

Original Research Article

OBSTETRIC OUTCOME AFTER PREVIOUS ONE SPONTANEOUS ABORTION-A PROSPECTIVE STUDY

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ABSTRACT

Background: To study the association between previous one spontaneous abortion and outcome of subsequent pregnancy including antenatal complications such as Antepartum haemorrhage (placental abruption, placenta previa), repeat abortion (threatened abortion/incomplete abortion/complete abortion) intrauterine growth restriction (IUGR) and incidence of cesarean section (CS).

Materials and Methods: This was a two years prospective study done on 57 antenatal patients with history of previous one spontaneous abortion. Relevant details regarding age, parity, past obstetric history, medical disorders were noted in the proforma during the admission. Patients were followed till delivery to see their maternal and fetal outcomes.

Results: In this study which included 57 cases of women with previous one spontaneous abortion. Majority of the participants belonged to the age group of 26-30 years (23) followed by 20 participants were in the age group of above 30 and 14 study participants were in the age group between 21-25 years. In this study most of the participants were Gravida 3 (47.3 %) followed by G2 (33.3%), Gravida 4(14%)and Gravida 5 (5.2%).

Conclusion: The Incidence of IUGR (1.85%), recurrence of abortion (5.7%), preterm delivery (1.7%) low birth weight (22.2%) is associated with history of previous one spontaneous abortion.

Keywords: Abortion, Prospective Study, obstetric.

INTRODUCTION

Spontaneous abortion (before 24 weeks of gestation) with an incidence of up to 1015% is the most common complication of pregnancy. It is accepted that more than half of all spontaneous abortions are due to fetal chromosomal abnormalities.^[1] The fate of the fertilized egg is hazardous, about 70% of human conceptions fails to achieve viability and an estimated 50% are lost before the 1st missed menstrual period.^[2] In contrast, chromosomal defects are responsible for approximately 90% of first-time miscarriages and up to 25 % of first-time pregnancies may end in miscarriage.^[3]

The term abortion derives from the Latin word aboriri means to miscarry. Abortion denotes the termination of a pregnancy by any means before the fetus is sufficiently developed to survive. According to RCOG, it is twenty weeks. However according to

World health organization (WHO), the cut off point for the use of the term abortion lie at 22 weeks gestation (154 days) and also includes in this definition the fetal weight less than 500. In developing countries like india where NICU facility is not universally available the upper limit is taken to be from the first day of the pregnancy < 28 weeks of gestation (below period of viability).^[4]

Abortion is classified in to two types Spontaneous, Induced. Spontaneous abortion further classified in to sporadic and recurrent, while induced abortion is classified in to two, such as legal and illegal (criminal).

Pregnancy is a hypercoaguable state and the haemostatic system plays a major role in both the establishment and the continuation of a pregnancy. Fibrinolytic pathways are involved in ovulation and implantation in to the uterine decidua. Once pregnancy has been confirmed, an intact placental

circulation is maintained by the balance between the coagulation and fibrinolytic systems.^[4]

Thrombophilia can be congenital or acquired, and it is probably a risk factor for several events which previously was considered as idiopathic. Recently, an association was documented between thrombophilia and pregnancy complications such as preeclampsia, placental abruption, intrauterine growth restriction (IUGR) and recurrent abortions.^[5] Over the past few years the number of identifiable causes of thrombophilia has significantly increased.^[6] The common thrombophilic mutations includes antithrombin III, protein C and S deficiencies. The genetic causes for these common thrombophilic mutations have been discovered-the Factor V (Leiden) G1691A mutation, G20210A mutation of the prothrombin (Factor II) gene and the homozygosity for the thermolabile variant C677T of methylene tetrahydrofolate reductase (MTHFR).^[7]

Since many induced abortions go unreported, determining the incidence of abortion with any degree of accuracy is challenging. 75% of abortions take place before the 16th week of pregnancy, out of which 75% taking place before the 8th week. 10 % of all pregnancy end in spontaneous abortion and another 10% is induced illegally.^[8]

More than 80 percent of spontaneous abortions takes place within the first 12 weeks of gestation. Approximately 50% of all cases of early pregnancy loss are because of fetal chromosomal abnormalities.^[9] Advanced maternal age and a previous early pregnancy loss have been found to be the most common risk factors among women who had experienced early pregnancy loss. Even causes of spontaneous abortion cannot be precisely determined Since aetiology of spontaneous abortion is of complex and obscure. The causes of abortion can be classified as namely.^[10]

MATERIALS AND METHODS

After assessment of inclusion and exclusion criteria, antenatal women with a history of previous one spontaneous abortion irrespective period of gestation attending the outpatient or inpatient sections in tertiary care hospital between October 2020 and

November 2022. Relevant data in terms of demographic details, history and clinical examination and relevant investigations done. These patients were followed up throughout pregnancy and their maternal and fetal outcomes noted. Written informed consent were taken from all patients enrolled in the study. Patients were selected according to the inclusion criteria. This prospective study was conducted in the department of obstetrics and gynaecology in tertiary care hospital, Dakshina Kannada between October 2020 and November 2022. The study was carried out after the approval of institutional ethics committee.

