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Ultrasonographic Evaluation of First Trimester Bleeding and its Clinical Assessment: A Prospective Study

Authors
Manik Mahajan[1*], Poonam Sharma[2], Sonika Gupta[3]
[1]Lecturer, Department of Radio-Diagnosis & Imaging, Government Medical College, Jammu
[2]Consultant Pathologist, Atulaya Healthcare, Jammu
[3]Consultant Gynaecologist and Obstetrician, District Hospital, Udhampur
*Corresponding Author
Manik Mahajan
House no 109, Sector-7, Channi Himmat, Jammu (J&K), India - 180015

Abstract
Introduction: *Vaginal bleeding during the first trimester is a common obstetric condition. It is the commonest cause of admissions in the obstetric department and a common reason for ultrasonography (USG) during First Trimester of pregnancy. Approximately 20-25% women in their first trimester complain of vaginal bleeding and it may range from an insignificant episode to life threatening emergency. The major causes are abortion, ectopic pregnancy and molar pregnancy. Clinical history and pelvic examination are inadequate in assessing the cause and prognosis. USG plays a pivotal role in the evaluation of causes of first trimester bleeding, and prognosticate and predict the status of pregnancy.*
Aims: *To evaluate the role of USG in first trimester bleeding per vaginum and to correlate the findings with clinical assessment*
Material and Methods: *This hospital based cross sectional study was conducted over a period of 1 year. All the pregnant patients presenting with complaints of bleeding per vaginum in the first trimester of pregnancy were included in the study. Complete clinical evaluation and general physical was performed done to arrive at a clinical diagnosis and patients were then subjected to ultrasound examination. Clinical findings and ultrasound diagnosis were correlated*
Results: *On USG, Threatened abortion was the commonest cause of bleeding and seen in 55.3% cases. Complete abortion was seen in 15.2% cases while missed abortion and incomplete abortions were seen in 9.1%. Five cases of ectopic pregnancy and 2 cases of complete molar pregnancy were also seen. On clinical examination, threatened abortion was suspected in 74.2% patients while ectopic pregnancy and complete abortions were suspected in 15.2% and 6.1% patients. 56 cases with threatened abortions on USG continued to term gestation with timely and urgent management. Total disparity between clinical diagnosis and USG diagnosis was present in 60.6% cases and clinical diagnosis was confirmed by USG in 82 cases indicating accuracy of clinical diagnosis to be 62.1%.*
Conclusions: *USG is a valuable and easily available tool in the evaluation of patients with first trimester vaginal bleeding. It is highly accurate in identifying the actual cause of bleeding and guides the clinician in choosing appropriate line of management. Ultrasound is helpful in the decision-making algorithm about the timely intervention and safe continuation of the pregnancy.*

Introduction

Vaginal bleeding during pregnancy is any discharge of blood from the vagina. It may occur any time from conception to the term of pregnancy. First Trimester vaginal bleeding is a commonly encountered situation causing anxiety to both patient and obstetrician. Approximately 20-25% of pregnant women will have bleeding during early gestation[1]. It may range from insignificant episode to life threatening emergency[2]. Several diagnostic possibilities can be considered in patients with first trimester vaginal bleeding. Before the advent of ultrasonography (USG), these patients were managed only clinically. The causes of bleeding are variable and cover a spectrum of conditions ranging from viable pregnancy to non viable pregnancy. However on clinical examination and pelvic examination alone, definite diagnosis is not possible in majority of patients.

USG (both transabdominal and transvaginal) play a significant role in evaluating the causes of first trimester bleeding, prognosticate and predict the status of abnormal pregnancy. Ultrasound helps in confirming the presence of pregnancy, to know whether pregnancy in intrauterine or extrauterine, confirmation of viability, estimation of period of gestation and assessment of any associated pelvic pathology. Diagnosis of nature of the pregnancy by USG can avoid unnecessary complications and misdiagnosis in first trimester bleeding[3]. So the study was taken up to compare the utility of USG and clinical examination findings in first trimester vaginal bleeding.

Material and Methods

This prospective study was performed in tertiary care centre in north India over a period of one year from Ist January 2017 to 31st December 2017. All consecutive patients with a history of bleeding per vaginum in the first trimester of pregnancy were included in the study. Women having non-obstetric causes for vaginal bleeding and all patients with more than 12 completed weeks of gestation were excluded. Clinical data such as age, obstetric history, menstrual history, and details of present pregnancy such as period of amenorrhea at the time of first episode of bleeding, amount and duration of bleeding, pain abdomen and history of expulsion of fleshy mass/clots were noted. All patients were subjected to transabdominal sonography using GE Logiq P5 Pro ultrasound machine. Transvaginal sonography (TVS) was performed whenever transabdominal sonography was inconclusive or equivocal. On USG examination presence or absence of gestational sac, location of the gestational sac, size of gestational age compared to the period of amenorrhea, margins of the gestational sac, presence or absence of foetal pole, crown rump length (CRL), cardiac activity and presence of fluid in the cul-de-sac were noted. Bilateral adnexa were scanned to rule out ectopic gestation and other pathology. USG findings were corroborated with clinical findings.

Results

132 Pregnant Women (Ist Trimester) and presenting with vaginal bleeding were included in the study. The age ranged from 19 to 42 years. 77 (58.3%) cases were primigravida while 55 (41.7%) were multigravida. 92 cases (69.7%) had uterine size <10 weeks and 30 (30.3%) had uterine size between 10 and 12 weeks. Cervical Os was open in 18 (13.6%) and closed in 142 (86.4%) patients. Fornices were free in 112 patients (84.8%) while forniceal tenderness was present in 20 cases (15.2%).

