



Role of Transabdominal And Transvaginal Ultrasonography In Early Pregnancy Complications

KEYWORDS

early pregnancy bleeding , transabdominal and endovaginal ultrasonography scanning.

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ABSTRACT Bleeding per vagina is the commonest presentation in early (first trimester) pregnancy(1). Clinical assessment most of the time difficult hence ultrasonography is necessary to determine for the present of embryo and its viability and also to exclude the other cause of bleeding. Now a days with improved ultrasonography technology and high resolution endovaginal or transvaginal ultrasonography early diagnosis is possible which in turn helps the obstetrician in terms of management and relief for the patients. Nearly all instances of first trimester bleeding can be adequately evaluated by ultrasonography. Causes of first trimester bleeding in pregnancy are threatened abortion, missed abortion, incomplete abortion, subchorionic bleeding, ectopic or extrauterine pregnancy and scar pregnancy.

The main objective of our study was to evaluate the pregnant patients presented with history of bleeding per vagina in early pregnancy upto 12wks pregnancy i.e first trimester of pregnancy using high resolution transvaginal and transabdominal ultrasonography and to evaluate the cause of bleeding either threatened abortion, missed abortion, incomplete abortion, subchorionic bleeding, ectopic or extrauterine pregnancy, scar pregnancy, trophoblastic disease, implantation bleeding/physiological. Other non-obstetric causes include uterine, vaginal or cervical pathology ie infection.. This is a prospective study of 100 pregnant patients. In our study only primi and second gravid patients were under consideration. Second gravid patients with history of previous cesarean section having bleeding in early pregnancy were also considered under the study. All were referred to us for ultrasonography examination. The patients included in the study were in the age group of 18 years to 45 years. All pregnant patients carrying pregnancy upto 12wks were under consideration. Out of 100 patients 75 (75 %) were primi and rest 25 patients were second gravida (25%). Among the 25 second gravid 18 patients had previous cesarean section. The sonographic findings in few cases i.e having ultrasound diagnosis of ectopic/scar/heterotrophic pregnancy were confirmed with surgical findings.

Introduction :

The application of modern electronic techniques of signal processing, display and improvement in transducer materials have resulted in the development of advanced ultrasonic scanner, has led to superior image quality which has further enhanced the sensitivity for diagnosis. The first trimester of pregnancy starts at the first day of last menstrual cycle and continues until the end of twelfth week. Although conception normally occurs two weeks after the LMP, LMP is chosen as the start of first trimester. The first trimester of pregnancy is an important period often fraught with complications like bleeding and pain, leading to severe apprehension in the mother. Prior to the advent of ultrasonography all these patients were empirically managed only clinically, many a times along the wrong line. Ultrasonography however has revolutionized the management in such cases of early pregnancy complications and thus immediate conclusion therapy can be instituted in almost all the cases. Ultrasonography is important for diagnosis of single or multiple pregnancy at the earliest, localization of the site of sac implanted, viability of embryo, presence of hemorrhage, for diagnosis of molar pregnancy, anembryonic pregnancy, presence of extrauterine or heterotrophic pregnancy. The major advantages of ultrasonography is the rapidity with which the images are obtained. It is non-invasive, relatively inexpensive and can be performed even at bed side. It does not involve the use of ionizing radiation and is safer in pregnant patients.

Material and methods :

This is prospective study of one year. In this study total 100 pregnant patients were under consideration. All these patients were presented with history of bleeding per vagina. Only first trimester pregnant patients were included in the study. All these patients were referred for ultrasound screening. The patient under study were from the age of 18 years to 45 years. Only first and second gravid patients were considered. The patients were examined in the supine position and both transvaginal and transabdominal sonography were performed. All the patients were examined with 3.5 MHZ transabdominal and 5MHZ transvaginal transducer on trivitron/aloka alpha 6 colour Doppler machine. Ultrasonography examination includes presence of intrauterine or extrauterine gestational sac, number of sacs, presence of foetal pole with viability or not, presence of perigestational collection, evidence of heterotrophic pregnancy also presence of pelvic collection. Patients with ultrasonic diagnosis of ectopic/heterotrophic pregnancy underwent laparotomy.

