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Maternal and Perinatal Outcome of Threatened Abortion with Subchorionic Hemorrhage in First and Second Trimester

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ABSTRACT

Introduction

Threatened abortion with subchorionic hemorrhage (SCH) is a common phenomenon during first and second trimester of pregnancy. Most pregnancies may continue to term and may be associated with poor maternal and fetal outcomes. The objective of this study was to assess the maternal and perinatal outcomes of threatened abortion with SCH in first and second trimester.

Methods

This prospective study was conducted in Dhulikhel Hospital from August 2017 to July 2018. Total 150 cases were included in the study who had ultrasonography done to find out the size of SCH. They were followed up until spontaneous abortion or up to delivery of fetus. The outcomes were documented in terms of abortion, antepartum hemorrhage (APH), term or preterm vaginal delivery, cesarean section, intrauterine growth restriction (IUGR), low birth weight (LBW) and neonatal intensive care unit (NICU) admission.

Results

The mean age was 25.39± 5.60 years and 59.33% were primigravida. 82.66% had SCH of size <4cm^2 and rest had SCH of size ≥4cm^2. 9.33% had spontaneous abortion. Among those whose pregnancy continued, 11.75% had preterm delivery, 14.70% had APH, 18.38% had IUGR, 11.76% had LBW and 13.97% had NICU admission.

Conclusions

The size of SCH influences the pregnancy outcomes. Spontaneous abortion was seen more with SCH of size ≥4cm^2 whereas continuation of pregnancy was seen more with SCH of size <4cm^2. The associations of SCH of size ≥4cm^2 with APH and IUGR were found to be significant whereas those with NICU admission and LBW were found to be insignificant.

Keywords: Maternal and perinatal outcomes; subchorionic hemorrhage; threatened abortion; ultrasound

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INTRODUCTION

Threatened abortion is the most common complication of pregnancy occurring in 20-25% of ongoing pregnancy. It is diagnosed on the basis of documented fetal cardiac activity on ultrasonography (USG) with history of vaginal bleeding in the presence of closed cervix.[1] USG may show subchorionic hemorrhage (SCH) of varying size, defined as a crescent shaped echo free area outlining the intact gestational sac. [2]

Bleeding during pregnancy can cause maternal anxiety and may be associated with poor fetal outcomes like preterm delivery, low birth weight (LBW), intrauterine growth restriction (IUGR) and neonatal intensive care unit (NICU) admission whereas poor maternal outcomes include increased risk of abortion, pre-labor rupture of membrane (PROM) and antepartum hemorrhage(APH). [3]

The main objective of this study was to identify the maternal and perinatal outcomes in threatened abortion with subchorionic hemorrhage so that they can be managed earlier to reduce the morbidity and mortality.

METHODS

This prospective longitudinal study was conducted in the Department of Obstetrics and Gynecology, Dhulikhel Hospital (DH) –Kathmandu University Hospital from August 2017 to July 2018. Ethical approval was obtained from the Institutional Review Committee (IRC) of KUSMS. Convenient sampling method was used for data collection.

The sample size was calculated using the following formula (Cochran formula)

Sample size (N) = $(Z)^2 * P(1-P) / M^2$

$= (1.96)^2 * 0.11(1-0.11)/(0.05)^2$

$= 150.43$

Where, Z=degree of confidence level at 95%= 1.96

P = Prevalence of the disease (11%), M = Margin of error i.e. 5%

Predesigned questionnaire was used in order to collect the necessary information.

All women of age 16 to 40 years with singleton live intrauterine gestation with subchorionic hemorrhage as seen on ultrasonography done in between 6 and 28 weeks of gestation, attending the antenatal outpatient department with per vaginal bleeding were considered for the study. After excluding women with history of hypertension, diabetes, renal disorder, multifetal pregnancy, uterine fibroid or cervical pathology like polyp and erosion, congenital uterine anomaly, cervical incompetence and pregnancy failure diagnosed on the first visits, total of 150 women were included in this study.

After proper counseling, informed consent was taken from each patient. The history, physical examination, and relevant laboratory investigations were done. The blood investigations included complete blood count, bleeding time, clotting time and platelets. Routine and microscopic examination of urine was done.

Management included complete bed rest up to 72 hours, folic acid supplementation, low dose aspirin, phenobarbitone and injection human chorionic gonadotrophin (HCG) weekly up to 12 weeks and injection 17 α hydroxyprogesterone after 12 weeks was given weekly up to 28 weeks. Follow up of the patient was done till spontaneous abortion or up to delivery of fetus.

Maternal outcomes were measured in terms of spontaneous abortion, term or preterm vaginal delivery and Cesarean section (CS). Perinatal outcomes were measured in terms of preterm birth, IUGR, LBW, and NICU admission.

The collected information was entered in Microsoft Excel 2016. The data were analyzed using Statistical Package for Social Science (SPSS), version 16. The Chi-square test, Fisher exact test

and Likelihood ratio were used to find out the significance of the study parameters. The p-value <0.05 was considered significant.

RESULTS

Table 1. Demographic data	
Age (Mean ± SD)years	25.39±5.60
Nulliparity (n, %)	89, 59.33%
Multiparity (n, %)	61, 40.67%
Gestational age (Mean ± SD) weeks	14.84± 5.60

Table 2. Size of subchorionic hemorrhage with pregnancy outcomes

Size of subchorionic hemorrhage	Spontaneous Abortion		Continuation of pregnancy	
	Frequency	%	Frequency	%
<4cm²	10	8.06%	114	91.93%
≥4cm²	4	15.38%	22	84.61%

Out of 150 cases, 8.06% (10) had spontaneous abortion after diagnosis of threatened abortion and 91.93% (114) continued after 28 weeks of gestation in <4cm² SCH whereas 15.38%(4) had spontaneous abortion and 84.61% continued pregnancy in ≥4cm² SCH. The continuation of pregnancy was seen more with SCH of size <4cm².

