ROLE OF TRANSVAGINAL SONOGRAPHY IN FIRST TRIMESTER VAGINAL BLEEDING

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Abstract

Vaginal bleeding during the first trimester has been estimated to occur in 16% of all pregnant women, while the frequency of spontaneous abortion is estimated at around 10-20%. The clinical approach though helpful here is not of much value. Despite the latest technological developments and laboratory diagnosis the desired goal of early recognition is not achieved.

This study was therefore planned with an objective to evaluate role of ultrasound in patients with first trimester vaginal bleeding. It was an Hospital based study where in a total 300 cases presented with complaint of bleeding per vaginum during first trimester, were enrolled for study. All patients underwent trans-abdominal and transvaginal sonography. About 60 % patients had normal viable pregnancy at time of initial sonography. Rest of the cases had a variety of abortions and other pregnancy related complications. Some of the conditions like molar pregnancy and ectopic pregnancy were life threatening and required immediate clinical intervention.

The Ultrasonographic examinations were done per abdominally by using ultrasound equipment. *In the present study normal live embryo with subchorionic bleed was the most common cause of first trimester bleeding. Various types of abortions constituted the second commonest cause of first trimester bleeding.* All cases were diagnosed correctly on ultrasonography with 100% sensitivity and accuracy and managed appropriately. Hence it can be suggested that ultrasound helped in establishing correct diagnosis timely and decides the line of management ⁽¹⁾

Keywords: Vaginal bleeding, first trimester, transvaginal sonography.

Introduction

Vaginal bleeding during first trimester has been estimated to occur in 16% of all pregnant women, while the frequency of spontaneous abortion is traditionally estimated as 10-20%.

Vaginal bleeding in the first trimester of pregnancy can be caused by several different factors. Bleeding affects 20% to 30% of all pregnancies. Bleeding increases the risk of having miscarriage (lose the baby). Of even more concern, however, is that about 2% of all pregnancies are ectopic in location (the fetus is not inside the uterus), and vaginal bleeding can be a sign of an ectopic pregnancy (2)

First trimester vaginal bleeding is estimated to occur in 15 to 20 % percent of all clinically proven pregnancies. All cases having any blood like vaginal discharge from conception to completion of twelfth week of pregnancy were included in present study.

The clinical evaluation is rarely complete in accurate diagnosis of such cases. The clinical history taking, physical examination and urine or serum pregnancy

tests are helpful but do not accurately diagnose the condition of embryo.

Several clinical conditions can lead to vaginal bleeding in first trimester period. More than half the time, a normal embryo is present, but in the rest of the cases various types of abortions, trophoblastic diseases, ectopic pregnancies and other conditions can be noted.

The various conditions associated with first trimester vaginal bleeding are as follows-

1. Implantation bleeding

Tiny amount of vaginal bleeding at expected time of menses.

Normal physiological condition.

Usually not recognized. No cause of concern.

2. Threatened abortion

Clinical term suggesting vaginal bleeding with no diagnostic significance. Transvaginal sonography reveal either a normal live embryo with or without subchorionic bleeding.

3. Complete miscarriage.

Complete evacuation of gestational products with no retained material.

4. Incomplete abortion

Retained products of conception- clots, collection and products.

5. Blighted ovum

Only gestational sac with NO fetal pole or cardiac activity or yolk sac is noted.

6. Intrauterine fetal demise or missed abortion

Embryo with no cardiac activity

7. Molar pregnancy

Gestational trophoblastic diseases

8. Ectopic pregnancy

Gestation outside uterine cavity. Usually in fallopian tubes.

The guidelines issued by British Medical Ultrasound Society for safe use of diagnostic ultrasound equipment were followed in this study.[2]

The goal of transvaginal sonography includes. [3]

1. Visualization and localization of gestational sac.

[Intrauterine or extrauterine]

2. Early identification of embryonic demise and anembryonic gestation.

3. Identification of those embryos that are still alive but at increased risk for embryonic or fetal demise.

4. Determination of number of embryos and the chorionicity and amnionicity in multi-fetal pregnancies

5. Estimation of duration or menstrual age of the pregnancy

6. Early diagnosis of fetal abnormalities; including identification of the embryos that are more likely to be abnormal based on secondary criteria [abnormal yolk sac]

Establishing death of an embryo

Policy and guidelines [4]

1. Last menstrual period dates not taken in consideration as they may be wrong and misleading

2. Gestational sac of mean sac diameter greater than 20 mm with no evidence of embryo or yolk sac

3. Embryo with crown rump length greater than 10 mm with no evidence of heart pulsations.

A. If mean sac diameter is less than 15 mm or crown rump length is less than 10 mm, then examination should be repeated 2 weeks later to assess growth of gestational sac and embryo and any evidence of cardiac activity.

Key chronologic landmarks used

1. Gestational sac with 10 mm MSD – Empty

2. Gestational sac with 16 mm MSD – Yolk sac with adjacent heart beat but small embryo [3 mm]

3. Embryo with CRL 6 mm with visible heart beats [126 bpm]

4. Embryo with CRL 10 mm with visible heart beats [150 bpm]

5. Embryo with CRL 16 mm with separate amniotic sac and chorionic cavity with yolk sac. Fetal body movements visible. Heart rate 175 bpm.

