Thai Journal of Obstetrics and Gynaecology
June 1999, Vol. 11, pp. 75-80

OBSTETRICS

The outcomes of vaginal bleeding in the first half of pregnancy at Songklanagarind Hospital

Tippawan Liabsuetrakul MD,
Oermporn Krisanapan MS.

Department of Obstetrics and Gynecology, Faculty of medicine, Prince of Songkla University, Hat Yai, Thailand

ABSTRACT

Objective To determine the diagnosis of vaginal bleeding in the first half of pregnancy and pregnancy outcomes.

Design Descriptive study.

Setting Department of Obstetrics and Gynecology, Songklanagarind Hospital.

Subjects and Methods: A retrospective review was performed in pregnant women who had spontaneous vaginal bleeding in the first 20 weeks of pregnancy and attended the Obstetrics and Gynecology Department from 1996 to 1997. Clinical and ultrasonographic diagnosis were recorded. The outcomes of viable intrauterine pregnancy were followed until delivery unless a miscarriage occurred or patients were lost. Age, gravidity, previous history of abortion, duration of bleeding episode and gestational age at the first bleeding episode were reviewed.

Main outcome measures The clinical diagnosis of vaginal bleeding in the first half of pregnancy, the ultrasonographic diagnosis of threatened abortion, the ultrasound finding of viable intrauterine pregnancy and final pregnancy outcomes. The clinical characteristics of patients who had vaginal bleeding with viable intrauterine pregnancy and non-viable pregnancy were analyzed by chi-square test.

Results The clinical diagnosis of 460 pregnant women who had spontaneous vaginal bleeding in the first half of pregnancy were 28.9% threatened abortion, 25.9% incomplete abortion, 15.4% missed abortion, 12% blighted ovum, 7.8% ectopic pregnancy, 5.7% complete abortion, 2.2% inevitable abortion, 1.7% molar pregnancy and 0.4% inconclusive. Viable intrauterine pregnancy was diagnosed by ultrasound finding in 46.7% of the total 285 patients with threatened abortion. Seventy-one percent of patients had normal outcome before 20 weeks of gestation. Within this group, the term and preterm labor were found to be 75.5% and 10.7 % respectively. Gestational age at the first bleeding episode in the patients who had viable intrauterine pregnancy and non-viable pregnancy were significantly different (p=0.001).

Conclusions The outcomes of vaginal bleeding in the first half of pregnancy were 28.9% threatened abortion and 71.1% miscarriage. Approximately half of all threatened abortion was confirmed to have viable intrauterine pregnancy by ultrasonographic diagnosis. Gestational age at the first bleeding episode was significantly different between the patients who had vaginal bleeding with viable intrauterine pregnancy and non-viable pregnancy.

Key words : vaginal bleeding, threatened abortion

Vaginal bleeding prior to 20 weeks of gestation occurs in approximately 30-40% of all pregnancies.[1] Differential diagnosis includes threatened abortion, ectopic pregnancy, molar pregnancy, incomplete abortion, complete abortion and missed abortion.[2] The clinical diagnosis of threatened abortion is presumed when any bloody vaginal discharge or vaginal bleeding appears during the first half of pregnancy.[3] Twenty-five percent of pregnant women have some degree of spotting or bleeding during the early months of gestation, only about one half actually abort.[3-5] The bleeding is typically scanty, varies from a brownish discharge to bright red bleeding and may occur repeatedly over the course of many days.[2,3] It is often not possible to differentiate clinically between threatened abortion, complete abortion, missed abortion and ectopic pregnancy.[1]

Most physicians consider any bleeding in early pregnancy to be a sign of threatened abortion, but a fetal viability detected by ultrasound findings is about 61%.[6] Patients are often anxious about the outcome of pregnancy after the onset of vaginal bleeding.[7] Causes or outcomes of vaginal bleeding had not been clearly mentioned. The purpose of this study was to determine the diagnosis of vaginal bleeding in the first half of pregnancy and pregnancy outcomes.

