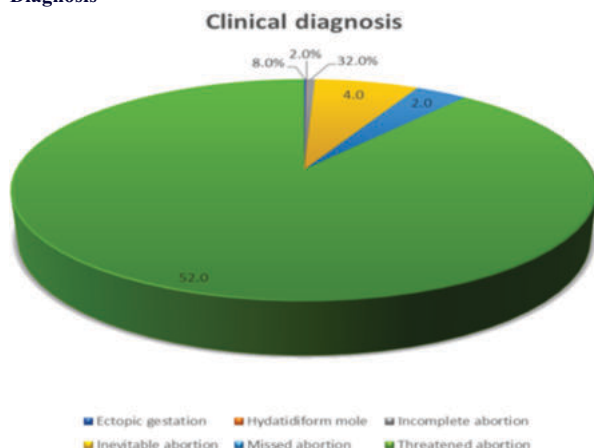


Majority of the study population belonged to 19-25 years (56.0%).

Gestational Sac was present among 28(56.0%), Fetal pole among 22(44.0%), Yolk sac among 12(24.0%) and Fetal Cardiac activity among 18(36.0%) cases.Less Liquor was reported among 2 (4.0%) subjects.Subchorionic bleed was present among 7(14.0%) subjects.Cervical OS was closed among 92.0% cases and Open among 8.0% cases.Adnexa was found to be Normal among 90.0%, ectopic as complex mass among 6.0%, Ectopic with sac & fetal pole among 2.0%

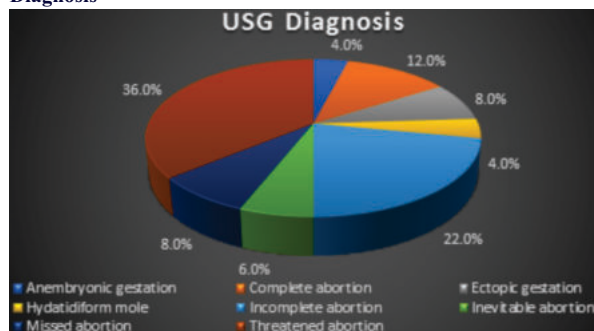
and Theca luteal cyst among 2.0% cases.

Table 2: Distribution Of Study Population According To Clinical Diagnosis



Majority(52.0%) of the subjects had a clinical diagnosis of Threatened abortion followed by Incomplete abortion(32.0%), Ectopic gestation(8.0%), Inevitable abortion(4.0%), Hydatidiform mole and Missed abortion(2.0% each).

Table 3: Distribution Of Study Population According To USG Diagnosis



USG Diagnosis showed Anembryonic gestation among 4.0%, Complete abortion among 12.0%, Ectopic gestation among 8.0%,Hydatidiform mole among 4.0%,Incomplete abortion among 22.0%,Inevitable abortion among 6.0%,Missed abortion among 8.0% and Threatened abortion among 36.0%.

Table 4: Distribution Of Study Population According To Final Diagnosis.

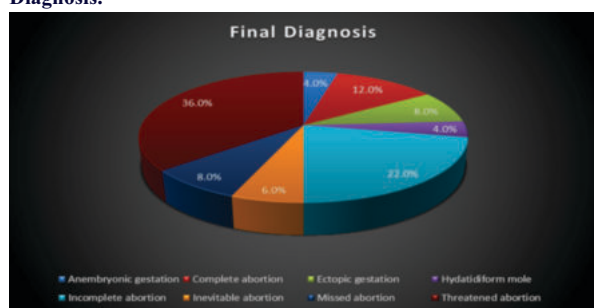


Table 5: Concordance Of USG And Final Diagnosis.

	USG Diagnosis		Final Diagnosis	
	Frequency	Percent	Frequency	Percent
Anembryonic gestation	2	4.0%	2	4.0%
Complete abortion	6	12.0%	6	12.0%
Ectopic gestation	4	8.0%	4	8.0%
Hydatidiform mole	2	4.0%	2	4.0%
Incomplete abortion	11	22.0%	11	22.0%
Inevitable abortion	3	6.0%	3	6.0%
Missed abortion	4	8.0%	4	8.0%
Threatened abortion	18	36.0%	18	36.0%

Final Diagnosis showed Anembryonic gestation among

4.0%,Complete abortion among 12.0%, Ectopic gestation among 8.0%,Hydatidiform mole among 4.0%,Incomplete abortion among 22.0%,Inevitable abortion among 6.0%, Missed abortion among 8.0% and Threatened abortion among 36.0%.

Conservative treatment was done for 31(62.0%), Dilatation and curettage among 16(32.0%) and Laparotomy among 3(6.0%) cases.Full term normal delivery was done for 14(28.0%) and pregnancy was terminated among 36(72.0%) cases.

There was complete concordance between USG and Final Diagnosis.

DISCUSSION

A typical and potentially concerning early pregnancy failure symptom is vaginal bleeding. One or more miscarriages may occur in about 25% of all pregnancies. Maternal age over 35 and the verge of menarche have a complicated relationship.

Age

In our study, the majority of participants were aged 19–25(56.0%),followed by 26–30 (26.0%),and individuals older than 30(18.0%). The mean age of the patients in his investigation, according to **Aronu et al.**,^[1] was 30.18 years old.According to **Guena et al.**,^[1] the individuals between the ages of 30 and 34 were more prevalent (31.4%). According to **Mamatha et al.**,^[4] the age group of 21–25 years was comprising the majority (46%), followed by 16–20 years(29%), 26–30(21%), and then 31–35 years (4%).

