



Subchorionic Haematoma in First Trimester and Pregnancy Outcome – A Hospital Based Prospective Cohort Study

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ABSTRACT

Background

The most common abnormality seen in routine first-trimester ultrasonography (USG) is SCH (subchorionic haematoma). It indicates placental dysfunction, which can lead to adverse pregnancy outcomes. This study intends to understand the adverse maternal and neonatal outcomes associated with the presence of SCH in the first trimester. Thus, it helps in early assessment and monitoring to prevent late obstetric complications.

Methods

This Prospective Cohort study was done for a period of 1 year. All single live intrauterine pregnancies less than 14 weeks gestation with threatened abortion were selected and divided into 2 groups. Group 1-pregnant women with threatened abortion and ultrasound evidence of SCH, Group 2-pregnant women with threatened abortion without SCH. All patients were followed and reassessed during the entire course of their pregnancy to assess pregnancy outcomes.

Results

166 pregnant women were enrolled for the study with 83 subjects in each group. We observed a significant increase in the number of preterm delivery ($p=0.016$) among pregnant women detected with SCH in the first trimester (29.7%) than those without SCH (13%). Preterm delivery in mothers was associated with an increased risk of prematurity among the neonates.

Conclusions

All pregnancies complicated with SCH have to be considered high-risk and need close clinical monitoring. Thereby reducing the maternal and perinatal morbidity associated with SCH.

Keywords- SCH, ultrasonography, threatened abortion, preterm delivery

I. INTRODUCTION

The most common abnormality seen in routine first-trimester ultrasonography is an intra-uterine haematoma. The incidence varies from 0.46% to 39.5% depending on the population studied, definition, and gestational age at diagnosis[1]. The

maternal-placental-fetal unit develops different types of haematomas- (a) Subchorionic haematoma (b) Retro placental haematoma (c) Sub amniotic haematoma[2].

25% of pregnant women are affected by vaginal bleeding in the first half of their pregnancy. It is a common indication for first-trimester ultrasonography[3]. Often sub chorionic haematoma regresses, especially small or moderate size haematomas. Large SCH, that strips 30-40% of the placenta away from the endometrium, enlarges further and causes compression of the gestational sac and leads to premature rupture of membranes with consequent spontaneous abortion[4]. The exact aetiology of SCH is unclear. They are believed to result from partial detachment of the chorionic membranes from the uterine wall[5]. The presence of a haematoma, especially in retro placental location, creates an area of weakness, where the placenta further separates from the uterine wall and results in abruptio placenta[6]. It is hypothesized that subchorionic haematoma signifies an underlying placental dysfunction that subsequently results in pregnancy complications including abruption, preterm delivery, preeclampsia, and fetal growth retardation.

This study was intended to understand the significance of first-trimester vaginal bleeding associated with subchorionic haemorrhage and its adverse maternal and perinatal outcomes. The outcomes assessed are spontaneous miscarriage, preterm delivery, abruption, gestational hypertension, pre-eclampsia, NICU admission, and MSAF (meconium-stained amniotic fluid).

II. MATERIALS AND METHODS

A prospective cohort study was designed to include all single live intrauterine pregnancies visiting the OBG Department of MOSC Medical College Hospital, Kolenchery, with threatened abortion, less than 14 weeks gestation, over a period of 1 year. The period of gestation was calculated from the last menstrual period (Naegele's rule) or previous ultrasonography (if done earlier



during this pregnancy). History was taken in detail, so as to ascertain the amount and character of bleeding, any initiating factors such as trauma or coitus, previous vaginal bleeding, association of abdominal pain; duration between time of onset of bleeding and time of admission. Ultrasonography was done to confirm viability and to look for the presence of SCH. The size of the gestational sac recorded and the position of the haematoma described in regard to the placental site as being subchorionic (located between the chorion and the uterine wall, external to the chorionic leave). Pregnant women presenting with vaginal bleeding due to missed abortion, incomplete and complete abortion, and inevitable abortion were not included in the study. If eligible, consent was taken and the subject was included in the study.

The sample size was 166, with 83 subjects in each group. Group 1 had pregnant women with threatened abortion and ultrasound evidence of SCH and Group 2 had pregnant women with threatened abortion in the absence of SCH. All patients were followed and reassessed during the entire course of their pregnancy. The maternal outcomes noted were spontaneous miscarriage, gestational hypertension, pre-eclampsia, abruption and preterm delivery.

Neonatal outcomes studied include gestational age at delivery, meconium-stained amniotic fluid (MSAF) and NICU (neonatal intensive care unit) admission. The data was entered using Microsoft Excel and analysed using R software. Qualitative variables were exposed in proportions. The chi-square test was used for the analysis of qualitative variables. A p-value of less than 0.05 was considered statistically significant.

ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the Research Ethics Committee of the Institutional Review Board in MOSC Medical College, Kolenchery, Kerala. Confidentiality was strictly maintained. Patients were closely monitored and given prompt treatment. No additional costs were incurred by the participants.

III. RESULTS

166 subjects were enrolled in the study with 83 in each group. The majority of the participants belonged to the age group 25-30 years (64.5%) and were primigravida (60.2%). Of these 15 women had a miscarriage before 20 weeks of gestation. The SCH group had a miscarriage rate of 10.8% compared to 7.2% in the other group. Mode of delivery was not affected by the

presence of SCH. 61.5% in group 1 and 71.1% in group 2 had a normal vaginal delivery.