Study Subjects: Antenatal patients attending ANC clinic in Tertiary care hospital with history of previous one spontaneous abortion, irrespective of the period of gestation.

Study Duration: January 2021 – June 2022.

Study Design: Prospective study

Sample size: 57

Sampling technique: Purposive sampling

Inclusion criteria:

1. Patients with history of one spontaneous abortion irrespective of cause and period of gestation.
2. Patient with at least one previous live birth preceding spontaneous Abortion. Age 18- 35 years

Exclusion criteria:

1. Patient with history of previous induced abortion
2. Patient with history of spontaneous abortion with twin gestation
3. Patient with history of previous spontaneous abortion with consanguineous marriage.
4. Uterine anomaly
5. History of Chronic hypertension
6. Overt diabetes Mellitus
7. Pre existing heart disease
8. Bronchial asthma
9. Thyroid disorder
10. All other pre existing medical disorder

Maternal outcome: PPRM, PROM, LSCS, FTND, Recurrent abortion

Fetal outcome: Prematurity, Low birth weight, RDS, NICU admission.

RESULTS

Table 1: Age distribution of patients

Age (years)	Frequency	Percentage	Test
21-25	14	24.6	Chi-Square
26-30	23	40.4	
31-35	20	35.1	
Total	57	100	

Majority of the participants belonged to the age group of 26-30 years (23) followed by 20 participants were in the age group of above 30 and 14 study participants were in the age group between 21-25 years.

Table 2: Obstetric score

Obstetric score	Frequency	Percent	Test
G2A1	19	33.3	Chi-square
G3P1L1A1	27	47.3	
G4P2L2A1	8	14	

G5P3L3A1	3	5.2	
Total	57	100	

In this study most of the participants were Gravida 3 (47.3 %) followed by G2 (33.3%), Gravida 4 (14%) and Gravida 5 (5.2%).

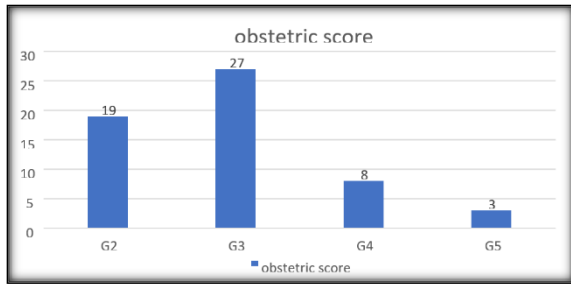


Figure 1: Obstetric Score

Table 3: Gestational age at 1st visit

gestational age (weeks)	Frequency	Percent
<9	2	3.5%
10-14	24	42.1%
15-28	6	10.5%
29-32	3	5.2%
33-36	11	19.2%
37-40	9	15.7%
>40	2	3.5%
Total	57	

Majority of the participants who had their 1st visit in tertiary care hospital were between 10-14 weeks of gestation (42.1%). Most of the patients were found to have no co morbidities in the first visit. 3 patients developed GDM at 32 weeks period of gestation,

and were started on insulin, 1 patient developed gestational HTN at 32-34 weeks.

NT/NB scan and anomaly scan were done for all the patients and found to be normal. 6 (10.5 %) participants were between 15-28 weeks period of gestation. 11(19.2%) participants were between 33-36 weeks of gestation , 9 (15.7 %) participants were between 37-40 weeks period of gestation,2(3.5%) participants were < 9 weeks and > 40 weeks period of gestation respectively.

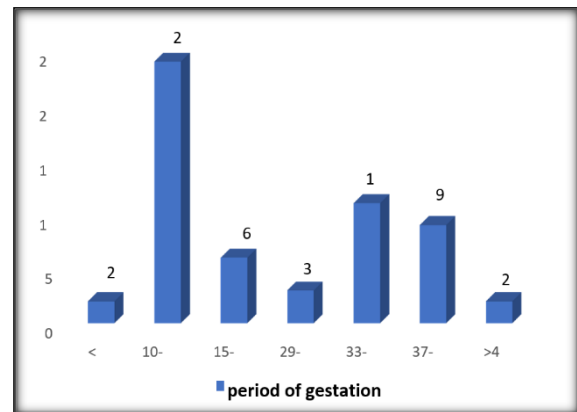


Figure 2: Gestational Age

Table 4: Outcomes of the patients with gestational HTN and GDM

Maternal comorbidity	Mode of delivery			NICU Admission
	TERM LSCS	FTND	TOTAL	RDS
GDM	1	2	3	2
Gestational hypertension	1		1	1

Out of the 3 patients who had GDM, 1 underwent LSCS (indication fetal distress), 2 had FTND. 1 case of Gestational Hypertension, underwent LSCS (indication Grade III meconium stained liquor).