Results :

In the present study 100 pregnant patients presenting with bleeding per vagina were considered. Patients from the age of 18 years to 45 years were considered in this study. Out of which maximum patients were in the age group of 18 years to 25 years (70 %) followed by the age group of 25 years to 45 years (30 %). Primigravida with early pregnancy bleeding were commonly seen in 75% while second gravid were about

25% . Various causes of bleeding in early pregnancy that we come across on transabdominal and transvaginal sonography was various types of abortion.

Table 1 various causes of first trimester bleeding on ultrasonography

Causes	No of cases
Various types of abortion	68
Ectopic pregnancy	17
Vesicular mole	12
Heterotopic pregnancy	02
Scar pregnancy	01
Total	100

Table 2. types of abortion diagnosed on ultrasonography

Ultrasound diagnosis	No. of cases	Percentage
Missed abortion	21	21
Threatened Abortion	22	22
Blighted ovum	18	18
Incomplete Abortion	7	7

Out of total 100 patients, 68 patients were of abortion(2)(3). In these 68 patients 21 patients were of missed abortion, 22 patients were of threatened abortion, 18 patients were of blighted ovum and 7 patients were of incomplete abortion. 17 patients were diagnosed as ectopic pregnancy, vesicular mole was found in 12 patients and 2 patients were having intrauterine and extrauterine i.e heterotopic pregnancy and only 1 patients was having scar pregnancy. Thus abortion was observed as the commonest complication in the first trimester bleeding is abortion. In present study of 68 patients of abortion 22 patients were of threatened abortion and they were clinically managed and pregnancy was continued. Out of 100 patients 17 patients were diagnosed to have ectopic pregnancy(7). Out of 17 cases of ectopic pregnancy 11 patients presented with bleeding with pain in abdomen and were having adnexal mass with free fluid in pelvis(4)(5)(6), these patients underwent laparotomy and ultrasonic diagnosis was confirmed. 6 patients of ectopic pregnancy were managed with medical line of treatment (4). Vesicular mole was found in 12 patients in our study. Sonography remains the most important diagnostic tool in molar pregnancy (8). Out of 100 patients only 2 patients presented with intrauterine and extrauterine pregnancy with free fluid in pelvic cavity. Both the patients had undergone laparotomy. Thus heterotopic pregnancy is rare(9)(10). In our study we had only patient of scar pregnancy conservatively managed (11)(12).

Discussion :

This was a prospective study based on transabdominal and high Resolution transvaginal ultrasonography in 100 patients with bleeding per vagina in early first trimester of pregnancy. All the patients underwent transabdominal and endovaginal ultrasonography. Patients with the age group between 18 years to 45 years were considered. Of which the maximum age group involved were between 18-25 years (70%). Involvement of primigravida patients were more as compared to multi gravida. The various first trimester complica-

tions we came across in our study are as follows.

1. Missed abortion – The diagnosis of missed abortion is determined by the ultrasound identification of an embryo without any heart activity in an embryo greater than 5mm by transvaginal ultrasound or 9mm by transabdominal ultrasound(13). In our study we had 21 (21%) patients of missed abortion.

2. Threatened abortion- In our study abortion constituted the single largest group of 68% of which 22% were of threatened abortion with successful outcome of 20 patients(14). In these patients ultrasound shows regular gestational sac with live embryo showing cardiac activity, however in 2 patients the sac was irregular and finally there was early pregnancy loss(15). Fig 1

3. Blighted ovum—In our study blighted ovum was diagnosed in 18 cases(18%). On sonography only sac was observed and no embryo was seen both on transabdominal and endovaginal ultrasonography. On transabdominal sonography a gestational sac greater than 20mm without yolk sac or 25mm without an embryo is diagnostic of blighted ovum.(16)

4. Incomplete abortion- Incomplete abortion was found in 7 patients (7%) in our study. Incomplete abortion or incomplete miscarriage is a term given to miscarriage where there are retained products of conception still within the uterus. Ultrasound appearance was mixed echogenic mass in cavity. Presence of vascular supply and feeding vessel makes the diagnosis. In more chronic cases the retained products may be avascular(17).

