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AN ASSESSMENT INTO THE DIAGNOSTIC VALUE OF ULTRASOUND IN THE FIRST TRIMESTER OF PREGNANCY BLEEDING

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Abstract

Background: One of the most prevalent obstetric issues is vaginal bleeding in the first trimester. It's also one of the most prevalent reasons for emergency admissions, as well as a reason for ultra-sound evaluation in the first trimester. In the first trimester, over a quarter of all pregnant female experience bleeding.

Aims and objective: The purpose of this research was to determine the diagnostic value of ultra-sonography in first-trimester haemorrhage.

Materials and method: All pregnant female who experienced per vaginal bleeding during the first trimester were included in this research. A semi-structured questionnaire was used to assess all of the selected instances. To arrive at a clinical opinion, a full history and comprehensive clinical evaluation were undertaken, including general, systemic, per abdominal, and per vaginal evaluations. In all of the cases that were chosen, ultra-sonography was used. The results of the clinical evaluation and ultra-sonography were documented.

Results: On clinical evaluation, 164 cases of threatened abortion were identified, whereas ultra-sonography verified 102 cases of impending abortion. In 62 cases, there was a discrepancy in opinion. Complete abortion had a 16 percent inconsistancy, while incomplete abortion had a 4 percent inconsistancy. In 20 cases of Blighted ovum, there was a inconsistancy. Out of 214 occurrences of first trimester bleeding, abortion was diagnosed in 200 cases (93.46 percent), ectopic pregnancy in 10 cases (4.67 percent), and hydatiform mole in four cases (1.87 percent). Clinical opinion had a 100% sensitivity in diagnosing a viable intrauterine pregnancy, but only a 44.6 percent specificity. Clinical opinion has a poor statistical correlation in diagnosing nonviable pregnancies, with a sensitivity of 39%.

Conclusion: Ultra-sonography has thus been established as a critical diagnostic tool in obstetrics. It is a readily available diagnostic tool that aids in the early detection of problems associated with first-trimester haemorrhage. It was established in the aforementioned research that it had an essential role in the opinion of first trimester haemorrhage.

Key Word: first trimester bleeding, ultasonography, diagnostic importance

Introduction

One of the most prevalent obstetric issues is vaginal bleeding in the first trimester. It's also one of the most prevalent reasons for emergency admissions, as well as a reason for ultra-sound evaluation in the first trimester[1]. In the first trimester, over a quarter of all pregnant female experience bleeding. Vaginal haemorrhage and mild-to-moderate supra-pubic or mid-line lower abdominal pain that may spread to the lower back are common symptoms[2-4]. The clinician should inquire about prior pregnancy confirmation, the last known menstrual period, when the bleeding started, the amount and nature of the bleeding, and current medications (ovulation agents put a woman at risk for a heterotopic pregnancy, which is an IUP and an EP simultaneously) [5-7]. A complete blood count, WBC count with differential to rule out infection, urinalysis to rule out urinary tract infection, gonorrhea/chlamydia swab, Rh-type, qualitative -hCG, transvaginal ultra-sound, quantitative -hCG, and serum progesterone levels are all part of the diagnostic workup for a woman who presents with early pregnancy bleeding[8-10]. In early pregnancy bleeding, the TVUS and quantitative-hCG are currently considered first-line diagnostics[11]. According to the data, TVUS is used to diagnose 91 percent of EPs, which is preferable to transabdominal ultra-sound because of its improved sensitivity. Ultra-sound (both trans-abdominal and transvaginal sonography) is used to diagnose the reasons of first-trimester bleeding, as well as to prognosticate and forecast the outcome of an abnormal pregnancy[12].

Materials and Method

The current one-year cross-sectional research was undertaken in the tertiary care institute's department of obstetrics and gynaecology with the goal of researching first trimester bleeding cases. The research subjects were chosen using the following inclusion and exclusion criteria.

All pregnant female who present with vaginal bleeding are eligible. The gestation period is less than 12 weeks. All causes of vaginal bleeding that aren't related to pregnancy are excluded. Patients who are pregnant and have vaginal bleeding with a gestational age of greater than 12 weeks. Female who refused to take part in the research?