29.7% in the SCH group had a preterm delivery compared to 13% in the SCH group, $p=0.016$ (Table 1, Fig. 1). No significant difference was found among other maternal complications like gestational hypertension, pre-eclampsia, abruption and neonatal complications like Meconium-stained liquor, and NICU admission among the 2 groups (Table 2).

IV. DISCUSSION

The reported incidence of subchorionic haemorrhage from studies varies between 0.46% and 39% depending on the population studied, definition, gestational age at diagnosis, and the route and resolution of the USG equipment used [2]. Out of the 166 women who presented with first-trimester vaginal bleeding, 100 were primigravida (60.2%). Also, we observed that primigravida has more incidence of SCH compared to multigravida (59% vs 41%) in the first trimester of pregnancy. The mean age of women was 26.67 ± 3.52 years and 27.43 ± 3.50 years respectively in the SCH group and without SCH group.

Sukur et al reported that the miscarriage rate was significantly higher in women with SCH compared to those without SCH (29.5% vs 12.6%) [7]. A similar finding was obtained in our study, women in the SCH group had a greater number of miscarriages (10.8%) compared to the other group. 51 women (61.5%) in the SCH group had vaginal delivery. SCH diagnosed in early pregnancy does not influence the method of delivery.

Preterm delivery is the most frequently reported outcome of bleeding during pregnancy, regardless of gestational age. Yang et al. proved that vaginal bleeding during 1st and 2nd trimesters increases the overall risk of preterm delivery by 1.3-fold [8]. Among the 74 women in the SCH group who continued pregnancy without a miscarriage, 22 women (29.7%, $p=0.016$) had preterm delivery. Our study was consistent with a few prior studies which failed to establish a statistically significant association of SCH with gestational hypertension, pre-eclampsia and placental abruption.

As part of the neonatal outcomes, we studied the incidence of meconium-stained amniotic fluid and the need for NICU admission. No significant association was found between the presence of SCH and adverse neonatal outcomes. The increased incidence of preterm delivery in women with SCH was associated with an increased risk of prematurity among the neonates. The major limitation of this study was the



small sample size and convenient sampling that was used to select the patients.

V. CONCLUSION

This study has provided insight into the fact that the presence of subchorionic haemorrhage in the first trimester was associated with an increased risk of preterm delivery and prematurity. Thus, all pregnancies complicated by the presence of SCH have to be considered high-risk and need close clinical monitoring. Early diagnosis and more frequent and regular antenatal check-ups will help in continuing the pregnancy till term with good maternal and fetal outcomes.

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Table 1- Relationship between Preterm delivery and SCH

Table with 4 columns: Category, Preterm Delivery, Term Delivery, Total. Rows: With SCH, Without SCH, Total.

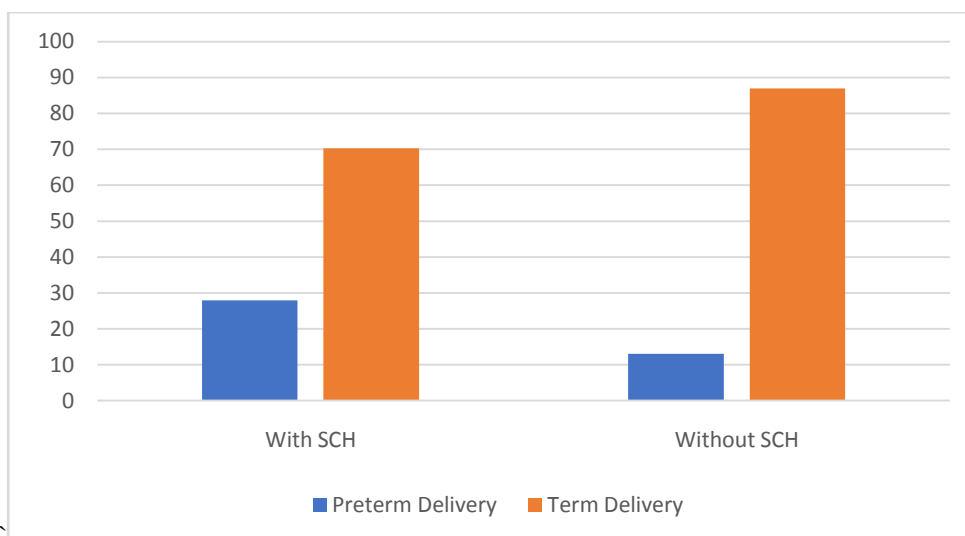


Fig. 1 Distribution of Preterm Delivery in SCH



Table 2 Relationship between SCH and Maternal/Neonatal outcomes

	SCH Group (n=83)	Control (n=83)	p Value
Miscarriage	9 (10.8%)	6 (7.2%)	0.104
Preterm Delivery	22 (29.7%)	10 (13%)	0.016
Gestational Hypertension	6 (8.1%)	3 (3.9%)	0.321
Pre-eclampsia	6 (8.1%)	2 (2.6%)	0.183
Abruption	1 (1.4%)	0 (0%)	0.490
MSAF	7 (9.5%)	8 (10.4%)	1.000
NICU admission	14 (18.9%)	16(20.8%)	0.840