Materials and Methods

Information was retrospectively collected from our database of all patients from 1996 to 1997 who presented with vaginal bleeding in the first half of pregnancy at Songklanagarind Hospital. During the study period a total of 460 patients were detected. Age, gravidity, number of previous abortion, duration of bleeding episode, gestational age at the first bleeding episode, clinical diagnosis, ultrasound findings and pregnancy outcomes were reviewed. The gestational age based upon the date of the first day of the last normal menses. The patients could not recall last menstrual period, the gestational age was defined by ultrasonography.

The definition of abortion was described as follow[3,4]: threatened abortion-any vaginal bleeding appeared during the first half of pregnancy, and didn't associate with dilated cervix; incomplete abortion-some of fetus or placenta has passed through the cervical os; complete abortion-all of fetus or placenta were likely to be completely expelled together; inevitable abortion-heavy vaginal bleeding or gross rupture of membrane was presented with cervical dilatation; missed abortion-dead products of conception were retained in utero for several weeks.

Three hundred forty-three patients underwent ultrasonographic examination because of uncertain diagnosis and confirmed viability. Scans were performed by obstetric ultrasonographers with a transabdominal 3.5-5.0 MHz. or a transvaginal 5.0-7.0 MHz. transducer. Sonographic demonstration of a distinct, well formed gestational ring with or without fetus appropriated for gestational age implied that the products of conception were viable intrauterine pregnancy. Treatment depended on ultrasonographic diagnosis. All cases of viable intrauterine pregnancy were followed until miscarriage or delivery unless the patients were lost. Correlation between threatened abortion and ultrasonographic diagnosis of viable intrauterine pregnancy was recorded. The ultrasound findings of viable intrauterine pregnancy were described and the pregnancy outcomes of each group were demonstrated.

Statistical analysis included the percentage of diagnosis and the correlation between threatened abortion and ultrasonographic diagnosis. The differences in the clinical characteristics of viable intrauterine pregnancy and non-viable pregnancy were assessed by chi-square test.

Results

The clinical characteristics of 460 patients who had spontaneous vaginal bleeding in the first half of pregnancy are summarized in Table 1. Patient ages ranged from 16-53 years (mean $\pm$ S.D. = 29.8 $\pm$ 6.2 years) and the most common age group was 30-34 years. The nullipara and multipara were 32.2% and 67.8% respectively. About 30% of patients had a history of previous abortion, of which three fourth were

spontaneous abortion. The amount of bleeding varied from spotting to heavy. Most patients visited the hospital within 1 day after initial bleeding episode. Gestational age of the first bleeding episode was 5-20 weeks. Gestational age of 5 patients was unknown because they could not recall last menstrual period and non-viable pregnancies were found.

The initial or clinical diagnosis are presented in Table 2. Threatened abortion was diagnosed in 285 patients (62%). In the remaining 175 patients (38%) a diagnosis indicating unsalvageable gestation could be made at the initial examination. Viable intrauterine pregnancy was detected in 133 patients by an ultrasonographic diagnosis as shown in Table 3. The viable intrauterine pregnancy was found in 28.9% of the total 460 patients and 46.7% of the total 285 patients with a clinical diagnosis of threatened abortion. The diagnosis of 2 patients was inconclusive because they presented with an incomplete abortion before the ultrasound scanning was performed.

Table 4 lists ultrasound findings of viable intrauterine pregnancy. The most common finding was fetus with fetal heart motion (83.5%), of which the associated finding was placenta covering the internal os and subchorionic hematoma. The outcome for 13.5% of the live fetuses by ultrasound findings was spontaneous abortion, fetal death and therapeutic abortion. The pregnancy outcomes of viable intrauterine pregnancy are shown in Table 5. Ninety-four patients had normal outcome before 20 weeks of gestation (70.7%). Age, gravidity, previous history of abortion, duration of bleeding episode and gestational age at the first bleeding episode in normal outcome and miscarriage before 20 weeks were not significantly different. There was no fetal loss in normal outcome beyond 20 weeks. The patients who lost to follow up before and after 20 weeks were detected 9.8% and 13.8% respectively. The final outcomes of the vaginal bleeding in the first half of pregnancy are summarized in Table 6.

The clinical characteristics of a viable intrauterine pregnancy and non-viable pregnancy are provided in Table 7. Mean age was identical in both groups. There were no significant differences between the two groups in age, gravidity, previous history of abortion and duration of bleeding episode. Approximately half of the viable intrauterine pregnancy had first bleeding episode at 5-9 weeks, but half of the non-viable pregnancy had first bleeding episode at 10-14 weeks. Gestational age at the first bleeding episode in viable intrauterine pregnancy and non-viable pregnancy were significantly different by chi-square test (p=0.001).