Table 3. Maternal outcomes and perinatal outcomes

Maternal and perinatal outcomes	Frequency	Percentage
Spontaneous Abortion	14	9.33
Term vaginal delivery	102	75.00
Term CS	18	13.23
Preterm Vaginal delivery	11	8.08
Preterm CS	5	3.67
APH	20	14.70
IUGR	25	18.38
LBW	16	11.76
NICU admission	19	13.97

Table 4. Maternal Outcomes and SCH

SCH	Term vaginal	Term CS	Preterm Vaginal	Preterm CS	APH
<4cm²	90(66.17%)	12(8.82%)	08(5.88%)	04(2.94%)	12(8.82%)
≥4cm²	12(8.82%)	06(4.41%)	03(2.20%)	01(0.73%)	08(5.88%)

Table 5. Association between maternal outcomes and SCH

Maternal outcome	SCH		2 test	P Value
	<4cm²	≥4cm²		
Spontaneous Abortion			1.903	0.179
Yes	09	05		
No	109	27		
APH			5.404	0.033
Yes	12	08		
No	96	20		
χ^2 value was calculated by using Fisher`s exact test				

The association between SCH of size ≥4cm² and APH was found to be significant.

Table 6. Association between Perinatal outcomes and SCH

Fetal outcome	SCH		χ2 test	P Value
	<4cm²	≥4cm²		
IUGR				
Yes	15	10	7.060 (Pearson Chi –square)	0.008
No	93	18		
LBW				
Yes	11	05	1.261 (Fisher `s exact test)	0.321
No	97	23		
NICU				
Yes	13	06	1.632 (Fisher`s exact test)	0.225
No	95	22		

The association between SCH of size ≥4cm² and IUGR was found to be significant whereas the association between SCH of size ≥4cm², NICU

admission and Low birth weight were found to be insignificant.

DISCUSSION

Most of the cases in our study were in early reproductive age group with mean maternal age during presentation being 25.39±5.60 years.

In our study, most women were primigravida (59.33%). Various studies have different results. Study by Vashisth et al[4] showed 51.90% primigravida and rest multigravida. Similarly, study by Sarmalkar et al[5] had 52% primigravida and 48% multigravida women whereas study by Dongol et al[6] concluded that most women were multigravida (54.3%).

In our study, we found that cases with size of SCH ≥ 4cm^2 had more risk of complications like spontaneous abortion, IUGR, APH and preterm labor as compared with SCH of size < 4cm^2. Similar findings were found in study by Jaishree Bamniya et al[7].

The incidence of spontaneous abortion was 9.33% in our study which is similar to a retrospective study done among 516 patients by A. Ben Haroush et al[8]. The overall spontaneous abortion rate was 9.3%. The size of SCH affected the rate of abortion, 18.8% in large size, 9.2% in moderate size and 7.7% in small size. In our study also, the rate of spontaneous abortion was 15.38% in SCH of size ≥ 4cm^2 and 8.06% in SCH of size< 4cm^2. However, Sarmalkar et al[5] in 100 ladies had only 7% spontaneous abortion which is less than ours. Similarly, study done by Agarwal et al[9] found an incidence of 21% in 62 patients with history of threatened abortion in first 20 weeks of gestation. Our study has lesser rate of abortion which may be because all our cases had confirmed fetal viability on ultrasound.

Many studies have noted association between vaginal bleeding and preterm delivery. Batzofin et al[10] and Williams et al[11] have reported that the cases with vaginal bleeding had doubled the risk of preterm delivery as compared to cases without vaginal bleeding. Similarly, in study done by Wijesiriwardana et al[12] there was significant association between the preterm delivery and threatened abortion. However, our study has found no association between preterm delivery and vaginal bleeding. Strobina et al[13] also failed to show an association between preterm delivery and threatened abortion. This might be because our cases were treated with low dose aspirin and injection hydroxyprogesterone as support for prevention of progression of preterm delivery.

The risk of low birth weight in our study was 11.76% while study by Batzofin et al[10] shows the incidence to be 15.48%. Similarly, study by Davari Tanha et al [14] also found the risk of LBW to be 14.9%.

A study by Arafa et al[15] reported an incidence of IUGR to be 48.5% while study by Davari Tanha et al[14] revealed to be 2% whereas in our study, it was 18.38%.

In our study, the association between the SCH with APH and IUGR were found to be significant which was similar to the results by Saraswat et al[16] in which the systematic review observed that women with threatened abortion had significantly higher incidence of APH and IUGR.

Term delivery was seen in 88.23% of cases in our study. 75% had vaginal delivery while rest underwent Cesarean Section. A. Ben Haroush et al[8] found the incidence of term delivery to be 86.5% which was similar to our study. Similarly, Dongol et al[6] found the incidence of term delivery in cases of threatened abortion to be 75.8%.

Our study had no cases of IUFD and PROM, however it was reported in many other studies. This might be due to regular follow up, progesterone support and addition of low dose

aspirin. In study by Dongol et al[6] reported three cases of IUFD out of 70 cases in their study and Sarmalkar et al[5] found one case of IUFD in their study. Similarly, studies by Sarmalkar et al[5] and Agrawal et al[9] reported the incidence of PROM as high as 14% and 20.41% respectively.

CONCLUSIONS

Threatened abortion is a common phenomenon occurring during first and second trimester causing anxiety in pregnant women and their family members as it has been associated with poor maternal and fetal outcomes. Our study has shown association between IUGR and APH in threatened abortion with SCH of size ≥ 4cm^2 whereas no association between preterm delivery and NICU admission.

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