Sonographic Findings in Clinically Diagnosed Threatened Abortion

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Abstract

Objective : To determine the sonographic appearances in pregnant women who presented with vaginal bleeding in the first 20 weeks of gestation.

Method : Pregnant women of under 20 gestational weeks diagnosed clinically as threatened abortion were recruited for ultrasound scan at the Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University. The sonographic findings were reported as viable pregnancy, anembryonic pregnancy, embryonic death, incomplete abortion, complete abortion, ectopic pregnancy, molar pregnancy and inconclusive findings. Patients with inconclusive findings were followed weekly until final diagnoses were established. All patients were followed-up to 20 weeks or until the final outcomes were revealed.

Results : Two hundred and sixty eight pregnant patients were enrolled. Ultrasound scans demonstrated 100 viable fetuses (37.3%), 73 embryonic deaths (27.3%), 46 anembryonic pregnancies (17.2%), 6 molar pregnancies (2.2%), 3 ectopic pregnancies (1.1%), 14 complete abortions (5.2%) and 26 inconclusive findings (9.7%). Follow-up scan on patients with inconclusive findings revealed 9 anembryonic pregnancies (3.3%), 9 incomplete abortions (3.3%), 1 embryonic death (0.4%) and 1 viable pregnancy (0.4%). Six patients (2.3%) were lost to follow-up. The viable pregnancy rate according to maternal age was highest at the maternal age of 25 to 29 years old (49%), whereas, it was lowest at the maternal age of 40 to 44 years old (0%). The viable pregnancy rate according to gestational age was highest at 6 to 8 weeks (61.2%), whereas, it was lowest at 18 to 20 weeks (20%).

Conclusion : Sonographic findings in patients with clinically diagnosed threatened abortion demonstrated viable pregnancies in around one-third of the cases. Use of ultrasound in clinically diagnosed threatened abortion may assist clinicians in establishing a definite diagnosis so that appropriate care could be offered to the patients.

Key word : Threatened Abortion, Ultrasound.

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Threatened abortion is a clinical term used to describe a pregnancy complicated by uterine bleeding during the first 20 weeks of gestation. It is often quoted to occur in around 25 per cent of all pregnancies[1]. This clinical entity may eventually end up with different outcomes including a normal viable pregnancy, an embryonic demise or a complete abortion. All these outcomes can not be reliably predicted with a simple clinical setting. Besides, other more serious clinical problems such as ectopic pregnancy or molar pregnancy could have a similar clinical picture that may mislead the clinicians to a wrong expectant management scheme[2,3]. This can eventually bring a tragic result to the patient as urgent medical intervention is delayed. In recent years, real-time ultrasonography especially with vaginal transducer technology has enabled clinicians to accurately predict the outcomes of patients with threatened abortion[4]. It is our routine practice to quote a pregnancy continuation rate of around 50 per cent in patients with threatened abortion for a prognosticator in counseling of couples with problems. Our feeling from clinical experiences on employing ultrasound for this clinical setting is that the viable pregnancy rate in threatened abortion seems to be much lower than previously quoted. The purpose of this study was to evaluate sonographically the prognosis of threatened abortion diagnosed clinically and also to evaluate the usefulness of employing ultrasound particularly with vaginal transducer technology in distinguishing between a simple threatened abortion and more deleterious problems such as ectopic pregnancy and molar pregnancy.

MATERIAL AND METHOD

Over a 15–month period from March 1998 to May 1999, patients with a gestational age less than 20 weeks and registered at the antenatal clinic at King Chulalongkorn Memorial Hospital with a clinical diagnosis of threatened abortion based on their history of missing a menstrual period, vaginal bleeding and positive urine pregnancy test were recruited for ultrasound examination at the Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University. Excluded were patients with bleeding found to be caused by other local lesions such as cervical polyps or erosion and patients who had received any hormonal treatment. The scans were performed by at least two experienced members of the division. The ultrasound machines employed were Aloka SSD 2000, Tokyo, Japan with 5 MHz vaginal or abdominal transducers. Sonographic appearances were defined using the following criteria:

Embryonic death was defined when the fetal part was obviously demonstrated but no fetal heart motion was evident.

Anembryonic pregnancy (Blighted ovum) was diagnosed when there was an empty gestational sac with mean sac diameter of greater than 18 mm with a vaginal scan. One-week interval scan was performed before establishing this diagnosis[5].

Incomplete abortion was diagnosed when there was an irregular echo present in the midline of the uterine cavity and confirmed by a subsequent pathological result on evacuation of uterine content [3].

Complete abortion was established when there was an empty uterine cavity with an uninterrupted midline endometrial echo without any adnexal mass or significant amount of cul-de-sac fluid.

Ectopic pregnancy was defined as presence of gestational sac outside the uterine cavity, presence of fluid in the cul-de-sac and confirmed by final pathological result.

Molar pregnancy was established when there was a classic snow storm patterns or multiple small vesicular pattern throughout the uterine cavity.

