Ultrasonographic evaluation of first trimester vaginal bleeding

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Abstract: *Objective:* Precisely identifying the incidence and causes of vaginal bleeding occurring in first trimester by clinical and transvaginal ultrasonography and to assess the outcome and to institute appropriate obstetric management. *Materials and Method:* A Cross-sectional study done in 100 patients attending Al-Ameen hospital with historyof bleeding per vagina in first trimester during the 2013-2014 (study period). Study subjects were examined and USG was performed. *Result:* In our study the age group ranged from 16-35 yrs and majority of study subjects belonged to 21-25 years, constituting percentage of 46and majority of patients were primigravida constituting 60%. In our study, mean gestational age at which cases presented with bleeding in first trimester was 9 weeks. Majority of the cases that is 35 of them with bleeding per vagina were between gestational ages 6-8 weeks. *Conclusion:* In present study ultrasound has helped in diagnosing and confirming most of the cases of first trimester vaginal bleeding.

Keywords: First Trimester, Vaginal Bleeding, Transvaginal Ultrasonography

Introduction

Vaginal bleeding is a common first trimester complication, often considered to be a sign of a problem in pregnancy. It occurs in 20- 25 % of pregnant women [1]. The significance, initial diagnosis, and clinical approach to vaginal bleeding depend on the gestational age and the bleeding characteristics. Vaginal bleeding during early pregnancy is associated with a 1.6-fold increased risk of many adverse outcomes, including preterm labor (PTL) preterm premature rupture of membranes (PPROM) and antepartumhemorrhage (APH) [2]. As bleeding persists or recurs later in pregnancy, the risk of associated morbidities grows [3]. 50% of the women who suffer from vaginal bleeding during early pregnancy go on to have a normal pregnancy [3].

Causes of bleeding include subchorionic hemorrhage, embryonic demise, anembryonic pregnancy, incomplete abortion, ectopic pregnancy and gestational trophoblastic disease. Laboratory test and imaging technique like ultrasonography are then used to confirm or revise the initial diagnosis [4]. Ultrasound also plays a role of utmost importance in confirming the pregnancy, site of pregnancy, viability, and in predicting whether a pregnancy has a good chance of continuing or it is destined to fail or has already failed. The three major causes of bleeding in first trimester are Abortions, Ectopic pregnancy and Gestational trophoblastic disease. Ultrasound helps in assessing the type of abortion. Life threatening emergency like ectopic pregnancy, when evaluated by ultrasound gives scope for conservative approach without affecting the fertility status. Ultrasound being non invasive and easily accessible is preferred, though laparoscopy remains the gold standard in diagnosing ectopic pregnancy.

Aims and Objectives:

1) To evaluate the causes of bleeding per vagina in first trimester of pregnancy by transvaginal ultrasonography.
2) To assess the outcome and to institute appropriate obstetric management.

Material and Methods

A Cross-sectional study done in 100 patients attending Al-Ameenhospital with historyof bleeding per vagina in first trimester during the study period.

History based upon: The patient's gestational age and the character of her bleeding, light or heavy, associated with pain or painless, intermittent or constant. *Clinical examination:* Auscultation of fetal heart sounds by Doppler (if it has been at least 10 to 11 weeks since last normal menses. *Per speculum:* Os open or closed.

Per vaginal: Size and position of uterus. Laboratory tests including beta subunit of human chorionic gonadotropin testing and imaging technique like transvaginal ultrasonography are then used to confirm or revise the initial diagnosis.

Results

The present Cross sectional study was undertaken in women presenting from first day of last menstrual cycle to 12 weeks of gestation with history of bleeding per vagina during the study period to evaluate the causes of bleeding and to assess the outcome and to institute appropriate obstetric management.

Table-1: Representing distribution of cases according to age group

Age in years	Number	Percentage (%)
16-20	27	27
21-25	46	46
26-30	23	23
31-35	4	4
Total	100	100

Table-2: Showing distribution of cases according to parity

Parity distribution	Number	Percentage %
Primigravida	60	60
Multigravida	40	40
Total	100	100

Table-3: Showing distribution of cases according to period of gestation

Period of gestation in weeks	Number of cases	Percentage %
6.1-8	35	35%
8.1-10	32	32%
10.1-12	33	33%
Total	100	100

Table-4: Displaying the Ultrasonographic features of cases in the study

Pregnancy	Number of cases	Percentage %
Viable	37	37
Non viable	59	59
Total	100	96

Total number of subjects were 100. Majority were in the age group of 21-25 yrs. (46%), and rest 16-20 yrs. (27%), 26-30 yrs. (23%), 31-35 yrs. (4%) (Table 1). Sixty percent of the cases were primigravida (Table 2). All the cases were equally distributed in gestational age group i.e. 6-8 weeks, 8-10 weeks and 10-12 weeks (Table 3). Ultrasonographic evaluation revealed viable product of conception in 37% and non-viable product of conception in 59% of cases (Table 4).

