



ROLE OF ULTRASONOGRAPHY IN THE EVALUATION OF FIRST-TRIMESTER VAGINAL BLEEDING: A PROSPECTIVE STUDY

Radio-Diagnosis

**Dr. Dhanshria
Parsedia**

Department Of Radiodiagnosis, Amaltas Institute Of Medical Sciences

**Dr. Nirmal Kumar
Mittal***

Department Of Radiodiagnosis, Amaltas Institute Of Medical Sciences*Corresponding
Author

Dr. Renu Goindani

Department Of Radiodiagnosis, Amaltas Institute Of Medical Sciences

ABSTRACT

BACKGROUND & METHODS: First-trimester vaginal bleeding is one of the most common obstetric emergencies and may indicate viable or non-viable pregnancy. This prospective study included 125 pregnant women presenting with bleeding per vagina during the first trimester. All patients underwent clinical examination, transabdominal ultrasonography, transvaginal ultrasonography, and serum β -hCG evaluation where indicated. **RESULTS:** Threatened abortion was the most common diagnosis observed in 40 patients (32%), followed by incomplete abortion in 29 patients (23%), missed abortion in 16 patients (13%), complete abortion in 10 patients (8%), subchorionic hematoma in 10 patients (8%), molar pregnancy in 8 patients (6%), ectopic pregnancy in 6 patients (5%), and inevitable abortion in 6 patients (5%). Ultrasonography demonstrated excellent sensitivity and diagnostic accuracy in all evaluated conditions. A statistically significant correlation was observed between ultrasonographic findings and serum β -hCG trends. **CONCLUSION:** Ultrasonography is a highly sensitive and reliable imaging modality for evaluation of first-trimester vaginal bleeding. It helps in early diagnosis of ectopic pregnancy, pregnancy failure, and other obstetric complications, thereby guiding timely management and improving patient outcomes.

KEYWORDS

First-trimester Bleeding, Ultrasonography, Transvaginal Sonography, Ectopic Pregnancy, Threatened Abortion, B-HCG

INTRODUCTION

Bleeding per vagina during the first trimester affects approximately 20–25% of pregnancies and is a major source of maternal anxiety. Clinical examination alone is often insufficient for accurate diagnosis because symptoms overlap among viable and non-viable pregnancies. , particularly transvaginal sonography, plays a crucial role in evaluating pregnancy viability, location, and associated complications.

AIMS & OBJECTIVES

Aim: To evaluate the role of ultrasonography in diagnosing the causes of first-trimester vaginal bleeding.

Objectives:

To determine the spectrum of sonographic findings in first-trimester bleeding.

To correlate ultrasonographic findings with serum β -hCG levels.
To assess the diagnostic accuracy of ultrasonography.

MATERIAL & METHOD

Study Design: Prospective observational study.

Study Center: Department of Radiodiagnosis, Amaltas Institute of Medical Sciences, Dewas, Madhya Pradesh, India.

Sample Size: 125 patients.

Inclusion Criteria: Pregnant women with bleeding per vagina during the first trimester.

Exclusion Criteria: Bleeding beyond first trimester and non-pregnant causes of vaginal bleeding.

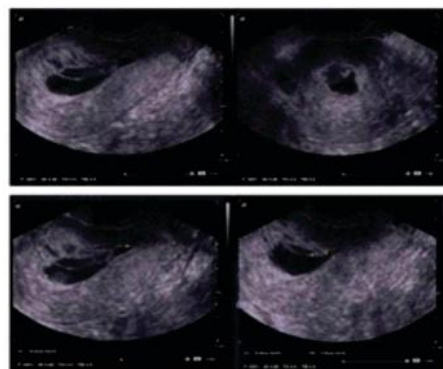
- All patients underwent clinical examination, transabdominal ultrasonography, transvaginal ultrasonography, and serum β -hCG evaluation where required.
- Statistical analysis was performed using SPSS software.

RESULTS

- Most patients belonged to the 21–25 years age group.
- Intrauterine pregnancy was identified in 95% of patients, while ectopic pregnancy accounted for 5% of cases.
- Threatened abortion was the most common diagnosis.
- Ultrasonography showed excellent sensitivity and specificity across all etiologies.

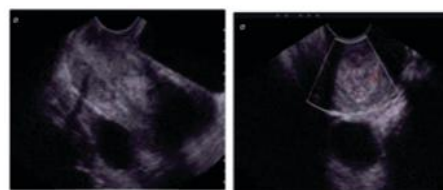
Diagnosis	Number of Patients (%)
Threatened abortion	40 (32%)
Incomplete abortion	29 (23%)
Missed abortion	16 (13%)
Complete abortion	10 (8%)
Subchorionic hematoma	10 (8%)
Molar pregnancy	8 (6%)
Ectopic pregnancy	6 (5%)
Inevitable abortion	6 (5%)

CASE 1



(A)(B)(C)(D) Transvaginal ultrasound showing irregular gestational sac (34mm 8weeks 1d) with fetal pole (crl 6.8 mm 6weeks 3d) and perigestational haematoma indicating threatened abortion

CASE 2



(A)(B) Transvaginal ultrasound showing retained products of conception with internal vascularity on color doppler study indicating incomplete abortion with associated ovarian cyst.

DISCUSSION & CONCLUSION

- The present study demonstrated that ultrasonography is highly effective in evaluating first-trimester vaginal bleeding and significantly improves diagnostic accuracy compared to clinical examination alone.
- Threatened abortion was the most common diagnosis in this study, similar to previously published literature.
- Early identification of ectopic pregnancy and pregnancy failure using ultrasonography allows prompt management and reduces maternal morbidity.

The study concludes that ultrasonography is an indispensable diagnostic modality for first-trimester bleeding and should be routinely used in conjunction with clinical examination and serum β -hCG assessment.

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