The scan was classified as inconclusive when the sonographic appearance did not classically fit the above criteria at the first scan. A one-week interval scan was then scheduled for this specific group. All patients were followed-up to 20 weeks' gestation or until final diagnosis was established with a pathological confirmation. Descriptive statistics were run on all the data.

RESULTS

A total of 268 patients fitting the criteria were enrolled for the first scan. Ages ranged from 16 to 42 years old (Mean $\pm$ SD = 29.06 $\pm$ 6.02). Ninety two patients were gravida 1 and 103 patients were gravida 2 (34.3% and 38.4% respectively). 175 patients (65.3%) had no history of abortion and 247 patients (86.6%) had a gestational age of less than 14 weeks. The ultrasound findings in 268 patients are presented in Table 1. A viable pregnancy was identified in 100 patients (37.3%), of whom 98 per cent proceeded uneventfully beyond

Table 1. Ultrasound findings at first scan in 268 patients with clinically diagnosed threatened abortion.

Ultrasound findings	Number of cases	Per cent
Alive fetus	100	37.3
Embryonic death	73	27.3
Blighted ovum	46	17.2
Molar pregnancy	6	2.2
Ectopic pregnancy	3	1.1
Complete abortion	14	5.2
Inconclusive finding	26	9.7

Table 2. The final results of 26 patients with inconclusive ultrasound findings.

Ultrasound findings	Number of cases	Per cent
Blighted ovum	9	34.6
Incomplete abortion	9	34.6
Embryonic death	1	3.8
Alive fetus	1	3.8
Lost to follow-up	6	23.1

Table 3. Number of viable pregnancies according to maternal age. (n=262)

Maternal age (years)	Viable cases	Total cases	Per cent
15-19	7	15	46.6
20-24	25	51	49.0
25-29	28	76	36.8
30-34	23	67	34.3
35-39	18	40	45.0
40-44	0	13	0.0

Table 4. Number of viable pregnancies according to gestational age. (n=262)

Gestational age (Weeks)	Viable cases	Total cases	Per cent
6-8	41	67	61.2
9-11	29	87	33.3
12-14	22	87	25.3
15-17	8	16	50.0
18-20	1	5	20.0

20 weeks. There was 26 patients (9%) whose first scan was defined as inconclusive finding and follow-up scans were needed. The results of the follow-up scan are presented in Table 2. Six patients in this group were lost to follow-up, leaving 262 patients for evaluation of the final outcomes and this yielded a viable pregnancy rate in 262 patients of 38.5 per cent. Viable pregnancy according to maternal age is shown in Table 3. Viable pregnancy according to gestational age is presented in Table 4.

DISCUSSION

Threatened abortion is one of the most common clinical problems encountered during the first half of pregnancy accounting for 25 per cent of all pregnant women[1]. In the past, it has never been possible for clinicians to provide any active intervention to any patients with a clinical picture of threatened abortion. The only possible management that clinicians can offer to the patients is using the policy of wait and see without any knowledge of whether or not the pregnancy is viable. The pregnancy continuation rate of around 50 per cent is often quoted in texts and is routinely used for counseling of patients presenting with this problem[1]. With the introduction of ultrasound technology especially with the high resolution vaginal transducer capacity to the obstetric community, it is now becoming possible for clinicians to give more pertinent information regarding the prognosis of the problems. With this technology, patients with clinically diagnosed threatened abortion can be immediately classified into viable pregnancy, embryonic death, anembryonic pregnancy, etc[6,7]. Our results of a 38.5 per cent viable pregnancy rate is much lower than other previous western studies which reported a viable pregnancy rate from 55.6 per cent to 65.6 per cent[3,6,7]. Whether our study carried a different population as well as a difference in severity of bleeding is yet to be answered. A 98 per cent continuation of pregnancy up to 20 weeks on detection of fetal heart motion is consistent with previous reports[3,8]. Interestingly, ectopic pregnancy and molar pregnancy were revealed accidentally in 1.1 per cent and 2.2 per cent respectively[3,6,8]. These ultrasound findings were also described in other previous reports. These findings again, reiterate the importance of employing vaginal ultrasound in the management of patients

diagnosed as threatened abortion in order to minimize the mortality and morbidity from missing diagnosis. The viable pregnancy rate in patients with inconclusive ultrasound findings was only 5 per cent (1 out of 20 patients) which compared with a rate of around 10 per cent reported by Dart et al[9]. Of note is that the viable pregnancy rate was highest (49%) in the maternal age between 25 to 29 years old, whereas, there was no viable pregnancy when the maternal age was above 40 years old. The possibility of a relationship between fetal abnormal chromosome and older mothers is only a speculation. Since the viable pregnancy rate was highest (61.2%) at the gestational age of 6 to 8 weeks, the earliest presentation seems to give the best pregnancy continuation rate. Further studies are still needed to answer the reason behind these results. Knowledge concerning viability of pregnancy in patients with this problem will clearly allow clinicians to provide a proper management plan and may minimize the need for long-term hospitalization in case an inevitable miscarriage is anticipated.