Table 1. Clinical characteristics of the patients

Characteristics		N	(percent)
Age (years)	< 20	19	(4.1)
	20-24	78	(17.0)
	25-29	124	(27.0)
	30-34	133	(28.9)
	≥ 35	106	(23.0)
Gravidity	1	148	(32.2)
	2-4	294	(63.9)
	≥ 5	18	(3.9)
Number of previous abortion			
	0	324	(70.4)
	1	104	(22.6)
	2	19	(4.1)
	3	7	(1.5)
	4	6	(1.3)
Duration of bleeding episode (days)			
	≤ 1	223	(48.5)
	2-3	87	(18.9)
	4-5	48	(10.4)
	6-7	38	(8.3)
	≥ 7	64	(13.9)
Gestational age at the first bleeding episode (weeks)			
	5-9	187	(40.7)
	10-14	209	(45.4)
	15-20	59	(12.8)
	unknown	5	(1.1)

Table 2. Initial or clinical diagnosis

Diagnosis	N	(percent)
Threatened abortion	285	(62.0)
Incomplete abortion	113	(24.6)
Complete abortion	15	(3.3)
Inevitable abortion	8	(1.7)
Missed abortion	1	(0.2)
Ectopic pregnancy	35	(7.6)
Molar pregnancy	3	(0.7)
Total	460	(100)

Table 3. Ultrasonographic diagnosis of threatened abortion

Diagnosis	N	(percent)
Viable intrauterine pregnancy	133	(46.7)
- normal finding	126	(44.2)
- subchorionic hematoma	7	(2.5)
Blighted ovum	55	(19.3)
Missed abortion or dead fetus	70	(24.5)
Complete abortion	11	(3.9)
Incomplete abortion	6	(2.1)
Ectopic pregnancy	1	(0.3)
Molar pregnancy	5	(1.8)
Inevitable abortion	2	(0.7)
Inconclusive	2	(0.7)
Total	285	(100)

Table 4. Ultrasound findings of viable intrauterine pregnancy

Findings	N	(percent)
Gestational sac only	18	(13.5)
Gestational sac with yolk sac	3	(2.3)
Fetus 2 mm. without fetal heart motion	1	(0.8)
Fetus with fetal heart motion	111	(83.5)
- normal finding	97	(72.9)
- with abnormal placentation	7	(5.3)
- with subchorionic hematoma	7	(5.3)
Total	133	(100)

Table 5. Pregnancy outcomes of viable intrauterine pregnancy

Pregnancy outcomes	N	(percent)
Before 20 weeks	133	(100)
normal	94	(70.7)
incomplete abortion	8	(6.0)
missed abortion or dead fetus	5	(3.8)
complete abortion	9	(6.8)
therapeutic abortion	2	(1.5)
criminal abortion	1	(0.7)
ectopic pregnancy	1	(0.7)
loss to follow up	13	(9.8)
After 20 weeks	94	(100)
term delivery	71	(75.5)
preterm delivery	9	(9.6)
PROM	1	(1.1)
loss to follow up	13	(13.8)

preterm = delivery before 37 weeks
PROM = premature rupture of membrane before 37 weeks

Table 6. Final outcomes of pregnancies with vaginal bleeding in the first half of pregnancy

Outcomes	N	(percent)
Normal	94	(20.4)
Incomplete abortion	129	(28.1)
Missed abortion or dead fetus	75	(16.3)
Blighted ovum	55	(12.0)
Complete abortion	35	(7.6)
Inevitable abortion	10	(2.2)
Therapeutic abortion	2	(0.4)
Criminal abortion	1	(0.2)
Ectopic pregnancy	37	(8.1)
Molar pregnancy	9	(1.9)
Loss to follow up	13	(2.8)
Total	460	(100)

Table7. Comparison between clinical characteristics of viable intrauterine pregnancy and non-viable pregnancy

