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AN OBSERVATIONAL STUDY OF FETOMATERNAL OUTCOMES IN WOMEN WITH AND WITHOUT PREVIOUS SPONTANEOUS ABORTIONS

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ABSTRACT **Background:** Abortion is defined as the termination of a pregnancy before fetal viability, before 20 weeks of gestation, or a weight of less than 500 grams. Spontaneous abortion, or miscarriage, affects approximately 10–25% of clinically recognized pregnancies, with the majority occurring in early gestation. Women with a history of spontaneous abortion have a 13–20% risk of recurrence in subsequent pregnancies, increasing to 33% after three consecutive losses. **Methods:** An Observational study was conducted at SMS Medical College, Jaipur, Rajasthan, involving 150 women. Group A (those with a previous history of spontaneous abortions) included 75 women, and Group B (Women without previous spontaneous abortion with term delivery, irrespective of mode of delivery) included 75 women. Women were recruited in 1st trimester and then followed. Maternal outcomes were measured in terms of threatened abortion, Spontaneous abortion, PROM, Hypertensive disease of pregnancy, and fetal outcomes in terms of IUGR, Stillbirth, Low birth weight, and APGAR at 5 min. NICU admission, Preterm birth. **Results:** Group A had a significantly higher proportion of multigravida cases ($p = 0.03$), while Group B had a higher parity ($p = 0.04$). There was a higher incidence of threatened abortion (12 vs. 2, $p=0.01$), spontaneous abortion (9 vs. 2, $p=0.03$), hypertensive disease of pregnancy (8 vs. 2, $p=0.04$), and PROM (10 vs. 3, $p=0.01$) in group A. Fetal outcomes were worse in Group A, with higher rates of premature births (24 vs. 10, $p=0.003$), IUGR (13 vs. 4, $p=0.01$), low birth weight (12 vs. 3, $p=0.01$), NICU admissions (8 vs. 2, $p=0.04$), and low APGAR scores (3 vs. 1, $p=0.34$). **Conclusion:** Women with a history of previous spontaneous abortions are at increased risk for adverse fetomaternal outcomes. These women should be counselled antenatally and encouraged to attend proper follow-up visits, so that early identification of complications can be done.

KEYWORDS : Spontaneous abortions, Threatened abortions, Maternal outcomes, Fetal outcomes.**INTRODUCTION**

Abortion is defined as the termination of a pregnancy before the fetus reaches viability, typically before 20 weeks of gestation or when fetal weight is less than 500 grams.¹ Spontaneous abortion (miscarriage) is more prevalent in urban areas and most commonly occurs in early gestation, with approximately 80% occurring before 12 weeks. The incidence ranges from 11–22% in pregnancies between 5 to 20 weeks and declines with advancing gestational age.^{1,2} Women with a history of spontaneous abortion have a 13–20% risk of recurrence in subsequent pregnancies, increasing to 33% after three consecutive losses. Chromosomal abnormalities account for the majority of cases; however, factors such as advanced maternal age, hormonal imbalances, uterine anomalies, infections, thrombophilia, and lifestyle choices also contribute.^{3,4}

While a single miscarriage often does not affect future fertility, recurrent spontaneous abortion (RSA), defined as two or more consecutive losses, is a significant obstetric concern. Women with prior abortions are at elevated risk for adverse outcomes, including preterm birth, hypertensive disorders, intrauterine growth restriction (IUGR), low birth weight, and increased cesarean rates.⁵ Impaired placental and immune dysfunction may underlie these outcomes, though many cases remain unexplained. Psychological distress, including anxiety and depression, is also common among affected women.^{6,8}

This study aims to compare fetomaternal outcomes in women with and without a history of spontaneous abortion, focusing on maternal complications, fetal outcomes, and delivery patterns. The findings may enhance clinical understanding, inform targeted interventions, and improve prenatal care and counselling for women at risk of recurrent pregnancy loss.⁷

MATERIALS AND METHODS

A hospital-based prospective observational study was conducted in the Department of Obstetrics and Gynaecology, SMS Medical College and Hospital, Jaipur. It included women attending ANC OPD, selected per inclusion and exclusion criteria.

