International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Patel MR et al. Int J Reprod Contracept Obstet Gynecol. 2024 May;13(5):1234-1238
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20241072

Original Research Article

A prospective study on the outcome of pregnancies with a history of prior single or multiple early pregnancy losses

Mosam R. Patel*, Niketankumar Rathod, Jalpa K. Bhatt, Manishkumar K. Patel

Dr. M. K. Shah Medical College and Research Centre, Ahmedabad, Gujarat, India

Received: 27 March 2024
Revised: 16 April 2024
Accepted: 18 April 2024

***Correspondence:**
Dr. Mosam R. Patel,
E-mail: patelmosam294@gmail.com

ABSTRACT

Background: In spite of the fact that a history of first-trimester recurrent spontaneous abortion (FRSA) is regarded as a risk factor in antenatal care, the characteristic of consequent pregnancy outcome isn't clearly illustrated.
Methods: A prospective observational analysis was performed on the clinical data of 100 singleton pregnant women.
Results: For maternal outcomes, patients within study group delivered prior with mean gestational age and the incidences of Caesarean section and postpartum haemorrhage were higher. For placental outcomes, the incidence of placenta-mediated pregnancy complications (PMPC) within study group increased in terms of late-onset preeclampsia, oligohydramnios, early-onset fetal growth restriction, and second-trimester abortion. For perinatal outcomes, the proportion of birth abandons of newborns within study group was even higher. At last, logistic regression analyses appeared that the history of FRSA was an autonomous risk factor for caesarean section and pregnancy complications.
Conclusions: Women with the history of FRSA are often exposed to an elevated incidence of maternal-placental-perinatal adverse pregnancy outcomes.

Keywords: Recurrent pregnancy loss, First trimester abortion, Miscarriage, Pregnancy outcome, Complications, Fetal, Maternal, Pregnancy outcome

INTRODUCTION

Pregnancy plays a distinctive role within revolution of woman towards completeness. Pregnancy should be considered a normal physiological event in a woman's life. 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 Gynaecology (ACOG), National Centre for Health Statistics, Centres for Disease control and prevention, and World Health Organization (WHO) all define abortion as pregnancy termination before 20 weeks gestation or with a foetus weight less than 500 gm. These criteria are somewhat contradictory because the mean birth weight of 20 week's foetus is 320 gm, whereas 500 gm is the mean for 22-23 weeks. Spontaneous abortion is classified into isolated and recurrent. Threatened, inevitable, complete, incomplete, missed, septic abortion all come under spontaneous abortion.[1] Early pregnancy loss is a process and may be diagnosed at multiple stages.

Biochemical pregnancy loss

A diagnosis exclusively based on declining human chorionic gonadotropin levels without a pregnancy eternally visualized on ultrasound. Generally, miscarriage occurs before 6 weeks of gestation in pregnancies achieved with the assistance of reproductive technology.[2]

Asymptomatic pregnancy loss (missed abortion)

The missed death of the embryo or foetus without symptoms or in utero death of foetus without expulsion of the products of conception (POC).[3]

Threatened pregnancy loss

Symptoms (e.g., bleeding and cramping) of an approaching early pregnancy loss. In any case, the cervical os remains closed, and the embryo or foetus still appears feasible on ultrasound.[3]

Inevitable pregnancy loss

Similar to a threatened pregnancy loss, symptoms (e.g., bleeding and cramping) are present; in any case, the cervical os is open. This term, in specific, is falling out of favour, because it can be clinically challenging to identify inevitable abortions with certainty.[3]

Incomplete pregnancy loss

Products of conception that remains inside the uterus and the open cervical os following the diagnosis of an early pregnancy loss.[3]

Complete pregnancy loss

The complete passage of all products of conception from uterus.[3]

In pregnancies with prior early pregnancy losses, complications like recurrent abortion, placental abnormalities like preeclampsia, intrauterine fetal death, oligohydramnios, small for gestational age children, placental abruption, and spontaneous preterm birth, maternal complications like increase caesarean section rates and fetal complications are documented.[4,5]

Most common risk factors underlying RPL are: parental chromosomal aberrations, congenital and acquired uterine abnormalities, endocrine abnormalities, hereditary thrombophilia and autoimmune factors such as the antiphospholipid syndrome.[6,7]

Abnormal endometrial receptivity and abnormal decidualization also play role in RPL.[8]

Life style and obesity also play an important role in recurrent pregnancy loss.[9]

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.[10-12]

Progesterone has an important role in maintaining a pregnancy, and supplementation with different progestogens in early pregnancy has been attempted to rescue a pregnancy in women with early pregnancy bleeding (threatened miscarriage), and to prevent miscarriages in asymptomatic women with history of RPL.[13]

This study is taken with the aim to study outcome of pregnancies with prior losses with correlation with etiological factors, antenatal care modification and possible complication.