Table 5: Outcome of pregnancy

	Frequency	Percent		P value
Abortion at 7 weeks	1	1.8	5.3%	0.001
Abortion at 10-11weeks	2	3.5		
FTND	29	50.9	57.9%	
Late preterm vaginal	1	1.7		
vaccum assisted vaginal delivery (term gestation)	3	5.3		
Term LSCS	21	36.8		
Total	57			

Majority,29 patients (50.9%) had FTND. LSCS 21 (36.8 %). instrumental delivery 3 (5.3 %). one case of Late preterm vaginal deliveries (1.7%). recurrent spontaneous abortion at 7 weeks 1.8 %, and 10 to 11 weeks 3.5% respectively.

4 (19%) out of 21 patients underwent elective LSCS and 17 (81%) patients underwent emergency LSCS.

Table 6: Number of LSCS

LSCS	Frequency	Percent	Test	P value
Elective	4	19.0	Binomial	.007
Emergency	17	81.0	Test	
Total	21	100.0		

Table 7: Indications for LSCS

	Indications for LSCS	Frequency	Percent	Test	P value
EMERGENCY LSCS TOTAL= 17	Failed induction	3	14.3	Chi-square	0.682
	Fetal distress	5	23.7		
	Grade III MSL	3	14.3		
	Non progress of labour	3	14.3		
	Previous 1 LSCS in labour	3	14.3		
	Term breech	1	4.8		
ELECTIVE LSCS TOTAL= 4	CPD	1	4.8		
	Previous 1 LSCS	2	9.5		
		21	100.0		
Total					

Most common indication for emergency LSCS was fetal distress (23.7 %), other indications for emergency LSCS were, failed induction (14.3%), non progress of labour(14.3%) and previous 1LSCS in labour (14.3%)and Grade III meconium stained

liquor (14.3 %). Indications for elective LSCS were 1 case of term breech presentation, 1 case of cephalopelvic disproportion and 2 cases of previous 1 LSCS.

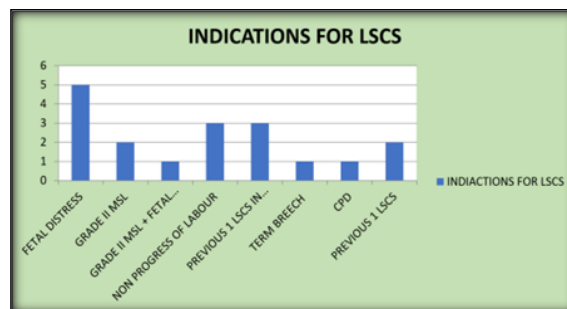


Figure 3: Indications for LSCS

Table 8: PROM and its outcomes number of patients who had PROM were 8 in the study

	PROM		P VALUE	Statistically significant
	YES=8	NO=46		
Term LSCS	6(11.1%)	14(25.9%)	0.0039	Statistically significant
FTND	2 (3.7%)	32 (59.2%)		
TOTAL	8	46		

PROM =8	Mode Of Delivery	
	Term LSCS	FTND
INDUCED (6 cases)	5	1
SPONTANEOUS (2 cases)	1	1
TOTAL	6	2

Indications For LSCS with PROM	FREQUENCY	PERCENTAGE
Fetal distress	1	16.6%
Failed induction	3	50 %
MSL	1	16.6 %
Non-Progress Of Labour	1	16.6 %

Out of 8 participants who had PROM, 6 were induced and 2 got into spontaneous labour. 6 cases

of induction category, 5 underwent LSCS for failed induction (3 cases), MSL (1 case) and non-progress of labour (1 case) and 1 case got into spontaneous labour had FTND. 2 cases of PROM who got into spontaneous labour, 1 case underwent LSCS for fetal distress and 1 case had FTND. Therefore, out of the 8 cases of PROM, 6 underwent emergency LSCS, 2 cases had FTND.

[Table 9] shows distribution of asymmetrical IUGR in patients which is comprising of 1 participant. Only 1 case of asymmetrical IUGR (case of gestational hypertension) she was taken up for emergency LSCS at 37 weeks for Grade III meconium stained liquor.