Causes of first trimester bleeding as evident on ultrasonography is further categorized according causes in table 5,6,7, figure 1 and figure 2. Depending on the patient's presentation and general status treatment was instituted. Thirty three percent were managed conservatively, whereas 63% underwent instrumental evacuation and 4% underwent laparotomy (Figure 3).

Table-5: Showing distribution of cases according to Ultrasound diagnosis

Ultrasound diagnosis	Number of cases	Percentage %
Threatened abortion	40	40
Incomplete abortion	35	35
Compete abortion	2	2
Missed abortion	9	9
Anembryonic gestation	10	10
Ectopic pregnancy	2	2
Molar pregnancy	2	2
Total	100	100

Table-6: Showing the causes of bleeding per vagina in first trimester of pregnancy

Causes	Number	Percentage (%)
Abortion	96	96
Ectopic pregnancy	2	2
Hydatidiform mole	2	2
Total	100	100
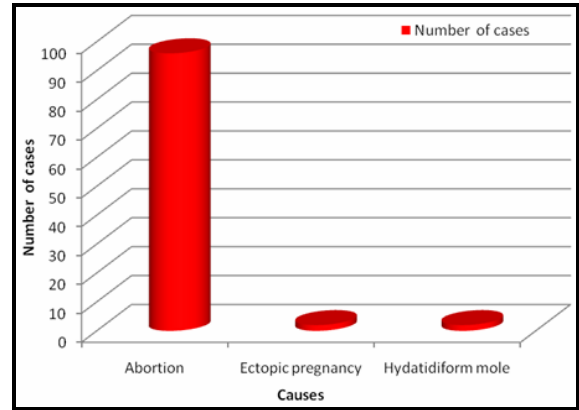
Table-7: Showing follow up of cases diagnosed on ultrasonography

Cases	No of cases diagnosed on USG	Follow up and results
Threatened abortion	40	All cases were confirmed
Incomplete abortion	35	All cases were confirmed
Anembryonic gestation	10	All cases were confirmed
Missed abortion	9	All cases were confirmed
Ectopic pregnancy	2	All cases were confirmed
Molar pregnancy	2	All cases were confirmed
Complete abortion	2	All cases were confirmed

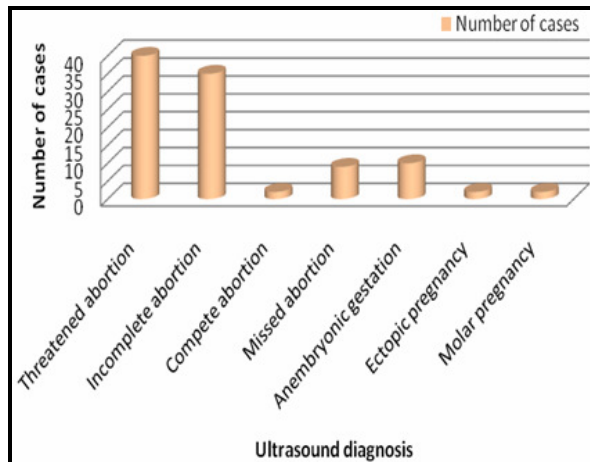**Fig-1:** Showing distribution of cases according to Ultrasound diagnosis

Fig-2: Showing the causes of bleeding per vaginum in first trimester of pregnancy

Fig-3: Showing the management of cases of first trimester bleeding
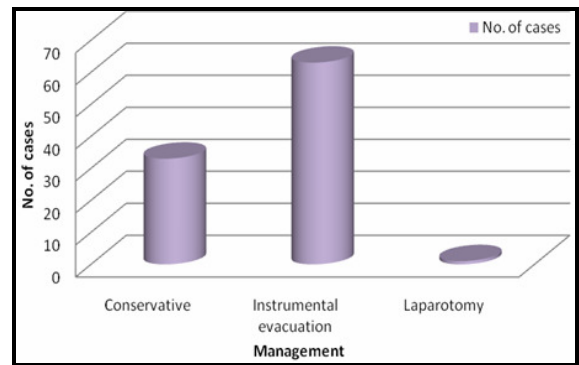
Discussion

