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 indication 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 source 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 Gynaecology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand with history of bleeding per vaginum in first trimester from January 2023 to December 2023. Sample size of 100 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 4208, out of which 200 cases had bleeding per vagina in first trimester (2.37%). The above table shows, majority of them in the age group of 21-25 years constitutes 48%. 60 cases (30%) in 18-20 years, 28 (14%) in 26-30 years, 16 (8%) in 31-35 years. The mean age was 23 years. In the present study, 66 (33%) primigravida and 134 (67%) multigravida. Majority of cases 144(72%) had uterine size <10 weeks and 32 (16%) between 10-12weeks. Cervical OS was open in 62(31%) cases and closed in 138 (69%) cases. Fornices was free in 184 (92%) cases and tender in 16 (8%) cases. In the study as per clinical diagnosis, majority of cases, 98 (49%) cases were clinically diagnosed as threatened abortion, 52 (26%) cases as incomplete abortion, 18 (9%) cases as missed abortion, 8 (4%) cases as ectopic pregnancy, 14 case as complete abortion, 8 cases as inevitable abortion and 2 cases 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, primigravida, multigravida, first trimester bleeding.

INTRODUCTION

Hemorrhage in the first trimester is a common emergency during childbirth and the most common indication 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 source 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 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 complications 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 Gynaecology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand with history of bleeding per vaginum

in first trimester from January 2023 to December 2023. Sample size of 100 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 methods: The descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values (z scores). Variables can be ordered by the size of their means (in ascending or descending order), alphabetically, or by the order in which the researcher specifies. Following descriptive statistics were employed in the present study-mean, standard deviation, frequency and percent. All the statistical methods were carried out through the SPSS for Windows (version 21.0).

RESULTS

Total obstetric cases was 4208, out of which 200 cases had bleeding per vagina in first trimester (2.37%). The above table shows, majority of them in the age group of 21-25 years constitutes 48%. 60 cases (30%) in 18-20 years, 28 (14%) in 26-30 years, 16 (8%) in 31-35 years. The mean age was 23 years.

Age in years	Number of patients	Percentage
18-20	60	30
21-25	96	48
26-30	28	14
>30	16	16

Total	200	100

Table 1: Age distribution

Parity distribution	Number of patients	Percentage
Primigravida	66	33
Multigravida	134	67
Total	200	100

Table 2: Parity distribution

In the present study, 66 (33%) primigravida and 134 (67%) multigravida. Majority of cases 144(72%) had uterine size <10 weeks and 32 (16%) between 10-12weeks. Cervical os was open in 62(31%) cases and closed in 138 (69%) cases. Fornices was free in 184 (92%) cases and tender in 16 (8%) cases.

According to ultrasound diagnosis, out of 200 cases, 27(13.5%) were diagnosed as threatened abortion, 55(27.5%) as incomplete abortion, 45(22.5%) as missed abortion, 19(9.5%) as complete abortion, 16(8%) as anembryonic gestation, 18(9%) as ectopic pregnancy and 20(10%) as molar pregnancy.

Causes	Number of patients	Percentage
Abortion	162	81
Ectopic pregnancy	18	9
Hydatiform mole	20	10
Total	200	100

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

The above table shows that major cause for bleeding per vagina in first trimester is abortion. In the present study, 81% had abortion as the major cause. The second cause is molar pregnancy constituting 10% followed by ectopic pregnancy which constitutes 9%.

DISCUSSION

Bleeding per vaginum in the first trimester is one of the most common emergency encountered which warrants for an ultrasound examination. The causes of bleeding are many and cover a spectrum of conditions ranging from a viable pregnancy to that of a non-viable one. Accurate diagnosis of the nature of pregnancy (viable or non-viable) can help institute the appropriate treatment.[6] The sonographic landmarks of the first trimester of pregnancy have been well recognized which includes identification of gestational sac, fetal pole, fetal cardiac activity, movements, yolk sac and amnion. The invaluable role of these landmarks, gestational sac and

fetal biometry in diagnosing abnormalities and predicting the pregnancy outcome has been clearly documented. Ultrasonography has opened new dimensions in early pregnancy bleeding so that specific treatment, medical or surgical, can be immediately instituted.[7]

Clinical history and pelvic examination are inadequate in assessing the cause and the prognosis. Ultrasound thus plays a dominant role in such cases and aid in managing them in the most appropriate way.[8]

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.[9]

In our study, 200 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.[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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