



SIGNIFICANCE OF ULTRASOUND IN CLINICALLY DIAGNOSED CAUSES OF VAGINAL BLEEDING IN FIRST TRIMESTER PREGNANCY

Radiodiagnosis

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ABSTRACT

Background: Nearly one-fourth (20-25%) of all pregnant women present with history of vaginal bleeding during the first trimester (1). Ultrasound imaging plays an important role in determining the causes of vaginal bleeding during first trimester of pregnancy. **Aims & Objectives:** To evaluate the significance of ultrasound in clinically diagnosed causes of vaginal bleeding in first trimester pregnancy. **Methods:** 100 women with vaginal bleeding during first trimester of pregnancy with clinical diagnosis were evaluated by ultrasonography [USG] and interpretation was compared. **Results:** Among these 100 cases, threatened abortion was the commonest cause of bleeding (30%) followed by incomplete abortion. Disparity was found between clinical diagnosis of first trimester vaginal bleed and ultrasound diagnosis. Ultrasound is highly sensitive and specific in diagnosing all causes of first trimester vaginal bleed including ectopic pregnancy. **Conclusion:** With good diagnostic performance, USG proves to be an important imaging modality in determining the causes of vaginal bleeding during first trimester of pregnancy and thus provides an aid for clinicians in better management of patients.

KEYWORDS

bleeding, trimester, ultrasonography

INTRODUCTION

First trimester is a period of rapid change that includes fertilization, formation of blastocyst, implantation, gastrulation, neurulation, embryonic period and early fetal life. However, this period is accompanied by high complication rates. First trimester bleeding is any vaginal bleed during the initial three months of pregnancy taking last menstrual period (LMP) as a landmark⁽²⁾. This bleed represents a myriad of pathologies. It is crucial and often equally difficult for the obstetricians to establish the exact cause of vaginal bleed during the first trimester of pregnancy, on the basis of clinical presentation and physical examination.

Ultrasonography on the other hand, being a non-invasive, safe⁽³⁾ and readily available imaging modality has proven to be an invaluable tool for evaluation of pregnancy. It has gained wide acceptability as an integral part of basic obstetric investigative procedures to assess location and viability of the pregnancy, including early diagnosis of life threatening pregnancy i.e. ectopic pregnancy.

In our study, we intend to establish the significance of ultrasound in evaluation of first trimester vaginal bleeding and to compare the results with the clinical diagnosis.

MATERIAL AND METHODS

100 patients with vaginal bleeding during first trimester of pregnancy were evaluated in the Department of Radiodiagnosis, M.G.M. Medical College and M.Y. Hospital, Indore from March 2019 to October 2020, after written informed consent and P.C.P.N.D.T. registration. Various causes of vaginal bleeding that were diagnosed clinically were confirmed by transabdominal and transvaginal ultrasound. Statistical analysis was done.

RESULTS

Out of studied 100 patients, majority of the patients (42%) were in the age group of 21-25 years followed by 26-30 years (31%), 17-20 years of age (15%) and 31-35 years of age (12%). The mean age group is 24.00 years (SD= 3.16).

Most commonly observed duration of vaginal bleed was 3-4 days seen in 38% women. 25% of women gave history of per vaginal bleeding for 1-2 days. The vaginal bleed was accompanied by pain in abdomen in 64% women. 55% patients were multigravida whereas remaining 45% were primigravida. Most of the patients presented with vaginal bleed in initial 10 weeks of gestation (71%).

TABLE 1. COMPARISON OF CLINICAL DIAGNOSIS & ULTRASOUND DIAGNOSIS

Causes	Clinical diagnosis		Ultrasound diagnosis		Disparity (%)
	Number	%	Number	%	
Threatened abortion	40	40	30	30	33.3
Incomplete abortion	17	17	14	14	21.4
Missed abortion	13	13	10	10	30
Complete abortion	11	11	8	8	66.6
Inevitable abortion	7	7	5	5	40
Hydatidiform mole	6	6	6	6	-
Ectopic pregnancy	6	6	5	5	20
Subchorionic haematoma	0	0	8	8	100

Uterine fibroid as an ancillary finding was diagnosed in about 12 patients with vaginal bleeding. Free fluid in cul de sac was found in 3 out of 5 cases with ectopic pregnancy.

