A PROSPECTIVE CLINICAL STUDY OF ROLE OF ULTRASOUND IN FIRST TRIMESTER VAGINAL BLEEDING

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Abstract

Introduction: Hemorrhage in the first trimester is a common emergency during childbirth and the most common sign of ultrasound during the first trimester. It appears that in 15-25% of all pregnant women, the risk of vaginal bleeding is relatively high. Ultrasonography plays an important role in determining the cause of bleeding in the vagina, its various causes, and the detection of intrauterine or extra-uterine pregnancy.

Materials and methods: The study includes all obstetric cases attending department of Obstetrics and Gynecology, Ashwini Rural Medical College, Solapur with history of bleeding per vaginum in first trimester from January 2021 to December 2021. Sample size of 50 cases who presented with history of bleeding in first trimester of pregnancy have been included. It is a hospital based prospective study of patients who present with bleeding per vaginum in the first trimester of pregnancy during the study period. Clinical details like age, parity, obstetric history, personal history, medical history, past history, menstrual history and details of present pregnancy in terms of period of amenorrhoea at the time of first episode of bleeding, amount and duration of bleeding whether associated with pain abdomen or not and history of expulsion of fleshy mass /clots were noted.

Results: Total obstetric cases was 2104, out of which 50 cases had bleeding per vagina in first trimester (2.37%). majority of them in the age group of 21-25 years constitutes 48%. 15 cases (30%) in 18-20 years, 7 (14%) in 26-30 years, 4 (8%) in 31-35 years. The mean age was 23 years. In the study as per clinical diagnosis, majority of cases, 24 (49%) cases were clinically diagnosed as threatened abortion, 13 (26%) cases as incomplete abortion, 4 (9%) cases as missed abortion, 2 (4%) cases as ectopic pregnancy, 3 case as complete abortion, 2 cases as inevitable abortion and one case as molar pregnancy.

Conclusion: Ultrasound is sensitive, cost effective and non-invasive diagnostic tool in first trimester bleeding. In this study, it helped in correct diagnosis of clinically misdiagnosed cases apart from confirming the diagnosis in others.

Key Words: Hemorrhage, Ultrasonography, pain abdomen, amenorrhoea.

INTRODUCTION

Hemorrhage in the first trimester is a common emergency during childbirth and the most common sign of ultrasound during the first trimester. It appears that in 15-25% of all pregnant women, the risk of vaginal bleeding is relatively high. Ultrasonography plays an important role in determining the cause of bleeding in the vagina, its various causes, and the detection of intrauterine or extra-uterine pregnancy.[1]

Three-dimensional (3D) ultrasound and Doppler ultrasound recent advances provide predictive values for assessing pregnancy failure by measuring 3D pregnancy volume and uteroplacental flow, respectively. The first trimester of pregnancy is in the first 12-13 weeks, calculated as starting on the first day of the last menstrual period (LMP).[2]

The advantages of ultrasound imaging include its wide availability, very low cost, and real-time imaging, with high resolution. Ultrasound is used during the first-trimester to establish gestational age, to detect and evaluate the pregnancy pouch and pregnancy's effectiveness, and in the second-trimester to test the fetus's structure.[3]

In addition, it can be used to diagnose ectopic pregnancy, molar pregnancy, RPOC (retained products of contraception), and other pregnancy-related complications.[4]

Bleeding from the vagina is a common first-trimester problem. The causes of first trimester bleeding are classified as obstetric and nonobstetric. Nonobstetrical causes include trauma, cervicitis, vaginitis, cystitis, cervical cancer, and polyps. Obstetric causes include embryonic demise, subchorionic hemorrhage, an embryonic pregnancy, incomplete abortion, ectopic pregnancy, and gestational trophoblastic disease. Bleeding has been linked to prenatal birth, low birth weight, and infants of pregnancy age. Inconsistent results have been reported concerning bleeding and birth defects.[5]

The purpose of this study is to show the importance of ultrasound in identifying the cause of vaginal bleeding occuring in first trimester, to assess the prognosis and to institute appropriate obstetric management.

MATERIALS AND METHODS

The study includes all obstetric cases attending department of Obstetrics and Gynecology, Ashwini Rural Medical College, Solapur with history of bleeding per vaginum in first trimester from January 2021 to December 2021. Sample size of 50 cases who presented with history of bleeding in first trimester of pregnancy have been included.

It is a hospital based prospective study of patients who present with bleeding per vaginum in the first trimester of pregnancy during the study period. Clinical details like age, parity, obstetric

history, personal history, medical history, past history, menstrual history and details of present pregnancy in terms of period of amenorrhoea at the time of first episode of bleeding, amount and duration of bleeding whether associated with pain abdomen or not and history of expulsion of fleshy mass /clots were noted.

Clinical examination including general physical examination and pelvic examination was done to arrive at a provisional clinical diagnosis.

Patients were then subjected to ultrasound examination. Data was collected in a preformed proforma. Clinical and ultrasound findings were correlated. Transvaginal sonography was done using 7-12 mhz transducer. Analysis were made based on appropriate statistical methods.

Inclusion criteria:

All patients who present with bleeding per vagina and admitted for the same in first trimester of pregnancy

Exclusion criteria: Nil.

