Outcome of Pregnancies with First Trimester Threatened Abortion : A Prospective Study

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Abstract : ***Objective :*** *To evaluate the outcome of pregnancies complicated with first trimester threatened abortion.* ***Study design :*** *Prospective study of 224 singleton pregnancies complicated with first trimester threatened abortion undergoing transvaginal sonographic examination and follow up until delivery.* ***Results :*** *The outcome was classified into two groups : firstly, 135 (60.3%) nonviable pregnancies including cases of blighted ovum 52 (23.2%), embryonic or fetal demise 31 (13.8%), complete abortion 28 (12.5%), incomplete abortion 13 (5.8%), ectopic pregnancies 7 (3.1%) and molar pregnancies 4 (1.8%); secondly, 89 (39.7%) viable pregnancies. Of the viable group, 8 (9.0%) eventually aborted spontaneously, and 81 (91.0%) continued their pregnancies beyond 20 weeks, in which 69 (85.2%) delivered at term and 12 (14.8%) ended in preterm births. The obstetric complications were comparable.* ***Conclusion :*** *The majority of pregnancies with first trimester threatened abortion were nonviable and transvaginal sonography was useful in clinical management. (Thai J Obstet Gynaecol 1995; 7:1-7.)*

Key words : threatened abortion, prognosis, transvaginal sonography

The term threatened abortion is a clinical description that indicates rather minimal bleeding of intrauterine origin, possibly associated with mild cramps in the absence of cervical dilatation at any time during the first 20 weeks of gestation.[1] It is a common complication that occurs in one out of four or five pregnant women. Despite efforts to alter the outcome, approximately one half of these pregnancies will eventually abort.[1] Furthermore, an increased risk of suboptimal pregnancy outcome in the form of preterm delivery, low birth weight and perinatal deaths was also noted.[2,3]

Clinical management depends on whether or not the embryo is alive. The treatment of choice for a nonviable pregnancy is uterine evacuation while the potentially viable gestation,

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on the other hand, are expectantly observed. Sonographic evaluation of pregnancy is currently used to differentiate between a viable pregnancy and a pregnancy that inevitably will end in spontaneous abortion. Consequently, early diagnosis and management can be given to the patient with such a complication in the first trimester. Additionally, pregnancy outcome may be predicted in those patients with sonographically confirmed viable pregnancies.

This prospective study was conducted to evaluate the prognosis of pregnancies complicated with first trimester threatened abortion.

Materials and Methods

During a 16 month period between June 1, 1992 and September 30, 1993, a total of 224 pregnant women with clinical diagnosis of threatened abortion were admitted to the Department of Obstetrics and Gynecology, Faculty of Medicine, Chiang Mai University. All the patients in the prospective study had uterine bleeding in the first trimester of pregnancy with or without lower abdominal discomfort deemed significantly by the physician. All patients met the following criteria of regular menstruation with certain date, positive urine pregnancy test or positive serum hCG, no serious medical complications and were able to attend follow up clinic until abortion or delivery at this university hospital. Unwanted pregnancy and twins gestation were excluded from the study.

Transvaginal sonography was performed by a single examiner with an Aloka model SSD 650 scanner with vaginal probe frequency of 5 MHz 90 degree. Sonographic findings were primarily classified as viable, nonviable pregnancy and inconclusive. Criteria for viable pregnancy included positive embryonic or fetal echo with evidence of fetal heart beats. Criteria for nonviable pregnancy included anembryonic pregnancy (blighted ovum) as defined by Nyberg's criteria[4], embryo or fetus with crown rump length more than 6 mm., or gestational age more than 7 weeks without demonstration of fetal heart motion, complete abortion, incomplete abortion, and other abnormal pregnancy such as molar and ectopic pregnancy. Inconclusive cases were defined as pregnancy without fetal echo but the conditions did not fulfill the criteria for diagnosis of blighted ovum i.e, mean sac diameter less than 25 mm, and undemonstrable fetal heart motion in a fetus with less than 7 weeks' gestation or less than 6 mm in crown rump length.

The treatment for nonviable pregnancy was appropriately done by uterine evacuation. The only treatment for viable pregnancy was bed rest. Patients with inconclusive criteria were evaluated 1 week later and managed according to subsequent sonographic findings. The patient underwent sonographic examination weekly if bleeding continued, if otherwise normal, follow up was

extended throughout gestation until delivery was achieved. If pregnancy failed, the aborted material was subjected to histologic examination to confirm diagnosis. Information of the patient's profile, sonographic findings and pregnancy outcome were collected in the microcomputer program SPSS PC + for analysis.

Results

The mean age ± SD. of 224 patients was 26.9 ± 5.22 years, range 16-46 years. Eighty five per cent of the patients were between 20-34 years of age. The first and second gravidas constituted 57% and 38% respectively. The mean ± SD gestational age at diagnosis of threatened abortion and transvaginal sonography performed was 8.67 ± 2.04 weeks, range 5-12 weeks.