Nearly 25% of all pregnant women in their first trimester complain of bleeding [1]. By clinical history and examination helps the clinician make provisional diagnosis, which is then confirmed on ultrasound. The causes of bleeding are many and cover a spectrum of conditions ranging from a viable pregnancy to non viable pregnancy. Ultrasonography has opened new dimensions in early pregnancy bleeding so that specific treatment medical or surgical can be immediately instituted. Ultrasound examination gives a good index for evacuation in cases of abortion other than threatened abortion.

Parameters used for assessment.

Age distribution: In our study the age group ranged from 16-35 yrs and majority of study subjects belonged to 21-25 years, constituting percentage of 46%. 27% cases were in the age

group 16-20 years, 23% in the age group of 26-30 years and 4% cases between the age group 31-35 years. A similar study done by Reem Hasan et al [4] in 2010 majority of patients were in age group of 28-34yrs, constituting 45.9 %. Another study done by Zhila Amirkhan et al [5] in 2013 cases majority were in age group of 25-34 yrs that is 53.3% , 26.7% in age of 15-24yrs and 20% in age >35yrs.The difference in the age group was statistically significant (p=0.000).

Parity: In our study majority of patients were primigravida constituting 60% and multigravida constituting 40%. A similar study was done by Zhila Amirkhan et al [5] in 2013(60) cases majority of cases were primigravida 30% and multigravida 13%.

Period of gestation: In our study, mean gestational age at which cases presented with bleeding in first trimester was 9 weeks. Majority of the cases that is 35 of them with bleeding per vagina were between gestational ages 6-8 weeks, 32 cases had bleeding between gestational ages 8-10 weeks and 33 cases had bleeding between gestational ages 10-12 weeks. A similar study done by Neelam Bharadwaj [6] majority of patients were in gestational age of 8-10 weeks constituting 35 cases, 6-10 weeks 30 cases and 10- 12 weeks 22 cases. In present study various abortions contributed to a major cause of first trimester bleeding constituting 96%. In P Reddi Rani [2] study group also abortion is the leading cause of early pregnancy bleeding with an incidence of 61% and 81.6% respectively. The incidence of ectopic pregnancy is 2% compared to other study with incidence of 13% and 21%. The incidence of H. mole in present study is 2% compared to other studies of P Reddi Rani et al and who had an incidence of 18% and 4.35% respectively.

In our study out of 40 cases of sonographically diagnosed threatened abortion, subchorionic bleed was noted in 27 cases, which is 27% when compared to Steven R et al [3], and Jan Fog Peduson et al [7] which is 20% and 18%. Our study has got increased incidence of subchorionic bleeds. In our study the incidence of viable pregnancies on ultrasound is 37% and 59 % of

non viable pregnancies which is similar to Charles W Schauberger et al [8]'s study. Hertz et al [9], Nyberg et al [10] and Pederson et al [11] had an incidence of 58%, 44% and 64% of viable pregnancies and 42%, 52%, 36% of non-viable pregnancies respectively. 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 Rama Sofat [12] and Neelam S.Bharadwaj [6] in diagnosing, missed abortion, incomplete abortion, anembryonic gestation and Hydatidiform mole with 100% accuracy.

In our study 39 cases were managed conservatively as ultrasound showed viable pregnancy, 57 cases underwent instrumental evacuation as they were non viable and 1 case underwent Laparotomy and 1 case no follow up. A similar study was done by Zhila Amirkhan et al [5] in 2013 23 cases continued to term, with normal vaginal delivery, 18 cases underwent instrumental evacuation and 25 cases underwent cesarean section.

Conclusion

Ultrasound is a very valuable tool in the diagnosis of various causes of bleeding per vagina in first trimester of pregnancy. Ultrasound positively helps in accessing the safe continuation of pregnancy, timely intervention for abnormal pregnancy and avoiding unnecessary intervention in those cases who do not need them. Anembyonic gestation is diagnosed only by sonography. In present study ultrasound has helped in diagnosing and confirming most of the cases of first trimester vaginal bleeding.

Till now it was thought that nothing was better than the two fingers of an obstetrician, but today Ultrasound has a definite edge over it in the first trimester. Ultrasound is aptly described as the third finger of the obstetrician.

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