Can we Predict Fate of Bleeding in Early Pregnancy?

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Abstract

Objective: To evaluate whether using the physical examination, history and Ultrasound scan, we can make a diagnosis of the etiology of first trimester vaginal bleeding.

Design: Prospective clinical trial.

Setting: Tertiary referral center.

Patients and Methods: One hundred women with bleeding in early pregnancy were recruited and followed-up. History taking and examination were done then transvaginal ultrasound was done to evaluate pregnancy condition. Women were managed according to their status.

Results: There was no correlation between severity of bleeding, colics, or gestational age and diagnosis of the cause of bleeding in early pregnancy.

Conclusion: We were not able to reach any prediction for early pregnancy loss but we can only minimize the maternal morbidity and mortality by the proper management of the cases.

Key Words: Abortion – Ectopic – Vesicular mole – Ultrasound.

Introduction

The advent of high-resolution transvaginal ultrasound (TVS) has revolutionized our understanding of the pathophysiology and the management of early pregnancy failure. Knowledge of the ultrasound appearances of normal early pregnancy development is essential for the diagnosis and management of early pregnancy failure. Ultrasound imaging has rapidly replaced all other techniques used to study normal human development in the first trimester [1]. Thirty percent of pregnant patients experience vaginal bleeding at some point during their pregnancy [2]. These patients frequently seek medical care in the emergency department, most commonly in the first trimester, when abortion and ectopic pregnancy are most prevalent [3]. Up to 50% of those who bleed may go on to have miscarriage. Of even more concern, however, is that about 3% of all pregnancies are ectopic in location [4]. The Aim of the present study is to evaluate whether using the physical examination, history and Ultrasound scan, we can make a diagnosis of the etiology of first trimester vaginal bleeding. The appropriate management plan can be started and the patient’s care can be tailored to her needs. The complications associated with first trimester bleeding that impact maternal morbidity, mortality and later fetal outcome can be minimized.

Patients and Methods

In the present study, 100 women with bleeding in early pregnancy attending the outpatient clinic of Kasr El-Aini Hospital were included. The study was conducted between May, 2011 till June 2012. Each woman underwent a transvaginal ultrasonographic examination including color Doppler techniques to assess the following data: Gestational age, Fetal viability and any abnormality present, mean sac diameter, Fetal heart rate, detection of any subchorionic hematoma its site and size.

All ultrasonographic examination was performed by the same ultrasound machine. Examination time was approximately 30 minutes.

The probe was inserted into the mid vagina after being covered with a sterile glove and lubricated with sterile ultrasound lubricant. Air trapping was avoided to prevent creating unwanted artifacts on the screen. The mean of the three measurements of embryonic or fetal crown-rump length was used to determine the gestational age then assessment of the fetal viability and fetal heart rate pattern. Uterine arteries were visualized with the color Doppler technique, and blood flow velocity waveforms were obtained by placing the Doppler gate over the colored areas and activating the pulsed Doppler function. The uterine arteries were examined lateral to the cervix at the level of the internal os. In this study, we obtain the Resistance index.
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In the uterine arteries to determine the vascular resistance, these measurements are automatically calculated by a built-in computerized spectrum analyzer, which measured it both on the left and right sides. When the diagnosis of threatened abortion was made, the patient was advised to rest at home. Then ultrasound scan was done to all patients twice: First time: At admission and Second time: At 12 weeks gestation to evaluate number, viability, confirm dates, diagnose the cause of bleeding (subchorionic hematoma, retroplacental hematoma, missed abortion, vesicular mole, ectopic pregnancy, ...), outcome at 12 weeks gestation. Any received treatment and mode of termination, if terminated, were reported.

**Statistical analysis:** Results were evaluated for each group and data were compared using different tests according to the type of the data to be compared. The student (t) test was used to compare the means of the 2 groups quantitatively, and the \( \chi^2 \) test was used to compare the numbers of the 2 groups qualitatively. A “p” value of 0.05 was considered the limit below which the difference of the values would be statistically significant.