Table 9: Asymmetrically

Asymmetrical IUGR	Frequency	Percent	Test	P value
NO	53	98.14%	Binomial	0.002
YES	1	1.85%		
Total	54			

Table 10: Abortion

Abortion	Frequency	Percent	Test	P value
Spontaneous 1st trimester	3	5.3	Binomial	.001
No	54	94.7		
Total	57	100.0		

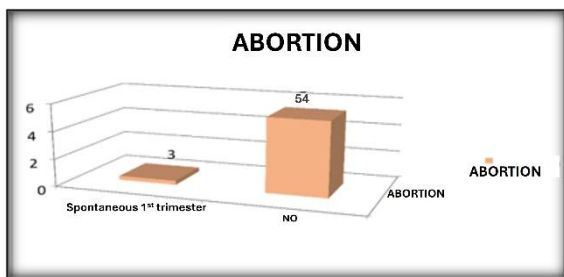


Figure 4: Abortion

[Table 10] depicts adverse outcome of pregnancy. In our study 3 cases (5.3 %) had spontaneous abortion. [Table 11] shows 77.8 % majority of the study participants had > 2.5 kg birth weight baby and 22.2 % study participants had < 2.5 kg birth weight baby.

Table 11: Apgar at 1 minute

APGAR AT 1Minute	Frequency	Percent	Test	P value
≤7	12	22.2	Binomial	0.001
>7	42	77.8		
Total	54	100.0		

APGAR of neonates 1 minute after birth was found to be more than 7 (77.8%) 22.2% had APGAR score of less than 7.

Table 12: APGAR at 5 minute

APGAR at 5minute	Frequency	Percent	Test	P value
≤7	6	11.1	Chi-square	0.002
>7	48	88.9		
Total				

APGAR at 5 minutes after birth was found to be more than 7 (88.9%). 11.1% had APGAR score of less than 7. Out of 6 neonates who had APGAR <7, 3 neonates had RDS, 2 neonates had sepsis and 1 neonate had meconium aspiration syndrome.

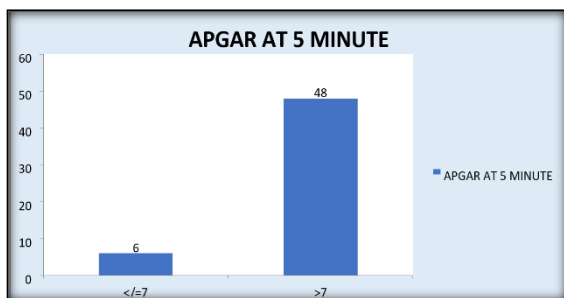


Figure 5: APGAR in 5 minutes

Table 13: Neonatal outcomes of APGAR < 7

NEONATAL OUTCOME	frequency	NICU ADMISSION	
		YES	NO
RDS	3	3	0
SEPSIS	2	2	0
MECONIUM ASPIRATION	1	1	0
TOTAL	6	6	

NEONATAL OUTCOME	Duration of NICU admission (days)
RDS	3-6 days
SEPSIS	7-10 days
MECONIUM ASPIRATION	10 days
TOTAL	

Out of 6 neonates who had APGAR score <7, 3 neonates had RDS, 2 had sepsis and 1 had meconium aspiration. All the neonates with RDS were admitted in NICU for an average of 7 days, 1

case of respiratory distress was attributed to prematurity. Rest of the cases of RDS had transient tachypnea of newborn. All the neonates who had sepsis had NICU admission for an average of 7-10 days and treated with antibiotics (Inj: Cefotaxime with Inj: Amikacin). Neonates who had meconium aspiration were admitted in NICU for 10 days. All babies who had NICU admission improved and were discharged within 10 days of NICU stay. There were no neonatal deaths in the present study.

DISCUSSION

This prospective study was carried out at the department of obstetrics and gynaecology in a tertiary care hospital, over a period of 2 years. 57 pregnant participants with history of previous 1 spontaneous abortion who met inclusion criteria attended the department, the following observations were made out of them. The study has been analysed with respect to maternal and fetal outcome. Maternal outcomes were noted as normal full-term deliveries, preterm deliveries, premature rupture of membranes, malpresentation, cesarean section, instrumental delivery, recurrent abortions. Fetal outcomes were intrauterine growth restriction (IUGR), low birth weight (LBW), admission to NICU.^[11]

In our study maximum patients were in the age group of 25-30 years (40.4%) it being the most reproductive age group.

Followed by 30 to 35 years (35.1%), and 21-25 years (24.6%).

