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Obstetrical outcome of subchorionic hematoma in first trimester

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Abstract

Background: Threatened abortion during the first trimester of pregnancy may be due to many reasons including subchorionic haematoma (SCH). The presence of SCH can have several adverse effects on pregnancy outcome.

AIM: To determine the impact of SCH identified during the first trimester of pregnancy on adverse pregnancy outcomes.

Material and Methods: This was a prospective study conducted by enrolling 151 women each with and without Subchorionic Haematoma. All women were followed until delivery to observe the outcome of the pregnancy.

Results: Out of 151 women in each of the two groups- 110 (72.8%) women with SCH and 118 (78.1%) women without SCH gave birth to a live neonate. The relative risk of pregnancy wastage (spontaneous abortion, IUFD & stillbirth) for the women with SCH and without SCH was 1.22 (95% CI 0.81 - 1.82; p-value = 0.33). 27% and 11.5% of pregnant women with and without SCH had a preterm delivery (p = 0.004).

Conclusion- The mere presence of SCH did not increase the risk of pregnancy loss but there was increased incidence of IUGR, preterm birth, antepartum haemorrhage.

Keywords: Antepartum haemorrhage; Preterm birth; Subchorionic haematoma; Stillbirth

1 Introduction

The first trimester of pregnancy, the major organs and body systems of foetus are established. The placenta develops and starts functioning in the first trimester and nourishes the foetus. It facilitates the exchange of oxygen, nutrients, and waste products between the mother and the foetus [1]. Early identification of complications helps in appropriate management, resulting in a healthy pregnancy. Expectant mothers need to consult doctors at least once in first 20 weeks [2] but earlier if any problem for regular check-ups.

Experiencing vaginal bleeding during the first trimester of pregnancy can be distressing, but it does not always indicate a serious problem. In some cases, light spotting or bleeding may occur around the time of implantation, when the fertilized egg attaches to the uterine lining. This is usually minimal and resolves on its own without affecting the pregnancy. First-trimester bleeding is commonly associated with the possibility of a threatened miscarriage.

Subchorionic hematoma (SCH) is a condition during early pregnancy may result from and also lead to the separation of the chorion. It causes great anxiety to the woman but does not always lead to adverse outcomes[3]. In most women SCH resolve without causing ill effects but in some, it may increase the risk of abortion, accidental haemorrhage or preterm labour.

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Adequate treatment may improve the maternal and foetal outcome. The purpose of the study was to outcome in women diagnosed with SCH during first trimester of pregnancy.

2 Material and Methods

This prospective study was done in a tertiary care referral hospital from July 2021 to June 2022 after clearance from Institute's research review and ethical committee.

Women with single viable intrauterine pregnancy, less than 13 weeks with complaints of vaginal bleeding were selected and divided in two groups based on presence or absence of sonographically diagnosed sub-chorionic haematoma. Women with history of trauma, or with chronic medical complications, bleeding, disorder, uterine structural anomalies, cervical polyp, and fibroids were also excluded.

History, clinical examination and sonographic findings were noted All were examined at every antenatal visit till the end of pregnancy. The primary outcome was the incidence of adverse pregnancy outcomes. The data were recorded on a proforma. For the continuous data, the mean, median, mode, standard deviation and for discrete data, proportion, and percentage was calculated. Continuous variables in the two comparison groups were analyzed using a student's t-test and categorical variables using chi-square (χ^2) tests. A *P*-value < 0.05 was considered statistically significant.

3 Results

A total of 302 women were enrolled in the study and followed till delivery. The mean age of the women with and without SCH was approximately 23 years (*p*-value=0.672). Approximately 47.7% and 29.8% of women with and without SCH resided in the rural area (*p*=0.002) and 60.3% & 66.2% of women with and without SCH had only a primary level of school education (*p* = 0.340). 19.9% and 23.8% of pregnant women with and without SCH belonged to a low socioeconomic class, respectively (*p* = 0.087). Table 1.

The mean gestational age of the women with and without SCH was 8.7 and 9.3 weeks, respectively (*p* = 0.03), that is women with haematoma presented earlier. Further, 57 % and 52.3% of women with and without SCH were primigravida (*p*= 0.488). Table 2

Table 1 Demographic Characteristics Of The Participants

	Variable	SCH n=151(%)	Non-SCH n=151(%)	P-value
Age in years	Mean	23.01±2.62	23.13±2.29	0.672
Residence	Rural	72 (47.7%)	45 (29.8)	0.002
	Urban	79 (52.3%)	106 (70.2)	
Literacy Level	Up to ≤5 th	91 (60.3)	100 (66.2)	0.340
	>5 th	60 (39.7)	51(33.8)	
Socio-eco status	Lower	30 (19.9)	36 (23.8)	0.087
	Middle	121 (80.1)	109 (72.2)	
	Upper	0 (0.0)	6 (4.0)	

Pregnancy outcome of the two groups was compared. The relative risk of pregnancy wastage (spontaneous abortion, antepartum foetal death & stillbirth) for the women with SCH and without SCH was 1.22 (95% CI 0.81 - 1.82; *p*-value = 0.33). The percentage of women with and without SCH having a spontaneous abortion during index pregnancy was 23.8% and 19.2% (*p*= 0.401). The percentage of women with and without SCH giving birth to a live neonate at the end of index pregnancy was 72.8% and 78.1% (*p*= 0.652). Table 3