Initial transvaginal sonographic findings of pregnant women with first trimester threatened abortion are presented in Table 1. Viable pregnancy was detected in 77 patients (34.4%), whereas, the first examination in 18 (8.0%) was inconclusive because the comceptive products were too small to allow detection or exclusion of fetal life. In the remaining 129 patients (57.6%) sonographic diagnosis indicating unsalvageable gestation could be made at the first examination.

In the inconclusive group, subsequent sonographic examination 1 week later showed living fetuses in 12 patients, early embryonic demise, bligthted ovum, complete abortion and incomplete abortion in 1, 3, 1, and 1 patients respectively.

The prognosis of all patients with threatened abortion in the first trimester is presented in Table 2 and summarized in Diagram 1. Of 89 patients of the viable pregnancy group, 8 patients (9.0%) had a spontaneous

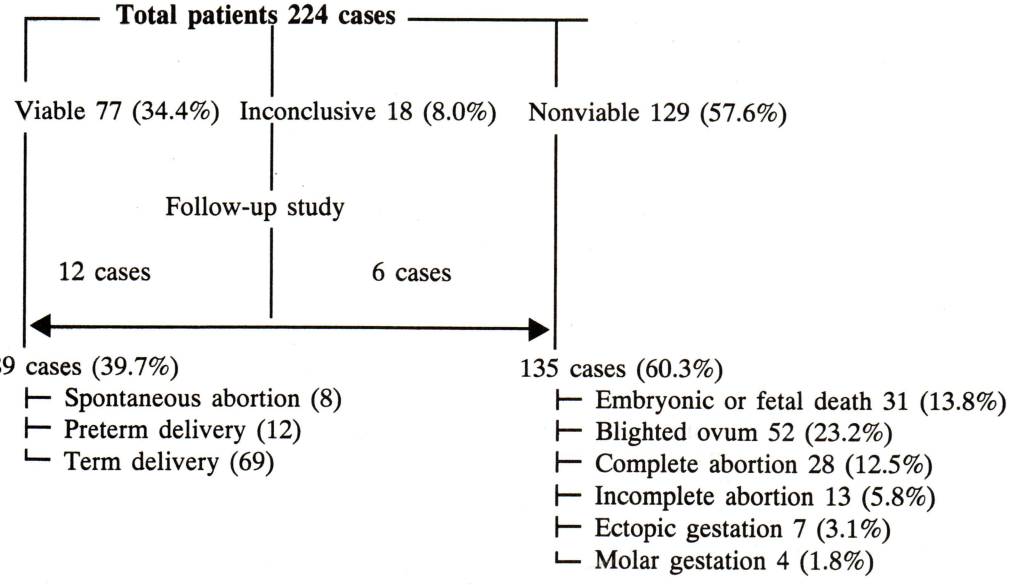
Table 1 ***Transvaginal sonographic finding at first examination in 224 patients with first trimester threatened abortion***

Sonographic findings	Number	Per cent
Viable pregnancies	77	34.4
Non viable pregnancies	129	57.6
Embryonic or fetal demise	30 (13.4 %)	
Blighted ovum	49 (21.9 %)	
Complete abortion	27 (12.1 %)	
Incomplete abortion	12 (5.4 %)	
Ectopic gestation	7 (3.1 %)	
Molar gestation	4 (1.8 %)	
Inconclusive	18 (8.0 %)	
Total	224	100.0

Table 2 *Pregnancy outcome in 224 patients with first trimester threatened abortion*

Final diagnosis	Number	Per cent
Viable pregnancy	89	39.7
Spontaneous abortion	8	9.0
Continue pregnancy > 20 wks	81	91.0
- Preterm delivery (< 37 wks)	12	14.8
- Term delivery (≥ 37 wks)	69	85.2
Nonviable pregnancy	135	60.3
Embryonic or fetal demise	31	13.8
Blighted ovum	52	23.2
Complete abortion	28	12.5
Incomplete abortion	13	5.8
Ectopic gestation	7	3.1
Molar gestation	4	1.8
Total	224	100.0

Diagram 1 *Prognosis of 224 patients with first trimester threatened abortion*



abortion, 81 continued beyond 20 weeks. Of the latter group, 12 (14.8%) had a preterm delivery, and 69 (85.2%) progressed to term.

In 135 patients of the nonviable group, blighted ovum was most commonly diagnosed, while ectopic and hydatidiform mole were incidentally diagnosed in 7 and 4 patients, respectively.