Similarly in the study conducted by Sahu et al it was observed that majority (34.3%) of participants were in the age group of 25-29 years. And Muzaffar U et al reported that most of the cases with previous 1 spontaneous abortion (39.2%) were between the ages of 25 and 30 years.

Results	Current study	Sahu et al	Muzaffar U et al
Age group	40.4%	34.3%	39.2%
25-30 years			

In the present study which was carried out on 57 cases G3(47.3 %) was the most common gestational score. comparable with the study conducted by Sheiner E et al noted that G2-G4 (53.4%) was most common gestational score.

Outcomes of Pregnancy in the present study revealed that 36.8% of participants underwent LSCS, 50.9 % participants had FTND, 5.3% had vacuum assisted vaginal delivery and 5.3 % had abortion. These findings were in agreement with the study conducted Shree Kant Dadheech et al in which mode of delivery was noted that 31.8% participants underwent LSCS, 52.7 % had FTND, 1.8 % vacuum assisted vaginal delivery, 3.64 % had abortion respectively.^[12]

Results	Current study	Shree Kant Dadheech et al
LSCS	36.8%	31.8%
FTND	50.9 %	52.7 %
Vacuum assisted vaginal delivery	5.3%	1.8%
Abortion	5.3%	3.64%

In our study 36.8% of pregnancies following previous 1 abortion underwent LSCS, indication was meconium stained liquor (14.3 %). 23.7 % had fetal distress. Caesarean section rate were higher in other studies also conducted by Bharadwaj et al and Upadhyay C et al(31.8%) and (32.7%).

Bharadwaj et al reported that indications for LSCS was meconium stained liquor (2.8%), fetal distress 30.6%, and 8.3% was breech presentation.

RESULTS	CURRENT STUDY	Bharadwaj et al
LSCS	36.8%	31.8 %
INDICATIONS OF LSCS		
➤ MSL	14.3%	2.8 %
➤ Fetal distress	23.7%	30.6%
➤ Breech	4.8%	8.3%

Our study revealed that (14.8 %) participants had PROM, 5.3% had recurrent abortion, instrumental delivery in 5.3% and(36.8%) went into LSCS. This is supported by other studies, Tahzeen A et al noted that Premature rupture of membranes (11.8%), recurrence abortion (5.3%), LSCS (66.7%), and instrumental delivery (10.2%) respectively.^[13]

RESULTS	CURRENT STUDY	Tahzeen A et al
PROM	14.8%	11.8%
LSCS	36.8%	66.7 %
INSTRUMENTAL DELIVERY	5.3%	10.2%
RECURRENT ABORTION	5.3%	5.3%

In the present study, neonatal outcomes like Prematurity, low birth weight (LBW), IUGR were studied.

22.2% low birth weight baby, 1.85% neonates had IUGR. 1.7 % had preterm delivery. Our results were consistent with the findings of Faswila M et al and Bharadwaj et al.

Faswila M et al reported that 11% of patients had preterm delivery, 5.76% had term IUGR, low birth weight 9.5 %. Bharadwaj et al noted that 17.3% had LBW, 5.4% had preterm delivery.^[14]

	Current study	Bharadwaj et al	Faswila M et al
Low birth weight	22.2%	17.3%	9.5 %
Preterm delivery	1.7%	5.4%	11%
IUGR	1.85%	-	5.76%

In present study 48 (88.9%) neonates had APGAR score >7 at 5 minutes of birth while 6 (11.1%) had scores < 7. Our results were consistent with the findings of Goldstein RR et al (11.4 %) incidences of APGAR score < 7 at 5 minutes.^[15]

Result	Current study	Goldstein RR et al
APGAR <7 at 1 minute	11.1%	11.4%

CONCLUSION

Previous unfavourable pregnancy outcome increases the risk of adverse outcome in the future pregnancies. There is association between previous spontaneous abortion and PROM (14.8%). The prevalence of abortion, preterm and IUGR has increased in consecutive pregnancies. There is increase in the incidence of IUGR (1.85 %) recurrence of abortion (5.7%) and preterm delivery (1.8%) in the subsequent pregnancies. Previous abortions increase, the incidence of successful outcome decreases.

Previous spontaneous abortion increases the prevalence of low birth weight increases (22.2%). The percentage of operative deliveries are higher (36.8%) in women who had previous 1 abortion and it also increases the incidence of instrumental deliveries (5.3%). Previous abortions have a definite effect on the successful outcome of future pregnancies. Such pregnancies need meticulous antenatal care with careful monitoring. Therefore, in our study we conclude that pregnancy with previous one spontaneous abortion should be evaluated diligently with regular ANC for a successful outcome.

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