Inclusion Criteria

- Pregnant women 18–45 years of age in the 1st trimester: - Group A: Women with a previous history of Spontaneous abortion
Group B: Women without previous spontaneous abortion with

term delivery, irrespective of mode of delivery

- Willing to participate in the study & ready to give informed consent.
- Not a part of any other study.

Exclusion Criteria

- Comorbid conditions like diabetes, hypertension, heart disease, chronic renal disease, thyroid disease, a known case of bleeding disorder, and antiphospholipid antibody syndrome (APLA).
- Who conceived with the help of artificial reproductive techniques.
- Women with cervical incompetence.
- Uterine and fetal malformations.

Methodology

This is a comparative study that was conducted in the Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur, Rajasthan.

Women selected from ANC OPD after appropriate written & informed consent, after applying inclusion and exclusion criteria, and will be divided into two groups: -

Group A- Woman with previous spontaneous abortion.

Group B- Woman without previous spontaneous abortion with term delivery irrespective of the mode of delivery (LSCS/Normal delivery). The primary outcome was measured in terms of maternal outcomes- threatened abortion, spontaneous abortion, premature rupture of membranes, and hypertensive diseases of pregnancy.

Parameters for fetal and neonatal outcomes were IUGR, Low birth weight, Stillbirth, and APGAR at 5 min. and preterm birth.

Sample Size: A sample size of 75 cases in each group was calculated with a 95% Confidence interval. 80% power, 0.05 alpha error, and 7% allowable error to verify a 10% threatened abortion rate in pregnant women with a history of spontaneous abortion.

RESULTS & OBSERVATIONS

Both groups have comparable sociodemographics.

Table 1: Distribution of Study Participants According to Threatened Abortion

Threatened Abortion	Group A (n=75)	Group B (n=75)	P-value
Yes	12 (16%)	2 (3%)	0.01
No	63 (84%)	73 (97%)	

Group A had a higher incidence of threatened abortion (12 vs. 2, $p=0.01$) compared to Group B.

Table 2: Distribution of Study Participants According to Spontaneous Abortion

Spontaneous Abortion	Group A (n=75)	Group B (n=75)	P-value
Yes	9 (12.0%)	2 (2.66%)	0.03
No	66 (88%)	73 (97.3%)	

Spontaneous abortion was observed only in Group A (9 vs. 2, $p=0.03$).

Table 3: Distribution of Study Participants According to Maternal Outcomes

Outcomes	Group A (n=66)	Group B (n=73)	p-value (Chi-square)
Hypertensive Disease of Pregnancy	8 (12.1%)	2 (2.7%)	0.04
Premature Rupture of Membrane (PROM)	10 (15.2%)	3 (4.1%)	

Group A had significantly higher rates of hypertensive disease of pregnancy (8 vs. 2, $p=0.04$), and PROM (10 vs. 3, $p=0.01$) Group A had higher rates of both Hypertensive Disease of Pregnancy (12.1%) and PROM (15.2%) compared to Group B (2.7% and 4.1% respectively), with both differences being statistically significant.

Table 4: Distribution of Study Participants According to Fetal Outcomes

Outcomes	Group A (n=66)	Group B (n=73)	p-value (Chi-square)
Prematurity	24 (36.4%)	10 (13.6%)	0.003
IUGR	13 (19.7%)	4 (5.4%)	
Low Birth Weight	12 (18.2%)	3 (4.0%)	0.01
Stillbirth	0	0	
NICU Admission	8 (12.1%)	2 (2.7%)	0.04
APGAR at 5min.	3 (4.0%)	1 (1.3%)	

Group A had significantly higher rates of prematurity (36.4% vs. 13.6%, $p=0.003$), IUGR (19.7% vs. 5.4%, $p=0.01$), low birth weight (12% vs. 4.0%, $p=0.01$), and NICU admission (12.1% vs. 2.7%, $p=0.04$). No stillbirths were reported. No significant differences in APGAR at 5min. ($p=0.311$).

Table 5: Distribution of Study Participants According to Mode of Delivery

Mode of Delivery	Group A (n=66)	Group B (n=73)	P-value
Normal Delivery	42 (64%)	53 (75.3%)	0.01
LSCS	24 (36%)	20 (27.3%)	

Group A had a lower rate of normal vaginal delivery (64% vs. 75%) and a higher rate of LSCS (36% vs. 27%, $p=0.01$).

