

Pregnancy outcome following previous history of spontaneous abortion

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Abstract

Introduction: Pregnancy period is crucial for the health of the mother and baby. Spontaneous abortion is the most common adverse pregnancy outcome. Spontaneous pregnancy loss is a surprisingly common occurrence with approximately 15% of all clinically recognized pregnancies resulting in pregnancy failure. Spontaneous pregnancy loss can be physically and emotionally taxing for couples, especially when faced with recurrent losses. **Objective:** To determine pregnancy outcome following previous spontaneous abortion and to evaluate any complication associated with previous abortion as compare to previous normal delivery. **Method:** A prospective and observational study was done on 100 patient that include 50 patient of control group who have history of previous normal delivery and 50 patients in study group who have history of previous abortion history. All the antenatal, postnatal complications and mode of delivery were noted and compared between these two groups. **Result:** Shows that Pregnancy complications including threatened miscarriage, premature rupture of membranes (PROM), preterm delivery, intra uterine growth restriction (IUGR) are more commonly associated with pregnancy following history of previous abortion. Rate of caesarean section was significantly increased in women with previous spontaneous abortion and give significant p value 0.000008; Statistical analysis was carried out using Statistical Package for Social Scientists (SPSS). **Conclusion:** Women with a history of previous spontaneous abortion are at an increased risk of complications in the next pregnancy. So careful surveillance should be provided to every women and not to be restricted only to females with history of recurrent pregnancy loss.

Keywords: Spontaneous abortion, Pregnancy complication, Pregnancy outcome, Mode of delivery

Introduction

Pregnancy plays a unique role in the transformation of woman towards completeness. Pregnancy should be considered anormal physiological event in a woman's life. However, in some cases many twists and turns occur which alter the good outcome of pregnancy into a disaster. The word abortion derives from the Latin word *aboriri* means to miscarry. Abortion is defined as the spontaneous or induced termination of pregnancy before fetal viability [1].

The American College of Obstetricians and Gynecologists (ACOG), National Center for Health Statistics, Centers for Disease control and prevention, and World Health Organization (WHO) all define abortion as pregnancy termination before 20 weeks gestation or with a fetus weight less than 500gm. These criteria are somewhat contradictory because the mean

birth weight of 20 week fetus is 320gm, whereas 500gm is the mean for 22-23 weeks. Abortion is classified into two main headings, spontaneous (miscarriage) and induced (deliberate). Further spontaneous abortion is classified into isolated and recurrent. Threatened, inevitable, complete, incomplete, missed, septic abortion all come under spontaneous abortion [1].

Recurrent miscarriage is usually defined as the occurrence of three or more consecutive miscarriages and it affects 1% of women of reproductive age. The etiology of miscarriage is often complex and obscure. The factors like genetic, endocrine, anatomic, infection, immunological, thrombophilia, environmental and others play an important role. The aim of this study is to find out pregnancy outcome following a previous spontaneous abortion and compare it with outcome of pregnancy in previous normal pregnancy, to outline the incidence of complications with the former and to establish a correlation, if any.

Manuscript received: 2nd January 2019

Reviewed: 9th January 2019

Author Corrected: 14th January 2019

Accepted for Publication: 17th January 2019

Original Research Article

Spontaneous abortion may indicate a high risk of adverse outcomes in subsequent pregnancies. Spontaneous abortion and adverse outcomes like low birth weight, small for gestational age, growth retardation and preterm labour share a common etiology (eg; Immunological factors, low ratio of PGI₂/thromboxane in recurrent abortion, microthrombosis in placenta).

According to the first national study of the incidence of abortion and unintended pregnancy in India, conducted jointly by International Institute for Population Sciences (IIPS), Mumbai; the Population Council, New Delhi; and the New York-based Guttmacher Institute an estimated 15.6 million abortions were performed in the country in 2015.