**Results**

The study involved 100 pregnant women examined using ultrasonography starting early in the first trimester with a first scan at first presentation of vaginal bleeding. A follow-up scan was conducted at 12 weeks. Outcome of first trimester was recorded. The patients’ mean age was 26 ranging from 18-40, (+5.758) parity 1.52 ranging from primipara to para 5 patients with standard deviation 1.1 with 10 (10%) patients presenting by mild bleeding, 64 patients (64%) presenting by moderate bleeding and 26 patients (26%) with severe bleeding. The mean duration of bleeding was 4 days (range 1-17), ranging from 1 day to 17 days. Clinical diagnosis is reported in Fig. (1).

It was found that there is no correlation between the severity of bleeding and the clinical diagnosis with \( p \)-value 0.000 by Pearson Chi-Square. Seventeen % of patients presented with colics in association with the bleeding, while the majority 83% presented with no colics. There was no correlation between the presence of colics and the clinical diagnosis with \( p \)-value 0.122 by Pearson Chi-Square. Cause of bleeding was either; retroplacental hematoma, sac in the cervix, subchorionic hematoma or unhealthy gestational sac in the following clinical diagnosis: anembryonic sac, inevitable abortion, missed abortion and threatened abortion as follows: (Table 1).

<table>
<thead>
<tr>
<th>Clinical diagnosis</th>
<th>Anembryonic sac</th>
<th>Inevitable abortion</th>
<th>Missed abortion</th>
<th>Threatened abortion</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retroplacental hematoma</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sac in the cervix</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Subchorionic hematoma</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Unhealthy GS</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>

Table (1): Causes of bleeding in the studied cases.
The 20 patients who were diagnosed as threatened abortion i.e. had a viable intrauterine pregnancy were followed-up at 12 weeks of gestation. During follow-up, 5 women did not show up and accordingly only 15 women were seen at week 12. One of them presented with incomplete abortion after 1 week, another presented by missed abortion at the 8th week. 13 continued pregnancy with percentage 65%. Two of them were pregnant in twins; one continued till 12th week with both and the other experienced early fetal demise and presented by only one fetus. At 12 weeks the crown-rump length was measured, with mean length 55.017±3.5629mm and range from 49.7mm to 61.3mm.

Two patients diagnosed as ectopic pregnancy presented by suprapubic pain associated with the bleeding while the remaining 7 presented by silent vaginal bleeding. They were all presenting by mild vaginal bleeding. They presented at mean GA 7.087 weeks (range and ranging from 5 weeks + 6 days to 10 weeks calculated from first day of last menstrual period as they were sure of dates. On ultrasound exam the uterus was empty in all patients, and 6 had free fluid in Douglas pouch. The amount of fluid was assessed in each case and none of them reached the hepato-renal pouch.

**Discussion**

In the present study showed that the commonest presentation was Spontaneous abortion followed by ectopic pregnancy followed by vesicular mole the least common presentation. This correlates with other studies, where spontaneous abortion is the commonest cause of bleeding. But because 65% of the patients came presenting with moderate vaginal bleeding and in some cases bleeding was on going for a long duration and most of them did not present to the emergency unit immediately following the attack of bleeding, we had different results. Eighty eight percent of our patients presented with spontaneous abortion and 20% presented with threatened abortion. We had a higher percentage of ectopic pregnancy, that reached 9%, and all cases were disturbed tubal pregnancy that necessitated surgical management, most likely due to delay in seeking medical advise (this is of course attributed to the low socioeconomic level of the patients we treat at our university hospital). This great difference is attributed to recruitment of patients from emergency department not from outpatient clinic where patients with threatened abortion usually present. Also our university hospital, being a tertiary centre, where more difficult and complicated cases are referred to to be managed.

Fifty seven percent of women reporting early pregnancy bleeding to the early pregnancy unit (EPU) have a viable pregnancy on an initial ultrasound scan [5]. Threatened abortion occurs in 20-25% of early pregnancies. The risk of completed abortion in these patients is roughly 50% [6]. However, the risk is substantially lower if fetal cardiac activity can be documented [7].