Table 2 Obstetric Details Of The Participants

	Variable	SCH n=151(%)	Non-SCH n=151(%)	P-value
Booking Status	Booked	83 (55.0)	98 (64.9)	0.10
	Un-booked	68 (45.0)	53 (35.1)	
Gravida	Primigravida	86 (57.0)	79 (52.3)	0.488
	Multigravida	65 (43.0)	72 (47.7)	
Gestational Age in weeks	< 6	17 (11.3)	3(2.0)	0.001
	6-8	61 (40.4)	61 (40.4)	
	9-10	30 (19.9)	51 (33.8)	
	11-12	43 (28.5)	36 (23.8)	
	Mean	8.7	9.3	0.03

Table 3 Foetal Outcome of The Study Groups

Variable	SCH n=151(%)	Non-SCH n=151(%)	P-value
Spontaneous Abortion	36 (23.8)	29 (19.2)	0.873
Antepartum Foetal Death	3 (2.0)	3 (2.0)	
Stillbirth	2 (1.3)	1 (0.7)	
Live Birth	110 (72.8)	118 (78.1)	

Women with and without SCH having intrauterine growth retardation(IUGR)during pregnancy was 30.6% and 6.7% ($p= 0.075$). The percentage of women with and without SCH having antepartum haemorrhage during index pregnancy was 8.7% and 2.5% ($p= 0.068$). The percentage of women with and without SCH having PPRM at the end of the pregnancy was 16.5% and 9.8% ($p= 0.183$). 27% and 11.5% of pregnant women with and without SCH had a preterm delivery ($p = 0.004$). Table 4

Table 4 Complications in the Study Groups

Variable		SCH n=151(%)	Non-SCH n=151(%)	P-value
IUGR	Yes	34 (30.6)	8 (6.7)	0.075
	No	76 (69.4)	110 (93.2)	
APH	Yes	10 (8.7)	3 (2.5)	0.068
	No	105 (91.4)	119 (97.5)	
PPROM	Yes	19 (16.5)	12 (9.8)	0.183
	No	96 (83.5)	110 (10.2)	
Pre-term	Yes	31 (27.0)	14 (11.5)	0.004
	No	84 (73.0)	108 (88.5)	

4 Discussion

The present study was conducted to evaluate the effects of subchorionic haematoma on the pregnancy outcome. It was observed that SCH did not increase the risk of pregnancy wastages- the relative risk of pregnancy wastage (spontaneous abortion, IUFD & stillbirth) for the women with SCH and without SCH was 1.22 (95% CI 0.81 - 1.82; p -value = 0.33).

Several studies have already looked into how SCH affects the course of pregnancies. Similar to our findings, in a prospective cohort study, Pedersen and Mantoni [4] prospectively observed a total of 342 pregnancies with vaginal bleeding between 9 to 20 gestational weeks, of which 18% had SCH. They found no association between the presence of SCH and pregnancy wastage. In another retrospective case-control study, Johns et al. [5] reported that first-trimester vaginal bleedings were associated with adverse pregnancy outcomes, but the presence of SCH had no effect on the prognosis.

According to Sun L et al. [6] first-trimester bleedings were linked to premature birth and poor birth weight. They also reported an association between the prognosis and the size of the SCH. Ben-Haroush et al. [7] evaluated 2556 pregnant patients who were admitted with vaginal bleeding during the first 20 gestational weeks as part of a retrospective cohort study- 9% of cases were of SCH. They reported that the pregnancy's fate was unaffected by the gestational age at diagnosis and the length of the bleeding. Additionally, they reported that bed rest dramatically reduced the rate of miscarriages. Johns et al.[5] showed that although the presence of SCH had no bearing on the prognosis, first-trimester vaginal bleedings were related to poor pregnancy outcomes.

In contrast to our findings, retrospective case-control research involving 238 individuals with SCH identified by ultrasonography, Ball et al. [8] found a statistically significant correlation between SCH and miscarriage. Similarly, Nagy et al. [9] compared 6488 controls with 187 patients who had SCH and discovered higher rates of miscarriage, intrauterine growth restriction, and premature delivery in SCH patients. They also demonstrated a link between the size and location of the SCH and continued pregnancy outcome metrics. The incidence of SCH was 1.7%, according to Norman et al, [10] who analysed 63,966 patients who received an ultrasonographic test before 22 weeks of gestation. They discovered that preterm births were more likely for women with SCH. However, not all individuals with an SCH in the aforementioned studies had threatening abortions; rather, SCHs were identified during routine first- or second-trimester ultrasonography.

It is still debatable how exactly SCH leads to unfavourable pregnancy outcomes. One of the potential causes is the subchorionic haemorrhage-induced premature perfusion of the intervillous region, which occurs before placental modifications to deal with oxidative stress [11] A miscarriage could occur if there is an SCH and the gestational sac separates from the endometrium.

5 Conclusion

Women with first-trimester vaginal bleeding diagnosed to have SCH do not increase the likelihood of pregnancy wastage. However, there was increased incidence of IUGR, preterm bith, antepartum haemorrhage. Multi-centre, larger, and prospective cohort studies are needed to determine the effect of SCH, its size and site on various maternal and foetal outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest

Statement of ethical approval

Institutional research review board and ethical committee clearance was taken.

Statement of informed consent

Written informed consent taken of all women included in the study

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