DISCUSSION

Ultrasonography is instrumental in confirming the diagnosis of abnormal pregnancy based on a variety of ultrasound findings and the examination of the various ultrasound parameters i.e. gestational sac, mean sac diameter, yolk sac, fetal pole and fetal cardiac activity.

In our study, majority of the patients (42%) were in the age group of 21-25 years with mean age group 24.00 years (SD= 3.16), pertaining to the most common age of conception among Indian females. Most common duration of vaginal bleeding at the time of presentation to our hospital was 3-4 days (38%). Abdominal pain was associated with vaginal bleeding in 64% patients.

71% of the patients presented with vaginal bleeding in initial 10 weeks of gestation. A study carried out by Mackenzie et al (4) in UK found out that abortion at less than 10 weeks is 3 times greater than a gestation more than 10 weeks making it a critical period.

Threatened abortion was clinically suspected in 30 out of 32 cases confirmed by ultrasound examination. Similarly, molar pregnancy and ectopic pregnancy were clinically suspected in almost all cases. Hence, we can say that threatened abortions, molar pregnancies and ectopic pregnancies are almost always clinically diagnosed whenever patients present with vaginal bleeding in first trimester.

Among 5 cases of ectopic pregnancy, 3 patients had complex adnexal mass with free fluid in cul de sac and hemoperitoneum. These patients were confirmed with ruptured ectopic pregnancies intraoperatively. Thus, ultrasound examination not only helps in conformation of ectopic pregnancy but also aids in further treatment protocol by providing associated findings.

Disparity between clinical diagnosis and ultrasound examination was observed in almost all causes of vaginal bleed. In study done by Asha Hanamshetty et al (5) in 2014, disparity in the diagnosis of threatened abortion, missed abortion, incomplete abortion and molar pregnancy were observed to be 26.67%, 26.67%, 22.2% and 0% respectively. Status of cervix during pelvic examination is important for diagnosis of abortion but with closed internal os and unreliable clinical history, it becomes very difficult to reach at a definitive diagnosis clinically.

Out of total 100 studied patients, ultrasound provided correct diagnosis in 23% of clinically misdiagnosed patients apart from confirming the diagnosis in remaining 77%. Sofat et al (6) in her study concluded ultrasonography has an edge over clinical diagnosis by about 40% in missed abortion and 35% in incomplete abortion.

Our study showed that ultrasonography has 100% sensitivity in diagnosing causes of vaginal bleeding during first trimester of pregnancy with specificity of 85.71% in threatened abortion, 96.51% in incomplete abortion, 96.67% in missed abortion, 95.7% in complete abortion, 97.89 in inevitable abortion, 100% in hydatidiform mole and 98.95% in ectopic pregnancy.



Figure 1. Transvaginal ultrasound showing irregular gestational sac (34mm 8weeks 1d) with fetal pole and peri-gestational haematoma indicating threatened abortion.

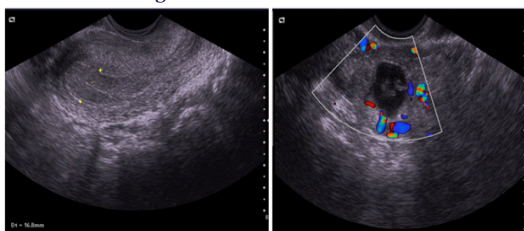


Figure 2. Transvaginal ultrasound showing empty uterus with thick endometrium; gestational sac, fetal pole seen in left adnexa with no fetal cardiac activity indicating left adnexal ectopic pregnancy.

CONCLUSION

First trimester bleeding is associated with high number of pregnancy loss. Clinical history and pelvic examination are insufficient in assessing the cause and the outcome during follow up. Ultrasound is a cardinal adjuvant to clinical examination in the evaluation of first trimester bleeding since it helps in differentiating non-viable gestation from potentially normal gestation.

Disparity was found between clinical diagnosis and ultrasonographic diagnosis. Ultrasound is highly accurate in diagnosing the causes of first trimester bleeding and guides the clinician in choosing the appropriate line of management and prevents mismanagement of the cases.

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