In our study 21% of the patients showed a viable pregnancy on an initial ultrasound scan. One of them was diagnosed as inevitable abortion, which completely aborted following admission. Of the 20% diagnosed as threatened abortion, we had a higher percentage of those who continued pregnancy at the follow-up scan at 12 weeks. Sixty five percent of them continued pregnancy with crown-rump length measurement corresponding to their gestational age.

In our study, 90% of cases of threatened abortion showed no apparent cause of bleeding. While a sub-chorionic hematoma and a retro-placental hematoma attributed to 5% each as a cause of bleeding in our cases. These cases also continued pregnancy with the hematoma resolved at 12 weeks. This correlates with recent studies that observed that the subchorionic hematoma did not represent a risk factor for complication of pregnancy [8]. The risk of developing into complete abortion in patients with threatened abortion is roughly 50%. If a fetal heart-beat is visualized at 5-6 weeks, the risk of abortion decreases to 4.5% [9]. This also correlates to our study as in all patients diagnosed with threatened abortion, fetal heart beats were seen and only 10% of the cases aborted. So, it is clear that in spite of the greater incidence of pregnancy loss described at our emergency department we had the same incidence of patients continuing pregnancy after a threatened abortion. This is attributed to the place of the study being a tertiary medical care centre, and also the cultural and educational level of our patients, seeking medical advice later than they are supposed to have.

This also correlates with our study, as 96% of the patients diagnosed as missed abortion had CRL more than 6mm with mean CRL 2.1 mm with absent fetal pulsations. Ninety two percent of the patients reported mild vaginal bleeding or spotting. In all patients, the cervix was closed. It was noticed that 23% of the patients presenting by missed abortion had a sub-chorionic hematoma (could attribute to the cause of abortion) while in the remaining 77% the cause was unknown. Also it was noticed that all the cases with the sub-chorionic hematoma the presentation was between the 9th and the 11th
week of gestation, which is relatively a late presentation with fetuses measuring by CRL much smaller gestational ages. This reflected that they present late after the demise of the fetus.

Concerning the ectopic pregnancy, it was reported that, in 95% of patients with ectopic pregnancy, abdominal pain is mild, poorly localised to the lower abdomen and unilateral. Vaginal bleeding with slight spotting is common [8]. There is correlation between our study and the above findings, as 22% presented by pain in association with the bleeding while the rest presented by bleeding only which was mild. Also, clinical examination was unable to palpate the adnexal masses seen on ultrasonography because of the tenderness elicited during examination.

Concerning the Vesicular mole, Hydatidiform mole is more common at the extremes of reproductive age. Women in their early teenage or perimenopausal years are most at risk. Parity does not affect the risk. In our study, we had 3 patients diagnosed as complete mole their ages were 20, 35 and 40 years, and all of them were multiparous which correlates with the above. The American College of Obstetrician and gynecologists in 2000, reported that cases of vesicular mole present in the first trimester, with scanty vaginal bleeding and occasional passage of grape like vesicles per vagina. On examination, uterus may be larger than the period of gestation. Ultrasonography shows absence of fetus and “Snow Storm Appearance” due to multiple fluid filled vesicles, which is diagnostic. Our study correlates well with these results as all cases with Vesicular mole presented at a mean GA of 9 weeks, by mild vaginal bleeding, the cervix was closed on examination with uterus corresponding to average 12 weeks gestation. The typical ultrasound picture of Snow storm appearance confirmed the diagnosis.

In conclusion, we were not able to reach any prediction for early pregnancy loss but we can only minimize the maternal morbidity and mortality by the proper management of the cases and early diagnosis of serious cases as ectopic pregnancy. Also, pregnant women should be advised to seek medical advice at pregnancy units once they experience any minimal vaginal bleeding to decrease the incidence of complications. They should be advised to confirm viability and site of pregnancy at 7 weeks by seeking advice at early pregnancy units.

References