Clinical Diagnosis

In our study Clinical diagnoses for the majority (52.0%) of the individuals were threatened abortion, incomplete abortion (32.0%), ectopic pregnancy (8.0%), inevitable abortion (4.0%), hydatidiform mole (2.0%), and missed abortion (2.0%).

Mahajan et al.^[5] in their study reported clinical diagnosis -74.2% of cases as threatened abortions,6.1% to be complete abortions,3.0% incomplete abortions and 1.5% to be missed abortions.

Ultrasound

In the current study, 18(36.0%) cases had foetal pole with cardiac activity, 22(44.0%) had the foetal pole & no cardiac activity, 12(24.0%) had the yolk sac only, and 28(56.0%) had the gestational sac with no fetal pole or yolk sac.

90.0% of adenexa were found to be normal,6.0% ectopic as a complex mass, 2.0% ectopic with a sac and foetal pole, and 2.0% with theca luteal cysts. According to **Awdhut Tiparse et al.**,^[6] there were 26 (13%) ectopic pregnancy instances. All 20 were tubal pregnancies, of which 16 cases had accurate USG diagnoses and the other four had complete abortion diagnoses.

In the current study, the cervical ostia was closed in 92.0% of patients and open in 8.0%. **Mahajan et al.**^[5] observed that the cervical Ostia closed in 86.4% of patients & was open in 13.6% of patients and which is similar to our study.

In the current study, 14.0% of the participants had subchorionic bleeds. Subchorionic haemorrhage was observed in two patients with TVS but only one with TAS, according to **Kaur and Kaur's research.**^[7]

In the current study, USG diagnosis revealed threatened abortion in 36.0% of cases,incomplete abortion in 22.0% of cases,complete abortion in 12.0% of cases,ectopic pregnancy in 8.0% of cases,missed abortion in 8.0% of cases, inevitable abortion in 6.0% of cases, anembryonic gestation in 4.0% of cases and hydatidiform mole in 4.0% of cases.

According to their study, **Guena et al.**^[1] showed that the most common reason for first trimester vaginal bleeding was threatening abortion(29.8%), according to the results of ultrasonography. **Mahajan et al.**^[5] reported that on USG,55.3% of cases were classified as threatening abortion,15.2% as full abortion, 9.1% as missed abortion and incomplete abortion,6.1% as blighted ovum,3.4% as ectopic pregnancy, and 1.5% as complete hydatidiform mole. These findings were reported by.

In the current investigation, 4.0% of cases with anembryonic gestation were overlooked by clinical diagnosis but revealed by USG diagnostic.

Guena et al.^[3] discovered that 2.5% of patients had blighted ovums, which is similar to our study's findings.

Final Diagnosis

Final diagnosis revealed that 8.0% of cases had ectopic pregnancy, which was consistent with clinical diagnosis of 8.0%; 4.0% had hydatidiform mole, which contrasted with clinical diagnosis of 2.0%; and 6.0% had inevitable abortion and 22% had incomplete abortion, which was also incorrectly diagnosed in clinical diagnosis of 4.0% and 32.0%, respectively.

Missed abortion rates of 8.0% and threatened abortion rates of 36.0% were also contrasted with the corresponding clinical diagnosis rates of 2.0% and 52.0%. Clinical diagnosis missed complete abortion in 12.0% of cases and anembryonic gestation in 4.0% of cases and were not suspected on clinical diagnosis. The final diagnosis and the USG were entirely in agreement.

Aronu et al.^[2] found that the ultrasound diagnosis of 34.7% was contrasting with the clinical diagnosis of 65% for threatened abortion. The procedure of having an abortion can go fast from being threatened to being partially and fully accomplished. This might result in more complete miscarriages and incomplete abortions while fewer threatened abortions are carried out.

A statistically significant correlation between ultrasonography results and the severity of bleeding was discovered by **Guena et al.^[3]**. According to their study, there is a statistically significant correlation between the results of an ultrasound and the presence of blood clots and retained fetal tissue.

In their investigation, **Sofat et al.^[8]** evaluated and linked ultrasonography diagnosis with clinical diagnosis. They discovered that in cases of threatened abortion, missed abortion, molar pregnancy, and incomplete abortion, ultrasonography had a clear advantage over clinical diagnosis by roughly 30%, 40%, 95%, and 35%, respectively.



Figure 1. History of one month amenorrhea and severe pain. On TVS right ovary was bulky with complex mass and was diagnosed as right ectopic pregnancy.



Figure 2. History of two months amenorrhea with bleeding per vagina more than four days. On transabdominal USG internal Os was open with remanant products of conception in cervix and incomplete abortion was given as diagnosis. Diagnosis by USG

CONCLUSION

The use of ultrasound in the diagnosis of the reasons for vaginal bleeding in the first trimester of pregnancy is a useful tool. The decision-making process about safe continuation of pregnancy and

the prompt intervention for abnormal pregnancies may benefit from the information provided by ultrasound. It is essential to make prudent use of ultrasonography and have a good working relationship with the sonologist. However, it is important to keep in mind that an ultrasound is just a supplement to the pelvic examination and that it cannot take the place of an obstetric history or a clinical exam.

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