Characteristics	Viable (%) (n = 133)	Non-viable (%) (n = 327)	P-value
Age < 20	2.3	4.9	0.245
20-24	12.8	18.7	
25-29	30.8	25.4	
30-34	32.3	27.5	
≥ 35	21.8	23.5	
mean ± S.D.	30.3 ± 5.3	29.8 ± 6.5	0.717
Gravidity 1	24.1	35.5	0.054
2-4	72.2	60.6	
≥ 5	3.7	3.9	
Previous history of abortion			0.216
no	66.2	72.2	
yes	33.8	27.8	
Duration of bleeding episode			0.158
< 1	55.6	45.6	
2-3	13.5	21.1	
4-5	12.1	9.8	
6-7	6.0	9.2	
≥ 7	12.8	14.3	
Gestational age at the first bleeding episode			0.001*
5-9	52.6	35.8	
10-14	33.1	50.5	
15-20	14.3	12.2	
unknown	0	1.5	

* $p < 0.05$

Discussion

Prevalence of vaginal bleeding within 20 weeks of pregnancy varied and depended on the definition of significant vaginal bleeding in different studies and recognition of the pregnant women.[8,9] The oldest women was 53 years old with molar pregnancy. The gestational age at the first bleeding episode had been recorded from 5-20 weeks and it was found to be similar to the finding of Mantoni.[6] Incomplete abortion could be diagnosed by clinical examination. Occasionally, approximately 5-8% of incomplete abortions might be diagnosed as threatened abortion.

Ultrasound is a very useful instrument to distinguish blighted ovum, missed abortion or dead fetus, complete abortion, molar pregnancy and ectopic pregnancy from threatened abortion.[10-12] If the non-viable pregnancy was found, an evacuation would be offered because patients were often anxious.[7] The occurrence of abortion in the threatened abortion group was 53.3% in this study which was the same as other studies.[3,13] The causes of the abortion were found to be non-viable pregnancy such as blighted ovum, missed abortion or dead fetus, complete abortion, incomplete abortion, inevitable abortion, molar pregnancy and ectopic pregnancy.[3,5,6]

The detection of viable fetus in threatened abortion by the ultrasound was 39% which was less than that in some earlier report.[6] This study could not suggest the percentage of fetal loss from ultrasound findings due to its small sample size. However, the outcome of live fetus becoming spontaneous abortion or fetal death (13.5%) was closed to that of Mantoni (13.9%).[6]

Seven patients had a subchorionic hematoma. Four of these seven patients had a small size.[13,14] Two patients of this group had term delivery, one patient had a preterm delivery and the remaining one patient was lost. One patient had a medium size hematoma with preterm delivery due to active bleeding from placenta previa. The last two patients had large hematoma. One patient had term delivery and the other was lost. Repetitive ultrasound examinations revealed that the hematoma decreased in size and all hematomas disappeared within 20 weeks. There was no

miscarriage in these patients. The rate of pregnancy loss increased with hematoma size, advancing maternal age and bleeding in earlier gestational age. A worse pregnancy outcome was found in patients with a large hematoma or severe bleeding compared with the outcome in patients with a small hematoma or light bleeding.[13]

Seven patients had a placenta covering the internal os at first examination. However, there was no placenta covering the internal os by 28 weeks. Four of seven cases had preterm delivery, two patients had term delivery and the other aborted. The greatest risk to the pregnancy complicated by vaginal bleeding before 20 weeks was preterm delivery.[9,15,16]

A miscarriage was found to increase with maternal age; 12% for 20 years or less and 50% for 45 years or more.[2] In this study, with the maternal age 20 years or less, a miscarriage of 16 out of 19 (84.2%) was found. For the group of 40 years or more, the miscarriage was 83.3%. There was no statistically significant difference for maternal age, gravidity, previous history of abortion and duration of bleeding episode between viable intrauterine pregnancy and non-viable pregnancy.[6] In contrast, the difference of gestational age at the first bleeding episode was statistically significant. A miscarriage followed the vaginal bleeding during pregnancy increased with increased gestational age.[6,17] If the first bleeding episode occurred within 5-9 weeks, the abortion rate was 35%. If bleeding occurred within 10-20 weeks, the rate was 45%.[6] However, some report found the abortion rate of 1.8% by 7 weeks, 2.4% by 8 weeks, 12.5% by 13 weeks and 33% by 16 weeks.[17] The follow up of patients with vaginal bleeding within 20 weeks until abortion or delivery indicated a normal outcome of 20.4% (94/460 patients). Two patients had therapeutic abortion for abnormal chromosome which was detected by amniocentesis.