Using the above-mentioned inclusion and exclusion criteria, a total of 214 female with first-trimester haemorrhage were enrolled in the research. The semistructured questionnaire had been pretested on a group of pregnant female who had first trimester bleeding and met the research's eligibility requirements. The questionnaire was adjusted and verified for the full trial based on these findings. To arrive at a clinical opinion, a full history and a comprehensive clinical evaluation were undertaken, including general, systemic, per abdominal, and per vaginal evaluations. The patients were subsequently exposed to an ultra-sound evaluation, after which a specific treatment plan was devised. With a sector probe 3.75 MHz frequency transducer, a trans abdominal scan (TAS) was performed.

Results

Table 1: Distribution according to inconsistancy between clinical opinion and ultra-sound opinion

Cases	Clinical opinion	Ultra-sonography	Opinion Inconsistancy
Threatened-abortion (TA)	164 (76.6 %)	102 (47.7 %)	62
Complete-abortion (CA)	10 (4.7 %)	26 (12.2 %)	16
Incomplete-abortion (IA)	14 (6.5 %)	18 (8.4 %)	4
Inevitable-abortion (IEA)	8 (3.7 %)	10 (4.7 %)	2
Missed-abortion (MA)	8 (3.7 %)	24 (11.2 %)	16
Blighted ovum (BO)	0 (0.00 %)	20 (9.4 %)	20
Ectopic pregnancy (EP)	10 (4.7 %)	10 (4.7 %)	0
Complete mole (CM)	0 (0.00 %)	4 (1.9 %)	4

76.6 percent of female were diagnosed with clinically threatening abortion, whereas 6.5 percent were diagnosed with incomplete abortion. In 4.7 percent of instances, both complete abortion and ectopic pregnancy were discovered. On ultra-sonography, 47.6% of female were found to be at danger of having an abortion. 12.15 percent of female were diagnosed with a complete abortion, whereas 11.22 percent were diagnosed with a missed abortion. 8.41% of female were found to have had an incomplete abortion. On clinical evaluation, 164 cases of threatened abortion were identified, whereas ultra-sonography verified 102 cases of impending abortion. In total, 62 occurrences of discrepancy were discovered. Complete abortion had a 16 percent inconsistancy, while incomplete abortion had a 4 percent inconsistancy. In 20 cases of Blighted ovum, there was a inconsistancy.

Table 2: Causes of bleeding per vaginum in the first trimester of pregnancy

Causes	Number	Percentage
Abortion	200	93.5 %
Ectopic	10	4.7 %
Hydatidiform mole	4	1.9 %

Out of 214 cases of first trimester bleeding, abortion was identified in 93.5 percent of the cases, ectopic pregnancy in 4.7 percent of the cases, and hydatiform mole in 1.9 percent of the cases.

Table 3: Diagnostic importance of clinical evaluation in first trimester bleeding

Parameters	True positive	False positive	False negative	True negative
Viable intrauterine pregnancy	102	62	0	50
Ectopic pregnancy	10	0	0	204
Nonviable intrauterine pregnancy	40	0	62	110

Table 4: Clinical opinion Vs Ultasonography opinion

Clinical opinion	Number of cases	Ultasonography opinion
TA	164	Pregnancy continued-102
		CA -16
		IA -4
		IEA -2
		MA -16
		BO -20
		CM-4
CA	10	All cases were confirmed on USG
IA	14	
IEA	8	
MA	8	
Ectopic	10	
CM	0	NA
BO	0	

Only 102 cases were continued as live pregnancies out of 164 cases clinically identified as threatened termination. The remaining 62 cases were clinically misdiagnosed, with 16 cases being identified as complete abortion, 16 cases being classified as missed abortion, and 20 cases being diagnosed as blighted ovum. In four cases, incompetent abortion and full mole were established, while two cases were of unavoidable abortion. Clinically, no case of blighted ovum or entire mole was found. On ultra-sonography, ten cases of clinically diagnosed ectopic pregnancy were confirmed as ectopic pregnancy.