On clinical examination, 98 (74.2%) cases were diagnosed as threatened abortion, 8 (6.1%) as complete abortion, 4 (3.0%) as incomplete abortion and 2 (1.5%) as missed abortion (Table 1). No case of blighted ovum or molar pregnancy was clinically suspected. On USG out of 132 cases, 73 (55.3%) were diagnosed as threatened abortion, 20 (15.2%) as complete abortion, 12 (9.1%) each as missed abortion and incomplete abortion (Table 2). 8 (6.1%) cases of blighted ovum, 5 (3.4%) cases of ectopic pregnancy and 2 (1.5%) cases of complete hydatiform mole were

also seen (Table 2). Total disparity between clinical diagnosis and USG diagnosis was present in 60.6% cases and clinical diagnosis was confirmed by USG in 82 cases indicating accuracy of clinical diagnosis to be 62.1%. In the follow-up, out of 98 cases of threatened abortion on clinical examination, 73 cases were confirmed by USG out of which 56 cases continued to term gestation and rest ended as abortions.

Table 1: Diagnosis on Clinical Examination

Clinical Diagnosis	No of Patients	Percentage
Threatened Abortion	98	74.2
Missed Abortion	2	1.5
Blighted Ovum	0	0
Incomplete Abortion	4	3.0
Complete Abortion	8	6.1
Ectopic Pregnancy	20	15.2
Molar Pregnancy	0	0
Total	132	100

Table 2: Diagnosis on Ultrasonography

USG Diagnosis	No of Patients	Percentage
Threatened Abortion	73	55.3
Missed Abortion	12	9.1
Blighted Ovum	8	6.1
Incomplete Abortion	12	9.1
Complete Abortion	20	15.2
Ectopic Pregnancy	5	3.4
Molar Pregnancy	2	1.5
Total	132	100

Discussion

Bleeding per vaginum in the first trimester of pregnancy is one of the most common obstetric problems. Bleeding in early pregnancy is an indicator of an abnormality interrupting the normal development and is a common cause of hospital admission[4]. If the viability or non-viability of pregnancy can be made on USG, then hormonal therapy and hospitalization can be avoided[5]. This is usually impossible with history and clinical examination and can be established only by USG. The sonographic hallmarks of Ist trimester have been well documented and include identification of gestational sac, fetal pole, fetal movements, yolk sac and amnion[6].

On USG, 73 cases of threatened abortion and 20 cases of complete abortion were seen. 20 cases of complete abortions, 12 cases each of incomplete abortion and missed abortion and 8 cases of blighted ovum were also seen. Ectopic pregnancy was seen in 5 cases while complete mole was seen in 2 cases. In patients with threatened abortion, subchorionic bleeds of varying size were seen in approx. 49 cases (68.1%). The results were similar to study by Shivagamma et al[4] who also observed subchorionic bleeds in approx. 71% cases. During follow up, 56 cases had full term delivery (75.7%) without any complications.

All cases of complete abortion, Missed abortion, blighted ovum & incomplete abortions were diagnosed accurately by USG and thus facilitated early decision for termination. Complete abortion was easily diagnosed on USG as empty uterus and normal endometrial echoes. The results of our study are comparable with previous studies[7,8]. This helped in avoiding unnecessary intervention and facilitated early discharge from hospital. Ectopic and molar pregnancies were also diagnosed accurately by USG and managed appropriately, reducing patient morbidity & mortality.

Total disparity between clinical diagnosis and USG diagnosis was present in 60.6% cases and clinical diagnosis was confirmed by USG in 82 cases indicating accuracy of clinical diagnosis to be 62.1%. The present study is comparable to the study by Ghorade et al[9]. Sofat et al[7] in their study compared and correlated clinical diagnosis and ultrasound diagnosis. They found that ultrasound had a definite edge over clinical diagnosis by about 30% in case of threatened abortion, 40% in missed abortion, 95% in molar pregnancy, and 35% in incomplete abortion. Malhotra J et al[10] in his prospective evaluation of 150 patients with first trimester bleeding found that ultrasonography helped in establishing the correct diagnosis in 32% of clinically misdiagnosed cases. He concluded that ultrasonography was the only imaging modality, by which an accurate assessment of first trimester bleeding can be done from the diagnostic and prognostic point of view.

The implications of low concordance and wrong diagnosis is that without the confirmation of the

result, some diagnosis like molar pregnancy and ectopic pregnancy would have been missed. This will invariably lead to increased morbidities and possible mortalities[11]. Also over diagnosis in cases of threatened abortion (which is mainly managed conservatively) would mean that some cases which could have benefitted from surgical or medical evacuation would have been missed leading to delayed treatment or no treatment[11].

Conclusions

First Trimester Vaginal bleeding in is a common obstetric problem and causes anxiety both to the patients and the obstetrician. Clinical history and pelvic examination are often insufficient in assessing the cause of bleeding and the outcome of pregnancy. USG is an extremely valuable non invasive tool in the identifying the causes of first trimester vaginal bleeding. It is also helpful in the decision-making algorithm about the safe continuation of the pregnancy and timely intervention for abnormal pregnancy. High incongruity was seen in our study between clinical diagnosis and USG diagnosis. Correct management of cases depends on correct diagnosis and correct diagnosis is very difficult without USG in cases of first trimester vaginal bleeding.

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