If vaginal bleeding occurred, the clinician should recognize and made further investigations. The diagnosis of threatened abortion by clinical examination is not precise. An ultrasound increases the accuracy of the diagnosis and can determine the pregnancy outcome. Association between bleeding and pregnancy outcomes need to be examined in relation to timing of bleeding, severity of bleeding episode and duration of bleeding.[8] Bleeding at different times in pregnancy may have different prognostic implications, potentially accounting for some of the differences among studies.

References

1. Stovall TG, McCord ML. Early pregnancy loss and ectopic pregnancy. In: Berek JS, Adashi EY, Hillard PA, editors. Novak's gynecology. 12th ed. Baltimore : Williams & Wilkins, 1996 : 487-523.
2. Scott JR. Early pregnancy loss. In: Scott JR, DiSaia PJ, Hammond CB, Spellacy WN, editors. Danforth's obstetrics and gynecology. 7th ed. Philadelphia : J.B. Lippincott, 1994 : 175-86.
3. Cunningham FG, MacDonald PC, Gant NF, Leveno KJ, Gilstrap LC, Hankins GDV, et al. Williams obstetrics. 20th ed. Stamford : Appleton & Lange, 1997 : 579-605.
4. Hill JA. Sporadic and recurrent spontaneous abortion. In: Ryan KJ, Berkowitz RS, Barbieri RL, editors. Kistner's gynecology. 6th ed. St. Louis : Mosby, 1995 :330-65.
5. Tongsong T, Wanapirak C, Srisomboon J, Sirichotiyakul S, Polsrisuthikul T, et al. Transvaginal ultrasound in threatened abortion with gestational sac. Int J Gynecol Obstet 1994 ; 46 : 297-301.
6. Mantoni M. Ultrasound signs in threatened abortion and their prognostic significance. Obstet Gynecol 1985 ; 65 : 471-5.
7. Signore CC, Sood AK, Richards DS. Second trimester vaginal bleeding : correlation of ultrasonographic findings with perinatal outcome. Am J Obstet Gynecol 1998 ; 178 : 336-40.
8. Ananth CV, Savitz DA. Vaginal bleeding and adverse reproductive outcomes : a meta-analysis. Paediat Perinat Epidemiol 1994 ; 8 : 62-78.
9. Batzofin JH, Flelding WL, Friedman EA. Effect of vaginal bleeding in early pregnancy on outcome. Obstet Gynecol 1984 ; 63 : 515-8.
10. McKenna KM, Feldstein VA, Goldstein RB, Filly RA. The empty amnion : a sign of early pregnancy failure. J Ultrasound Med 1995 ; 14 : 117-21.
11. Goldstein SR. Embryonic death in early pregnancy : a new look at the first trimester. Obstet Gynecol 1994 ; 84 : 294-7.
12. Nyberg DA, Laing FC, Filly RA. Threatened abortion : sonographic distinction of normal and abnormal gestation sacs. Radiology 1986 ; 158 : 397-400.
13. Bennett GL, Bromley B, Lieberman E, Benecerraf BR. Subchorionic hemorrhage in the first trimester pregnancies : prediction of pregnancy outcome with sonography. Radiology 1996 ; 200 : 803-6.
14. Ball RH, Ade CM, Schoenborn JA, Crane JP. The clinical significance of ultrasonographically detected subchorionic hemorrhages. Am J Obstet Gynecol 1996 ; 174 : 996-1002.
15. Williams MA, Mittendorf R, Lieberman E, Monson RR. Adverse infant outcomes associated with first trimester vaginal bleeding. Obstet Gynecol 1991 ; 78 :14-8.
16. Sipil P, Hertikainen-Sorri AL. Perinatal outcome of pregnancies complicated by vaginal bleeding. Br J Obstet Gynecol 1992 ; 99 :959-63.
17. Stabile I, Cambell S, Grudzinskas JG. Ultrasonic assessment of complication during first trimester of pregnancy. Lancet 1987 ; 28 : 1237-40.