This translates to an abortion rate of 47 per 1,000 women aged 15–49, which is similar to the abortion rate in neighboring South Asian countries. 3.4 million abortions (22%) were obtained in health facilities, 11.5 million (73%) abortions were medication abortions done outside of health facilities, and 0.8 million (5%) abortions were done outside of health facilities using methods other than medication abortion.

Overall, 12.7 million (81%) abortions were medication abortions, 2.2 million (14%) abortions were surgical, and 0.8 million (5%) abortions were done through other methods that were probably unsafe [2].

Hence pregnancies with prior history of spontaneous abortions should be considered a high-risk pregnancy and extra precautions should be taken during ante-natal period anticipating these outcomes.

Material and Method

Setting: Department of Obstetrics and Gynecology at Dr. D. Y. Patil Hospital and Research Centre, Kolhapur.

Sample collection: Patients who attended Obstetrics and Gynecology OPD for Antenatal checkup and follow up and were admitted in the labour room for delivery, were enrolled for the study.

Detailed history of each patient was taken, which included details of present pregnancy, previous pregnancy, previous abortion and details of abortion.

After admission in the labour room, along with clinical examination, investigations- routine and specific were done.

Once the patient entered into active labour, her mode of delivery and outcome of delivery was observed. Data of these patients were collected in a prospective manner and analyzed.

Period of study: September 2016 TO February 2017

Sample size: 100 patients. 50 cases for study group and 50 cases for control group

Type of study: Prospective and Observation

Inclusion criteria- All pregnant women with age 19 years and above with history of previous abortion without any medical complications

Exclusion criteria- Hypertension, Diabetes mellitus, Heart disease, Renal disorders, Autoimmune disease, Multiple gestation, History of gestational trophoblastic disease.

A written informed consent was taken from the patients willing to participate in the study and was screened randomly according to the inclusion and exclusion criteria.

Detail history of each individual case regarding age, address, religion, occupation, literacy, socio-economic status, chief complaints, history of present illness, menstrual history, obstetrical history, past history of illness, hypertension, diabetes, chronic renal disease, heart disease etc., and family history, personal history were taken. [2,3]

A thorough general physical and systemic examination was carried out with reference to build, nutrition, height, weight, anemia, edema, and vital data.

Routine examination of Hemoglobin, urine routine and microscopic examination, ABO grouping and Rh typing, random blood sugar, VDRL, HIV counselling and testing, Ultrasonography were done in all cases.

Those who got admitted for delivery their per abdominal examination which included, various antenatal grips, palpation for presence of uterine contractions, auscultation for fetal heart sounds was done.

Per vaginal examination done for pelvic assessment to rule out cephalopelvic disproportion, to diagnose whether patient was in labour or not. If patient was in labour, progress of labour was assessed.

Results

Present study is prospective and observational study done in two groups of cases Group a control cases and Group B study cases/ study.

Table No.-1: Age Incidence.

Age	Group a (control)	Group b (case)	Total
=<20 YRS	3	5	13
21-30	47	42	84
31-40	0	3	3

	Average age in years	P value
Group a	25	.196876
Group B	24.4	

According to the above data, chances of abortion increases in age group of > 30 yrs. In case of group A (control group) majority of patient underwent normal delivery with history of previous normal delivery in age group of 20-30 yrs., while in group B (study group) shows that there are more chances of abortion as age increases, 3 cases were reported of previous abortion in age group above 30yrs.

Table No.-2: Abortion in Group B Cases

Abortion number	Previous 1	Previous 2
	37	13

This table describe that ¾ of patient have history of one abortion and ¼ of patient have history of two abortion, thereby frequency of one abortion is more in study population as compare to more than one abortio

Table No.-3: Symptoms.

Presenting Symptoms	Group A (Control)	Group B (Case)
No Complaint	4	6
PV leak	9	15
Abdominal pain	35	20
Preterm labour pain	2	9

Above table shows that group A (control group)out of 50 patients, 35 patients have complained of pain abdomen, only 2 patients entered preterm labour pain and 9 patients have complained of PV leak. In group B (Study Group) have more patient with PV leak (15) and preterm labour pain (9), this is significant observation.