Objectives of study

Objectives were to monitor pregnancy outcome whether repeat early pregnancy loss or continuation of pregnancy in pregnancies with history of prior one or more early pregnancies losses; to evaluate the obstetric outcome in pregnancies with a history of prior one or more early pregnancies losses; and together data regarding maternal or fetal complications in such pregnancies.

METHODS

The study was conducted as a prospective study during the period of 12 months from December 2022 to November 2023 at Dr. M.K. Shah Medical College and Research Centre and Smt. S.M.S. Multispecialty Hospital, Ahmedabad after Institutional research ethics board approval.

Inclusion criteria

Antenatal patients attending antenatal OPD with history of prior pregnancy loss/losses, and patients who agreed for enrolment in study were included.

Exclusion criteria

Patients with prior history of medical termination of pregnancy, and patients with no history of abortion were excluded.

All the patients attending antenatal OPD were screened for history of prior pregnancy loss/losses.

All the recruited women were explained about the complete study and to participate in the study was recorded in a consent form dually signed by patient and responsible relative.

Detailed history of the patient was recorded with special reference to age, parity, menstrual history, obstetrical history. Gestational age calculated from the first day of last menstrual cycle and ultrasonography in predefined proforma, with probable cause of previous spontaneous abortion noted and any drug history noted.

Per abdomen, per speculum and per vaginal examinations were done.

All the required routine investigations like complete blood count (CBC), random blood sugar (RBS), liver function test (LFT), renal function test (RFT), coagulation profile, serology, urine analysis, and ultrasonography was done. Patient followed up during each routine antenatal visit. Antepartum events and complications noted.

During labour, the patient monitored by continuous fetal cardiotocography.

Maternal outcome assessed on basis of mode of delivery and complications like PROM, Preterm delivery. Postpartum complications noted. Fetal outcome assessed on basis of 5-minute APGAR score, birth weight, neonatal intensive care unit (NICU) admission, perinatal morbidity and mortality. Data analysis was done in Microsoft excel.

RESULTS

Figure 1 shows age distribution of patient in study group, maximum patients were in age group of 21-25 years.

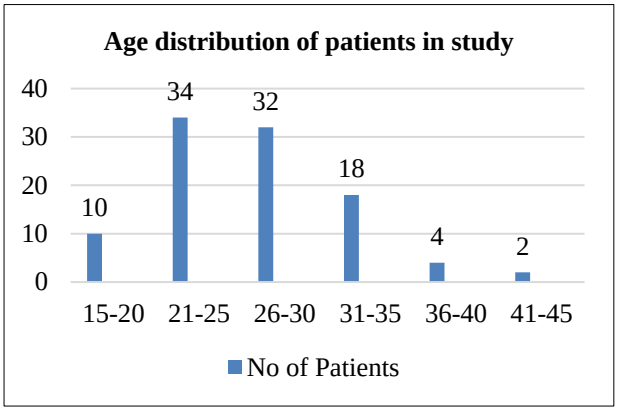

Figure 1: Age distribution.

Figure 2 showing maternal complications seen in study group showing maximum incidence of PIH/preeclampsia (4) followed by PPH (3), PROM (3), and 1 patient reported to have GDM and chronic hypertension.

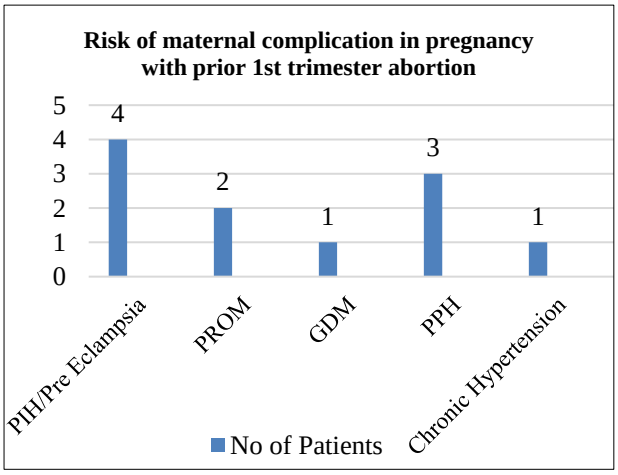

Figure 2: Maternal complications.