Discussion

The purpose of this research was to investigate first trimester bleeding and connect clinical findings with Ultra-sonography in the department of obstetrics and gynaecology. Clinically threatening abortion was detected in 76.6 percent of the female, while incomplete abortion was detected in 6.5 percent of the female. In 3.7 percent of instances, both complete abortion and ectopic pregnancy were discovered[13]. On clinical evaluation, the most common finding was threatening abortion. All of the female in the research had their ultra-sounds done, and 47.7% of them had their threatened abortion confirmed. 12.15 percent of female were found to have had a complete abortion, whereas 11.22 percent were found to have had a missed abortion. 8.41% of female had an abortion that was not completed[14]. On ultra-sonography, Gawade S et al found that threatened abortion was the most common opinion (44 percent), followed by missed abortion (22 percent). In 12.7 percent of cases, blighted ovum was a new opinion that could not be diagnosed by clinical procedures. The results of this investigation were likewise similar to those found by Asha Hanamshetty et al, Mamatha Shivanagappa et al, and S. Sujatha et al in their studies. In their research, Gawade S et colleagues found that 86.67 percent of cases were clinically identified as threatening abortion, whereas only 50.77 percent of cases received a comparable opinion on ultra-sound, resulting in a 49.23 percent inconsistancy[15-17]. In their research, Mamatha Shivanagappa et colleagues found that abortion was the leading cause of first trimester bleeding, accounting for 83 percent of cases. Ectopic pregnancy was reported to be 13 percent of the time, and mole was reported to be 4 percent of the time. Abortion was also the major reason in Rani et al's research, with a 61 percent incidence rate. For statistical purposes, the participants in the research group were classified into three categories: viable intrauterine pregnancy, non-viable intrauterine pregnancy, and ectopic pregnancy. Clinical opinion has a 100% sensitivity in diagnosing a viable intrauterine pregnancy, but only a 44.64 percent specificity. The accuracy of clinical opinion in diagnosing a viable intrauterine pregnancy was 71.028 percent[18]. All ectopic pregnancies detected clinically were verified with 100 percent sensitivity and specificity, as well as 100 percent diagnostic accuracy. Clinical opinion has a poor statistical correlation in diagnosing nonviable pregnancies, with a sensitivity of 39.22%, specificity of 100%, NPV of 64.36 percent, and accuracy of 71.028 percent. In their research, Mamatha Shivanagappa et al found that 46 out of 94 cases of suspected viable intrauterine gestation were verified on clinical evaluation, with a sensitivity of 82 percent, specificity of 52 percent, PPV of 40 percent, and NPV of 88 percent. All nine ectopic pregnancies detected clinically were confirmed, with a specificity of 100%, a PPV of 100%, and an NPV of 92%. Clinical opinion demonstrated a poor statistical correlation in diagnosing non-viable pregnancies, with sensitivity of 50%, specificity of 81 percent, PPV of 62 percent, and NPV of 72 percent. As a result, the findings were equivalent to those of the current research. Threatened abortion was clinically detected in 130 (86.67 percent) cases in a

research by Gawade S et al. Only 66 cases (50.77 percent) were confirmed as threatening abortions by ultra-sonography. Clinical diagnoses of ectopic pregnancy (2%), hydatiform mole (0.67%), and impending abortion with cervical polyp (0.67%) were all well-correlated with ultra-sound findings. In a prospective research of 150 patients with first trimester bleeding, Jaideep Maihotra et al discovered that ultra-sonography helped confirm the correct opinion in 32 percent of clinically misdiagnosed cases. He came to the conclusion that ultra-sonography was the only imaging technique that could accurately detect first trimester haemorrhage from a diagnostic and prognostic standpoint. Sofat and colleagues examined and linked clinical and ultra-sonography diagnoses. Ultra-sound was found to have a distinct advantage over clinical opinion. To summarise, the causes of bleeding in this research spanned a wide range of situations, from a viable pregnancy to a non-viable pregnancy. In cases of abortion, ultra-sound evaluation was a good predictor of evacuation. Pregnancy with a higher possibility of a live birth might be distinguished from a problematic pregnancy that required early termination using ultra-sound. The old belief was that nothing beats an obstetrician's two fingers, but ultra-sound has now been proven to have a distinct advantage. Ultra-sound is often referred to as the obstetrician's third finger.

Conclusion

As a result, we conclude that clinical evaluation is less accurate than ultra-sonography in detecting a viable intrauterine pregnancy. When compared to USG, clinical opinion had the same diagnostic accuracy in diagnosing ectopic pregnancies. Clinical opinion has a low accuracy rate when it comes to diagnosing nonviable pregnancies as compared to USG. Ultra-sonography has thus been established as a critical diagnostic tool in obstetrics. It is a readily available diagnostic tool that aids in the early detection of problems associated with first-trimester haemorrhage. It was established in the aforementioned research that it had an essential role in the opinion of first trimester haemorrhage.

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