In conclusion, this study underlines the importance of using ultrasound, especially with the vaginal transducer, in the patients diagnosed as threatened abortion and suggests that a viable pregnancy rate derived from a local population should be employed in counseling couples with this problem.

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ลักษณะทางคลื่นเสียงความถี่สูงในสตรีที่ได้รับการวินิจฉัยทางคลินิกเป็นภาวะแท้งคุกคาม

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วัตถุประสงค์ : เพื่อศึกษาลักษณะทางคลื่นเสียงความถี่สูงในสตรีที่ได้รับการวินิจฉัยทางคลินิกเป็นภาวะแท้งคุกคาม ในอายุครรภ์ที่น้อยกว่า 20 สัปดาห์

วิธีการศึกษา : สตรีมีครรภ์ที่อายุครรภ์น้อยกว่า 20 สัปดาห์ ซึ่งได้รับการวินิจฉัยเป็นภาวะแท้งคุกคาม จะได้รับการตรวจคลื่นเสียงความถี่สูง ที่หน่วยเวชศาสตร์มารดาและทารกในครรภ์ ภาควิชาสูติศาสตร์-นรีเวชวิทยา คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยจะแบ่งลักษณะคลื่นเสียงความถี่สูงที่เห็นเป็นครรภ์ที่ตัวอ่อนมีชีวิต ครรภ์ที่ไม่มีตัวอ่อน ครรภ์ที่ตัวอ่อนเสียชีวิต ภาวะแท้งไม่ครบ ภาวะแท้งครบ ครรภ์นอกมดลูก ครรภ์ไข่ปลาอุก และผลไม่สรุป ในสตรีมีครรภ์ที่การตรวจคลื่นเสียงความถี่สูงได้ผลไม่สรุปจะได้รับการตรวจติดตามทุกสัปดาห์จนได้ผลสรุป สตรีมีครรภ์ทุกรายจะได้รับการติดตามจนอายุครรภ์ 20 สัปดาห์หรือทราบผลการตั้งครรภ์ก่อนอายุครรภ์ 20 สัปดาห์

ผลการศึกษา : ได้ตรวจสตรีมีครรภ์ที่ได้รับการวินิจฉัยเป็นภาวะแท้งคุกคาม 268 ราย พบครรภ์ที่ตัวอ่อนมีชีวิต 100 ราย (ร้อยละ 37.3) ครรภ์ที่ตัวอ่อนเสียชีวิต 73 ราย (ร้อยละ 27.3) ครรภ์ที่ไม่มีตัวอ่อน 46 ราย (ร้อยละ 17.2) ครรภ์ไข่ปลาอุก 6 ราย (ร้อยละ 2.2) ครรภ์นอกมดลูก 3 ราย (ร้อยละ 1.1) แท้งครบ 14 ราย (ร้อยละ 5.2) และได้ผลไม่สรุป 26 ราย (ร้อยละ 9.7) การตรวจติดตามในกลุ่มที่ได้ผลไม่สรุป พบเป็นครรภ์ที่ไม่มีตัวอ่อน 9 ราย (ร้อยละ 3.3) แท้งไม่ครบ 9 ราย (ร้อยละ 3.3) ครรภ์ที่ตัวอ่อนเสียชีวิต 1 ราย (ร้อยละ 0.4) และครรภ์ที่ตัวอ่อนมีชีวิต 1 ราย (ร้อยละ 0.4) สตรีมีครรภ์ 6 ราย (ร้อยละ 2.3) ไม่มาตรวจติดตาม ครรภ์ที่ตัวอ่อนมีชีวิตมีอัตราสูงสุดในสตรีที่อายุ 25-29 ปี (ร้อยละ 49) โดยครรภ์ที่ตัวอ่อนมีชีวิตมีอัตราต่ำสุด ในสตรีที่อายุ 40-44 ปี (ร้อยละ 0) ครรภ์ที่ตัวอ่อนมีชีวิตมีอัตราสูงที่สุดขณะอายุครรภ์ 6-8 สัปดาห์ (ร้อยละ 61.2) โดยจะต่ำสุดขณะอายุครรภ์ 18-20 สัปดาห์ (ร้อยละ 20)

สรุป : การตรวจคลื่นเสียงความถี่สูงในสตรีมีครรภ์ที่ได้รับการวินิจฉัยทางคลินิกเป็นภาวะแท้งคุกคาม พบเป็นครรภ์ที่ตัวอ่อนมีชีวิตเพียงประมาณหนึ่งในสาม การใช้คลื่นเสียงความถี่สูงในสตรีที่มีลักษณะทางคลินิกดังกล่าวอย่างเหมาะสมจะช่วยให้การวินิจฉัยที่แน่นอน ซึ่งช่วยให้แพทย์ให้การดูแลผู้ป่วยเหมาะสม

คำสำคัญ : ภาวะแท้งคุกคาม, คลื่นเสียงความถี่สูง

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