Table 1 shows outcome of pregnancy in terms of mode of delivery. 50 patients delivered vaginally and 40 delivered by caesarean section and in 10 patients 2nd trimester abortion occurred.

Table 1: Outcome of pregnancy.

Outcome of pregnancy	No. of patients (n=100)
Normal vaginal delivery	50
Caesarean section	40
2nd trimester abortion	10
Total	100

Figure 3 shows fetal complication seen in study group. That shows maximum incidence of preterm labour, LBW, TTN, IUGR and RDS.

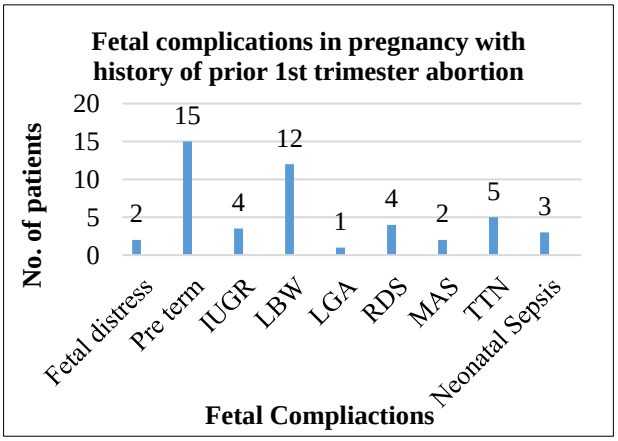

Figure 3: Fetal complications.

Table 2 shows risk factors responsible for repeated 1st trimester abortions in study group.

Table 5: Risk factors.

Risk factors	No. of patients
Diabetes	2
HTN	2
Hypothyroidism	4
Mullerian anomalies	2
Immunological causes	3
History of previous surgery	1
Infection	2
Elderly gravida	1
Fibroid	2
Idiopathic	81
Total	100

DISCUSSION

Risk of repeat abortion after 1 prior 1st trimester abortion is 30% and after 2 losses it is 30-45%.[14]

Patients who experienced more than 2 incidents of miscarriage are often exposed to elevated incidences of placental dysfunction disorders and caesarean section.[3] Such patients should be considered as high-risk obstetric population. Their characteristics of pregnancy complications and the preventive measures have to be

investigated due to the necessity and critical clinical assessment. However, impediment of current studies cannot eliminate confounding effects of other pathologies when analysing pregnancy outcomes considering complex causes of recurrent miscarriage. The characteristics of unfavourable pregnancy outcomes were considered from a placental-perinatal-maternal perspective. We found that pregnancy-related complications and caesarean section rate were significantly correlated with FRSA history. Specific antenatal and perinatal care should be given to reduce the incidence of adverse pregnancy outcomes.

In our study, out of 100 pregnant patients with history of prior 1st trimester abortion, Maximum patients (34%) were in age group of 21-25 years. Other 32% patients were in age group of 26-30 years, 18% of patients were in age group of 31-35 years, 10% were in age group of 15-20 years, 4% in age group of 36-40 years and only 2% of patient in age group of 41-45 years.

In our study, risk factors associated with prior 1st trimester abortions identified were diabetes in 2 patients, hypertension in 2 patients, hypothyroidism in 4 patients, Mullerian anomaly in 2 patients, Immunological causes identified in 3 patients, history of previous surgery seen in 1 patient, Infection seen in 2 patients, 1 was elderly gravida, fibroid seen in 2 patients and in 81 patients either cause not identified or induced abortion by MTP pills were seen.

Placenta-derived diseases

In previous studies, RSA has been detailed to have a comparative pathogenesis to that of placental dysfunction complications, such as preeclampsia, intrauterine fetal death, oligohydramnios, small for gestational age children, placental abruption, and spontaneous preterm birth. It also correlates with placental ischemia caused by placenta implantation insufficiency during the first trimester, immune imbalance of Thl/Th2 and Thl7/Treg on maternal-fetal interface, insufficient invasion of extravillous trophoblastic cells, and uterine spiral artery dysfunction. In spite of the fact that the late-term clinical manifestations differ, these types of diseases may have a common establishment. Pregnancy outcome varies according to the degree of spiral artery remodelling. Partial remodelling disorder is inclined to be complicated by preterm birth and FGR devoid of pregnancy-induced hypertension; complete remodelling disorder is often accompanied with PE.[14] Gunnarsdottir et al have definite that patients with a history of more than two abortions were exposed to an increasing risk of placenta-derived pregnancy-related complications, which is constant with our study results.