Table No-4: Indications of LSCS.

LSCS	CPD	PROM	FD	PD	OTHER
27	7	6	5	4	5

CPD: Cephalopelvic Disproportion, PROM: Premature rupture of Membranes, FD: Fetal Distress, PD: Post Datism

As per above pie chart, all the 5 indications are equally distributed i.e. cephalopelvic disproportion, premature rupture of membrane, fetal distress, postdatism, all factors are responsible for caesarean sections. Others include breech presentation, Oligohydramnios, IUGR, uterine anomaly.

Table No.-5: Mode of Delivery

	GRP A (Control)	GRP B (Case)
FTNVD	44	23
LSCS	6	27

P = 0.000008

The table shows, pregnancy outcome of two groups. In group A out of 50 patients, 44 patients delivered normally only 6 underwent LSCS. While in group B 23 patients out of 50 patients delivered normally and 27 patients underwent LSCS, so its ratio is high as compare to group A.

Discussion

We aimed to compare the pregnancy outcomes following a previous first trimester spontaneous abortion in comparison to pregnancies with previous successful outcome.

As described previously, 50 patients were taken in each group. Group A (control) consisted of pregnancy with previous normal delivery, whereas, Group B (case) comprised of pregnancy with history of previous first trimester abortion. The average age in Group A was 25 yrs. in comparison to 24.4 years in group B. Hence, there is no significant difference in the average age of the two groups. (P value = 0.1968)

However, an interesting variation is noted in the distribution pattern. While in group A, 47 out of 50 patients fall in 20-30 yrs. group and 3 patients were less than 20 yrs. in age, in group B, 37 patients were in 20-30 yrs. group, 10 patients were less than 20 yrs. and 3 were more than 30 years in age. Maternal age have significant role in relation to fetal loss.

Miscarriage in an initial pregnancy lead to adverse obstetric and perinatal outcomes in the next continuing pregnancy and no statistically significant difference was found between the two groups. As postulated by Black M, Shetty A, [4], we agree that it might be due to a balance being struck by increased incidence at each end of the reproductive age spectrum.

Among the patients presenting with previous abortions, 12 out of 50 (around 18%) had 2 successive abortions. These patients are expected to have higher incidence of complications in the present pregnancy too and in turn result in LSCS being the method of choice for delivery.

The same was reflected in our results were out the 12 patients, 8 (66.66 %) required LSCS and 4 (33.33%) had normal delivery. On the other hand, the incidence of delivery via LSCS was 17 out of the rest 38 patients

(44%) and 21 patients were delivered by FTNVD. Further the incidence of LSCS in patients with previous live births was only 6 out 50 (12%). This is in line with the findings of literature and also in contribution of the fact that there is a higher element of apprehension on the patient and the physician's side to convert the current pregnancy into a successful outcome.

Similar observations were made by the Bhattacharya group[5] concluding, in comparison with women with a previous successful pregnancy, our data suggest that women with an initial miscarriage have an increased risk of some obstetric complications. These include pre-eclampsia, threatened miscarriage, nonspecific antepartum hemorrhage, induced labor, instrumental delivery and manual removal of placenta.

They are also more prone to preterm delivery, malpresentation and low birth weight. Many of these risks, however, are no higher than those in primigravida. Thus, women who have an initial early pregnancy loss behave like 'virtual primigravida' in their next pregnancy not only in terms of their labor and delivery characteristics but also with regard to pregnancy complications and neonatal outcomes.

There is controversy in literature regarding the exact correlation of birth weight. In the study done by Bhattacharya et al the adjusted risk was of 1.6 times. Also, in the study by black et al too, the incidence of low birth weight was quite high with an adjusted OR of 2.8 and p value <0.001. Similar results were concluded in other studies by Goldhaber MK, Fireman BH [6] too.

Thus, our results seem to be in concordance with the literature. The variation in incidences and deviation of results in a couple of studies could be attributed to the varying geographical regions these studies have been conducted and more importantly to the varying socio-economic group of populations concerned.