5. Ectopic pregnancy – In our study there were 17 patients of ectopic pregnancy. Ultrasound showed complex adnexal mass in 13 patients with empty uterine cavity. there was increased vascularity on Doppler around the mass i.e ring of fire sign(21). 2 patients were having live extrauterine pregnancy. Another 2 patients showed complex adnexal cyst/mass. 3 patients with adnexal mass had free fluid in pelvic cavity(18). The sonographic appearance of an ectopic is varied. There may be a simple adnexal cyst, complex adnexal mass, tubal ring, free fluid in the adnexa-cul-de sac, a live extrauterine fetus, or any empty uterus with no other sonographic findings (19)(20). Fig 2

6. Vesicular mole - Vesicular mole was found in 12 patients. 10 out of 12 were with complete molar and 2 with partial molar pregnancy. On sonography a distended endometrial cavity containing multiple variable sized anechoic cyst with intervening hyperechoic material. 8 patients with molar pregnancies had theca luteal ovarian cysts.(22) .

7. Heterotopic pregnancy - A heterotopic pregnancy is a rare complication of pregnancy(9)(10). In this both extra-uterine and intrauterine pregnancy occur simultaneously. It may also be referred to as a combined ectopic pregnancy, multi-sited pregnancy or coincident pregnancy. The prevalence is estimated at 0.6-2.5:10,000 pregnancies(10). In our study only 2(2%) cases of heterotopic pregnancy were diagnosed sonologically. In natural conceptions, the incidence of heterotopic pregnancy has been estimated to be 1 in 30,000 pregnancies(23). Fig 3

8. Scar pregnancy- caesarean scar ectopic pregnancy is a rare type of ectopic pregnancy that becomes implanted in caesarean section scar. It is often called the rarest type of pregnancy(24). The overall incidence is however thought to be increasing (25). Only one patient(1%) in our study had presented with scar pregnancy. On sonography uterine cavity and cervical canal is empty. gestational sac seen in anterior part of lower uterine segment. Absence of myometrium between bladder wall and sac. Fig 4

Conclusion :

1. The present study is the prospective study of 100 cases of obstetrics with first trimester bleeding and their evaluation by both trans-abdominal and transvaginal ultrasonography.
2. The incidence is maximum in primigravida and less in multigravida.
3. Maximum no of patients were in the age group of 18-25years.
4. In present study the commonest cause of bleeding in early pregnancy are the various types of abortion. And the rarer cause are heterotopic pregnancy and caesarean section scar pregnancy

Ultrasonography has become the gold standard in diagnosing the cause of early pregnancy bleeding. With the introduction of transvaginal sonography possibility for early morphological and biometrical ultrasound examinations has been significantly improved. The essential aim of early pregnancy ultrasound is not only to diagnose pregnancy but also to differentiate between normal and abnormal pregnancy. Ultrasonographic evaluation is a sensitive investigation which helps in early diagnosis of causes for vaginal bleeding in first trimester pregnancy. Major morbidity or mortality can be prevented by early surgical intervention. Ultrasonography should be done in all patients with vaginal bleeding during first trimester of pregnancy. Transvaginal sonography is more sensitive so it should done in all cases. Ultrasonography is the only imaging modality today by which an accurate assessment of first trimester bleeding can be done from diagnostic and prognostic point of view.

Fig 1- usg shows threatened abortion

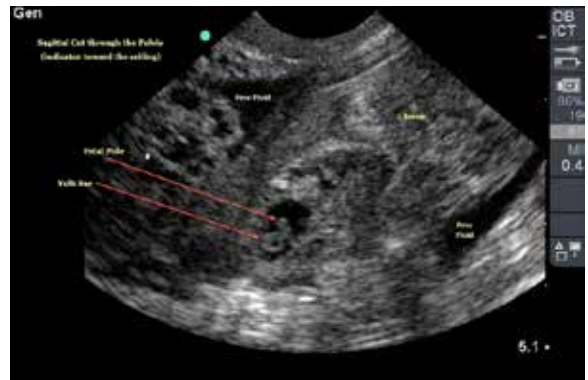


Fig 2. Usg showing live ectopic pregnancy with free fluid in pelvis



Fig 3- Usg showing intrauterine and extrauterine pregnancy



Fig 4- Usg showing scar pregnancy

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