Statistical Analysis:

The crosstabs procedure forms two-way and multiway tables and provides a variety of tests and measures of association for two-way tables. The structure of the table and whether categories are ordered determine what test or measure to use. Cramer's V test was employed in the present study. All the statistical methods were carried out through the SPSS for Windows (version 21.0).

RESULTS

Total obstetric cases was 2104, out of which 50 cases had bleeding per vagina in first trimester (2.37%). majority of them in the age group of 21-25 years constitutes 48%. 15 cases (30%) in 18-20 years, 7 (14%) in 26-30 years, 4 (8%) in 31-35 years. The mean age was 23 years.

Age in years	Number of patients	Percentage
18-20	15	30
21-25	24	48
26-30	7	14
>30	4	8
Total	50	100

Table 1: Age Distribution

Parity distribution	Number of patients	Percentage
Primigravida	16	32
Multigravida	34	17
Total	50	100

Table 2: Distribution of cases according to parity

In the present study, 16 (33%) primigravida and 33 (67%) multigravida. Majority of cases 36 (72%) had uterine size <10 weeks and 8 (16%) between 10-12weeks. Cervical OS was open in 15(31%) cases and closed in 35 (69%) cases. Fornices was free in 46 (92%) cases and tender in 4 (8%) cases.

In the study as per clinical diagnosis, majority of cases, 24 (49%) cases were clinically diagnosed as threatened abortion, 13 (26%) cases as incomplete abortion, 4 (9%) cases as missed abortion, 2 (4%) cases as ectopic pregnancy, 3 case as complete abortion, 2 cases as inevitable abortion and one case as molar pregnancy.

The ultrasonographic features of 50 cases, 6 (13%) showed signs of viable pregnancy. 15 (30%) cases showed disorganised gestational sac or few echogenic debris indicating incomplete abortion. 11(22%) cases were visualised as fetal echoes with absence cardiac activity indicating missed abortion, 3 (7%) showed an empty gestational sac with no fetal pole indicating anembryonic gestation which is totally a sonographic diagnosis. In 4 (9%) cases uterus was empty but with an adnexal mass hence diagnosed as ectopic pregnancy, 4 (9%) cases with empty uterus was suggestive of complete abortion, 5 (10%) cases were diagnosed as molar pregnancy by the presence of vesicles in the uterine cavity.

Causes	Number of patients	Percentage
Abortion	40	80
Ectopic pregnancy	5	10
Hydatiform mole	5	10
Total	50	100

Table 3: The causes of bleeding per vagina in first trimester of pregnancy

DISCUSSION

Ultrasound is the first line of reasoning to evaluate the various causes of hemorrhage in the first trimester. Bleeding in the vagina in the first trimester is seen in the first trimester of pregnancy, and half of them end in miscarriage. Ultrasound plays a diagnostic role in confirming and identifying the various causes of bleeding in the first trimester.[6]

In the present study various abortions contributed to a major cause of first trimester bleeding constituting 81%. In Rani et al, Bhargava et al study, Mamatha Shivanagappa et al study group also abortion is the leading cause of early pregnancy bleeding with an incidence of 61%, 81.6%, 83% respectively. The incidence of ectopic pregnancy is 9% and molar pregnancy is 10%. But the incidence of ectopic pregnancy and molar pregnancy in Rani et al, Bhargava et al and Mamatha Shivanagappa et al study is 21% and 18%, 13% and 4.35% and 13% and 4% respectively.[7]

In our study the incidence of viable pregnancies on ultrasound is 13% and 78% of nonviable pregnancies. Hertz et al, Nyberg et al and Stabile et al had an incidence of 58%, 44% and 64% of viable pregnancies and 42%, 52% and 36% of non-viable pregnancies respectively.[8]

In our study, 50 clinically diagnosed cases were confirmed on ultrasound with disparity of 72%. The present study is comparable to Ghorade study which is of 68%. Khanna, Rani et al of 50% and 42% between clinical and ultrasound diagnosis respectively.[9]

In our study all cases of threatened abortion, missed abortion, incomplete abortion, complete abortion, anembryonic gestation and molar pregnancy were diagnosed accurately on ultrasound with accuracy of 100%. The results of present study are comparable with Sofa et al and Bharadwaj et al in diagnosing missed abortion, incomplete abortion, anembryonic gestation and Hydatiform mole with 100% accuracy.[10]

CONCLUSION

In the present study, USG played a very important role in the diagnosis of cause of first trimester bleeding. It can diagnose threatened abortion positively. Missed abortion, anembryonic gestation and incomplete abortion, ectopic gestation and molar pregnancy are reliably diagnosed. Patient with complete abortions were accurately identified, so that unnecessary curettage was avoided with a consequent reduction in morbidity. Therefore ultrasound diagnosis in first trimester bleeding is a key diagnostic tool. Ultrasonography has helped in establishing the correct diagnosis of clinically misdiagnosed cases, confirm the diagnosis in the others and provide the most appropriate management in all of them. Today, Ultrasound definitely has an edge over clinical diagnosis in evaluating the cause for bleeding in the first trimester and can be rightly expressed as a component of the obstetrician's diagnostic armamentarium.

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