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Developed countries and institutions catering to medium and high socio-economic groups are bound to have lesser incidence of low birth weight. In the study by Black et al, Risk of prematurity at less than 37 weeks of gestation was increased (adjusted OR 2.8 95% CI 1.9–4.2) in the exposed cohort, low birth weights (adjusted OR 2.8, 95% CI 1.7–4.5) were also more common (adjusted OR 2.8 95% CI 2.0–3.9) in the exposed group.

The findings of our study are similar to the Goldhaber MK, Fireman BH group [6] which suggests that women whose first pregnancy resulted in spontaneous abortion are at increased risk of conditions that constitute IPD (preeclampsia, SGA, intrauterine growth retardation, and abruption), fetal distress, chorioamnionitis, SPTB, and increased neonatal complications in their second pregnancy.

Given the patterns of IPDs, SPTB, and early neonatal mortality observed in their study, and previously reported clinically undiagnosed vasculopathy, infection, and inflammation or the presence of these 3 factors, they speculated that these conditions may be mediated, perhaps, through a common or shared etiology, including vasculopathy, uteroplacental under perfusion, chronic hypoxia, and placental ischemia.

With respect to symptomatology, the incidence of PV leak was significantly higher in case of previous abortions (14 out of 50) in comparison to patients with previous live birth (4 out of 50). This is in concordance with the findings of LykkeMelve KKgroup who in a study published in 2009 demonstrated a similar increase in incidence of PV leak [7,8].

Like other observational studies of its kind, this study has several limitations. The most important limitation is the relatively shorter period of study and limited number of cases included in the study which mean that larger trials may be necessary before reaching to conclusive decisions.

Also, some of the significant confounding factors may alter the findings especially since childbirth is a dynamic process influenced by a large number of environmental, social and topographical factors.

The correlation with difference in results with variation in inter-pregnancy intervals has not been established and may result in alteration of a number of factors like change in immunological mechanisms, also correction in other factors like an early registration and better

follow up at a tertiary care center like ours following an incidence of a previous unfavorable outcome of pregnancy leading to better monitoring, increased detection rates of complications encountered during the pregnancy and intrapartum period and also need for NICU care to the newborn.

These patients with previous history of abortion should be followed up meticulously during the antenatal period. Proper investigations should be carried out to detect any recurrent cause of foetal loss. Timely ultrasonography, regular biophysical profile, plan for delivery should be undertaken by senior obstetrician.

Conclusion

This study was done on 100 patients (group A 50 and group B 50) and it proves that there are more incidences of caesarean section in group B cases.

Patient having history of first trimester spontaneous abortion have more chances of caesarean section mainly because of premature rupture of membrane, preterm labour pain, low birth weight or intrauterine growth retardation and in few cases due to uterine anomaly.

Thereby, proper history should be taken from all the patients and ultrasound scans per weeks should be advised to rule out any high risk pregnancy. Women with history of previous first trimester abortion should undergo preconceptional investigations mainly Ultrasonography to rule out any uterine anomaly.

Therefore, we conclude that our study has great contribution in recent knowledge that every pregnancy with prior episodes of spontaneous abortion should be considered high risk pregnancy and evaluation along with antenatal checkup should be done regularly and carefully.

Elective caesarean section can be planned in order to avoid any further complication with regular follow up for screening of any complications.

Acknowledgement: During the present study and preparation of the manuscript, we would like to thank Dr. Sangeeta Desai, Assistant Prof, Dept of Obs & Gynae, D. Y. Patil Hospital, Kolhapur for her valuable inputs and support. Thanks to Dr. Akanksha Singh, Resident for her help during the preparation of the manuscript.

Funding: Nil, **Conflict of interest:** Nil

Permission from IRB: Yes

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How to cite this article?

Nehal N., Sawant V. Pregnancy outcome following previous history of spontaneous abortion. *Obs Rev: J Obstet Gynecol* 2019;5(1):53-58.doi:10.17511/joog.2019.i01.10.

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