Material and Methodology

This was a hospital-based prospective study. The study included patients attending department of Radio-diagnosis and Imaging in large community based hospital with a history of bleeding per vaginum in the first trimester of pregnancy. Women having non-obstetric causes for vaginal bleeding in the first trimester of pregnancy were excluded. The present study was conducted in. 300 cases having following criteria were included in present study.

1. History of amenorrhea

2. Positive pregnancy test.

3. Vaginal bleeding

A detailed general physical and pelvic examination was done to arrive at a provisional clinical diagnosis Transabdominal and transvaginal sonography was done in all cases.

Results of transvaginal sonography are included in present study

Results and discussion:

Table 1: USG Findings in Different Cases

Sr. No	Sonography findings	cases
1.	Normal live embryo	128
2.	Normal live embryo with subchorionic bleed	52
3.	Missed abortion	43
4.	Complete abortion	18
5.	Incomplete abortion	36
6.	Ectopic pregnancy	06
7.	Molar	05
8.	Blighted ovum	12
9	Total	300

Table 2: Pregnancy duration [by Mean sac diameter and or Crown rump length]

Sr. no	Pregnancy duration [weeks]	Cases
1.	4 to 6	82
2.	7 to 9	91
3.	10 to 12	68
4.	Not assigned	59
5	Total	300

Table 3: Sonography findings and its follow up [up to 22 weeks gestation at time of anomaly scan]

Sr. no	Sonography diagnosis	Normal uneventful outcome	Failed pregnancy	Total
1.	Normal live embryo	128	000	128
2.	Normal live embryo with subchorionic bleed	50	02	52
3.	Missed abortion	00	43	43
4.	Complete abortion	00	18	18
5.	Incomplete abortion	00	36	36
6.	Ectopic	00	06	06
7.	Molar pregnancy	00	05	05
08	Blighted ovum	00	12	12
09	Total	178	122	300

Normal pregnancy –

All normal pregnancies were followed up to 22 weeks at time of anomaly scanning. All pregnancies done well. Not even single pregnancy loss was reported in this category.

Normal pregnancy with subchorionic bleed-

Out of 52 pregnancies, 50 pregnancies were normal up to 22 weeks. Two pregnancies aborted. One early pregnancy of 6 weeks and 4 days with subchorionic bleed of 2 cm is lost. Another 9 weeks pregnancy with 4 cm subchorionic clot was also lost. This suggests large subchorionic bleeding to be high risk factor for pregnancy loss in spite of fetal cardiac activity.

Complete abortion

No medical intervention was needed in these cases.

All cases were settled without any medications

Incomplete abortions

All cases underwent evacuation procedure.

One case required multiple blood transfusions due to large initial blood loss. Same case also suffered from acute renal shut down. She needed active intensive medical help.

Missed abortion, blighted ovum and molar pregnancies

Missed abortion (blighted ovum, intrauterine fetal demise) & inevitable abortion were confirmed quickly by Ultra Sound and this facilitated early decision for termination. Complete abortion was easily diagnosed by Ultra Sound looking at the linear endometrial echo and empty uterus. All required evacuation. One molar pregnancy was transformed to invasive mole and required further chemotherapeutic medications. She also did well on follow up after 6 months.

Rest all case were settled on follow up studies.

Ectopic gestation

Ectopic and molar pregnancies were diagnosed accurately by Ultra Sound and managed appropriately, reducing patient morbidity & mortality. One ruptured ectopic gestation was treated with immediate surgical intervention.

Rests of the five cases were treated conservatively.

Three cases were given Methotrexate; all of them were settled without any further complications.

Two other cases were not given any medications and were settled naturally. Using ultrasound, pregnancy with higher chances of a viable birth could be differentiated from a pathological pregnancy warranting an immediate termination.

Also in line with our observations it is rightly postulated by Shivanagappa, et al that Ultrasound is a valuable tool in the differentiation of causes of first trimester vaginal bleeding. Ultrasound is helpful in the decision-making algorithm about the safe continuation of the pregnancy, timely intervention for abnormal pregnancy. Judicious utilization of ultrasonography and a close liason with the sonologist is necessary. However, it should be remembered that ultrasound is an extension of the pelvic examination and cannot replace obstetric history and clinical examination⁽⁵⁾

The present study does not compare its results with any other studies.

Conclusions

In the present study normal live embryo with subchorionic bleed was the most common cause of first trimester bleeding. Various types of abortions constituted the second commonest cause of first trimester bleeding. All cases the cases were diagnosed correctly on ultrasonography with 100% sensitivity and accuracy and managed appropriately. Hence it can be postulated that ultrasound helped in establishing correct diagnosis timey and decides the line of management. The present study underscores the importance of tranvaginal sonography study in first trimester vaginal bleeding. Almost complete accuracy of tranvaginal sonography technique in diagnosing various clinical conditions related to first trimester vaginal bleeding allowed quick and easy management of these cases.

Thus transvaginal sonography is invaluable tool in diagnosing cases of first trimester vaginal bleeding and is also an important tool in deciding the line of management. This study reinforces results of earlier reports that ultrasound is a sensitive and specific non-

invasive diagnostic tool in the evaluation of first trimester bleeding.

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