DISCUSSION

In our study, threatened abortion was significantly more common in Group A than Group B (16% vs. 3%; $p = 0.01$), indicating a higher vulnerability to early pregnancy complications among women with a prior abortion. Moreover, spontaneous abortion was exclusively observed in Group A (12% vs. 2.6%; $p = 0.03$), reinforcing the association between past abortion history and spontaneous pregnancy loss.

Similarly, a study by Sreeneha KK et al (2023)¹³ showed that 20 (10%) patients had symptoms of threatened abortions, while 13 (6.50%) patients had threatened abortions in the control group. The p-value is 0.032.

Jahnavi et al. (2023)¹⁴ study explained that threatening abortion (27.1%) was observed in the previous spontaneous abortion group.

Muzaffar U et al. (2020)¹² study found that 15.7% of the patients had threatened abortion and 11.2% had complete abortion.

In the present study, Group A experienced significantly higher rates of maternal complications than Group B, including: Hypertensive disease of pregnancy (12.1% vs. 2.7%; $p = 0.04$) and PROM (Premature Rupture of Membranes) (15.2% vs. 4.0%; $p = 0.01$) These findings are clinically significant and suggest that a prior abortion history may predispose to adverse maternal outcomes.

Similarly, a study by Sreeneha KK et al (2023)¹³ showed that the

incidence of PIH in the case group was 15.08% (27), while in the control group it was 8.99%. The case group had a premature rupture of membranes in 18 (10.06%), while only 6 patients in the control group (3.17%).

Shah M et al (2023)¹⁰ In this study, an association was found between PROM (14.29%), hypertensive disorder of pregnancy (15.43%) was observed in the case group, and 3.6% and 6.73% respectively, in the control group.

Jahnavi et al. (2023)¹⁴ study explained that PROM (27.2%) in the case group and (10%) in the control group was observed.

Basu R et al (2022)¹⁵ study showed that there was a significant association between PROM (22%), PPROM (7%) found between the previous spontaneous abortion group and control.

In the present study Fetal complications were markedly higher in Group A as comparable to Group B, with statistically significant differences in: Prematurity (36.4% vs. 13.6%; $p = 0.003$), IUGR (19.7% vs. 5.4%; $p = 0.01$), Low birth weight (18.2% vs. 4.0%; $p = 0.01$), and NICU admissions (12.1% vs. 2.7%; $p = 0.04$). These outcomes reflect a higher rate of intrauterine compromise in Group A. No stillbirths were reported, and APGAR scores at 5 minutes were not significantly different ($p = 0.31$), suggesting that most newborns responded well post-delivery despite increased antenatal risks.

Similarly, a study by Sreeneha KK et al (2023)¹³ showed that the incidence in the case group who had preterm labour (<34 weeks) was 17.32%, while in the control group, had preterm labour (5.29%).

Singh P et al. (2023)⁹ In this study had IUGR (7.61%), preterm delivery (30.44%) was observed in the case group, and 2.17% (29.35%), respectively in the control group. Sneha Sanap et al (2022)¹¹ studies found low birth weight ($p = 0.03$), low Apgar scores at 1st minute ($p = 0.009$), low Apgar score at 5th minute ($p = 0.03$), and babies requiring NICU care ($p = 0.001$).

In our study rate of normal vaginal delivery was lower in Group A (64%) compared to Group B (75%), whereas LSCS rates were higher (36% vs. 27%). Although the LSCS rate difference ($p = 0.01$) is statistically significant, it may reflect complications arising during the current pregnancy due to obstetric history.

Similarly study by Sreeneha KK et al (2023)¹³ showed that there has been a subsequent increase in caesarean section rates with a prior history of spontaneous abortion (54% vs 22%; $p=0.00001$).

Singh P et al. (2023)⁹ This study had 29.35% in cases, while 25% in controls underwent emergency LSCS, with p -value <0.011.

Muzaffar U et al. (2020)¹² observed that 50% of patients were delivered by caesarean section.

CONCLUSION

Women with a history of previous spontaneous abortions are at increased risk for adverse fetomaternal outcomes. These women should be counselled antenatally and encouraged to attend proper follow-up visits, so that early identification of complications can be done.

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