Late obstetric complications recorded in the viable group are

Table 3 *Late obstetric complications of the viable group (89 patients)*

Complication	Number	Per cent (of viable group)
Postterm (> 42 weeks)	2	2.2
Fetal growth retardation	6	6.7
Fetal death in utero	2	2.2
Preterm rupture of membranes	3	3.4
Chorioamnionitis	1	1.1
Pregnancy induced hypertension	4	4.5
Oligohydramnios	3	3.4
Placenta previa	2	2.2
Postpartum hemorrhage	1	1.1
Total	24	26.9

detailed in Table 3. Antepartum fetal deaths occurred in 2 patients. No intrapartum fetal death was found. Antepartum haemorrhage presented as placenta previa was found in 2.2% of the patients.

Discussion

Transvaginal sonography, at present, plays an important role in the management of pregnant women complicated by first trimester threatened abortion. Viable gestation can easily and accurately be differentiated from the nonviable ones with transvaginal sonographic examination.

The rate of abortion in this study was 60%, more than other reports in which the abortion rates were about 40-55%.[5-7] The higher risk of abortion in the present study is probably due to the tendency of this study population to delay seeking advice until the symptoms became more severe. Our patients with scanty bleeding frequently ignore the problem and do not come to the hospital, In these cases, continuation of viable pregnancy could generally be expected. Mantoni found that if the duration of bleeding was one to two days, the outcome in abortion was only 32%, whereas if bleeding lasted for three days or longer, the risk of abortion was significantly higher at 53%.[5] When the first bleeding episode began in weeks five to nine, the outcome in abortion was 35%. With later onset of bleeding, weeks 10 to 19, the abortion rate was 45%.[5] Patients of 35% in the present study had onset of bleeding after 9 weeks gestation.

This study showed that 95.5% of nonviable pregnancies could be dignosed by the first transvaginal sonography. Viable pregnancies and inconclusive group constituted 34.4% and 8%, respectively. These basic data

evidently indicated that transvaginal sonography is highly valuable in the management of pregnancy complicated with first trimester bleeding. Almost all nonviable gestations will eventually abort, but spontaneous expulsion may be delayed for weeks or even months after the onset of clinical symptoms.[8] This may lead to prolonged vaginal bleeding, infection, and patients' anxiety. Therefore, conservative treatment i.e. bed rest in these cases is avoidable. Early uterine evacuation spares the patient considerable expense, anxiety and discomfort.

Virtually all cases of molar pregnancy and ectopic pregnancy can be diagnosed early by the first sonographic examination. Incomplete abortion, by definition, should not be included in the study of clinically diagnosed threatened abortion. However, reports from other investigations indicated that incomplete abortion among cases diagnosed as threatened abortion by only clinical findings was found approximately 5-8%[5,9] as in this study (5.8%). Likewise, cases with complete abortion, 12.5% in this study, were also clinically diagnosed as threatened abortion despite closed cervical os and no history of conceptive product expulsion.

Blighted ovum was encountered in 38% in this series and was frequently found in the group of nonviable pregnancy. The major concern when an empty gestational sac is seen during threatened abortion is whether or not the pregnancy is viable. Viable pregnancies are managed conservatively, whereas, nonviable ones are treated by evacuation of the uterus. Criteria used for diagnosis of blighted ovum in this study were adopted from those of Nyberg et al[4] which represented the results of transabdominal investigation. It is generally accepted that, transvaginal scanning has a higher sensitivity e.g. earlier detection fetal heart activity and gestational sac, compared with transabdominal sonography.[10] Result of our study indicates that a single transvaginal sonography is useful in differentiating viable from nonviable gestational sacs. Mean sac diameter (MSD) of > 17 mm. that lacked an embryo or mean sac diameter of > 13 mm without visible yolk sac was found to be the most useful and reliable criterion for determining nonviability with 100% specificity and 100% positive predictive value.[11]

Despite the high resolution of transvaginal sonography, diagnosis could not be made in approximately 8% of patients with first trimester bleeding. The best approach in these cases is to repeat examination in 1 week and manage accordingly.

Whereas, the diagnosis of blighted ovum, complete or incomplete abortion and molar pregnancy can be made with accuracy, it is much more difficult to predict the outcome of the viable pregnancies. In the present study, despite demonstration of live fetus, 9% terminated as spontaneous abortion which was slightly higher than that reported by other investigators[5,6]

Preterm deliveries occurred in 14.8% of those continuing beyond 20 weeks. This figure was slightly higher than the incidence of preterm delivery in this institution (11.3%)[12] It is possible that first trimester threatened abortion increases the risk of preterm birth, however, further comparative study is needed to confirm this finding. Perinatal complications in the viable group were not found to differ significantly from the general obstetric population.

In summary, the majority of pregnancies with first trimester threatened abortion were nonviable and transvaginal sonography was useful in the clinical management. The outcomes of viable pregnancies were mostly normal, but preterm deliveries were relatively high.

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