Maternal pregnancy outcomes

This study shows that RSA is an independent risk factor for caesarean section, which is consistent with other studies. In our study group, the age differences and history of abortion direct to no-indication caesarean sections. FGR, and fetal distress were found to induce rate of caesarean sections. Postpartum haemorrhage rate was higher in the study group. PE is an independent risk factor for uterine contraction fatigue and postpartum haemorrhage after vaginal delivery, and placental abnormalities (placenta previa, implantation, or early ablation) and hypertension are closely related to severe postpartum haemorrhage.

In our study, total 11% patients out of 100 were suffer from maternal complication during pregnancy and delivery, in which 4 patients developed preeclampsia with or without complicating features, out of which 1 had chronic hypertension, 2 patients developed pre mature rupture of membranes, 1 patient developed gestational diabetes and 3 suffered from postpartum haemorrhage after delivery. In our study, the incidences of placental accreta and placental increta/percreta were negligible in the study group which is due to small sample size we cannot study this factor effectively.

In our study, pregnancy outcome in form of 2nd trimester abortion, normal vaginal delivery or caesarean section were compared. It shows 10% patients had 2nd trimester abortion, 50% delivered by normal vaginal delivery and 40% delivered by caesarean section.

Perinatal outcome

For FRSA, possibly due to the impediments of conventional cytogenetic techniques, no unusual chromosomes in couples or previous foetus, chromosomal sub microscopic abnormalities were found. incidence of villi genome microdeletions or micro repetition will lead to abortion or fetal chromosomal abnormalities in subsequent pregnancies. successive pregnancies of FRSA patients were inclined to fetal structural abnormalities, especially for those with advanced maternal age and as history of more than three miscarriages. In our study, no fetal structural abnormalities found may be because of limited sample size.[15]

The new impact on foetuses is an increasing risk of perinatal death, FGR, small for gestational age foetus, and preterm birth. Current studies recommend that placenta dysfunctions have a significant impact on fetal long-term wellbeing, such as cardiovascular diseases, hypertension, obesity, nervous system dysfunctions, and psychological behaviour abnormalities. In this study, we primarily focused on the near-term impacts on fetal health.

In our study, neonatal complications seen in 48% of patients out of 100 patients. Fetal distress seen in 2%, pre term delivery seen in 15%, IUGR developed in 4%, LBW seen in 12%, large for gestational age seen in 1%, respiratory distress syndrome seen in 4%, meconium aspiration syndrome seen in 2%, transient tachypnoea of new born seen in 5% and neonatal sepsis developed in 3% cases and 52% foetus were normal without any complication.

The incidence of small for gestational age foetus, perinatal death, and neonatal severe asphyxia in the study group was higher but there was no much statistical difference as there were 52% normal foetuses, that is due to small sample size, excellent capacity of prenatal care, and after-birth paediatric treatment for high-risk pregnancies in our hospital may contribute to this situation. Enlarged sample size will be required and long-term foetus wellbeing conditions should also be considered in future researches.

CONCLUSION

Maternal comorbidities increase the risk of miscarriage; and after miscarriage chronic hypertension, preeclampsia, PROM, gestational diabetes and postpartum hemorrhage can be the possible maternal complications. Studies show that in comparison with women with a previous successful pregnancy, women with an initial miscarriage have an increased risk of some obstetric complications. The risk of miscarriage in a future pregnancy increases drastically after the subsequent successive miscarriages. There is a need for evidence-based counseling for pregnancy outcomes for women who come for an antenatal visit with a history of one or more early pregnancy losses. An appropriate plan of antenatal care in view of improving the management of such cases has to be laid.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Upadhyay C, Koregol M, Bulusu R, Dubey S, Shah N. Obstetric outcome of pregnancies following abortions. J Evol Med Dent Sci. 2013;2(31):5755-8.
2. Cao C, Bai S, Zhang J, Sun X, Meng A, Chen H. Understanding recurrent pregnancy loss: recent advances on its etiology, clinical diagnosis, and management. Med Rev (2021). 2022;2(6):570-89.
3. Yang J, Wang Y, Wang XY, Zhao YY, Wang J, Zhao YY. Adverse Pregnancy Outcomes of Patients with History of First-Trimester Recurrent Spontaneous Abortion. Biomed Res Int. 2017;4359424.
4. Kashanian M, Akbarian AR, Baradaran H, Shabandoust SH. Pregnancy outcome following a previous spontaneous abortion (miscarriage). Gynecol Obstet Invest. 2006;61(3):167-70.
5. Sheiner E, Levy A, Katz M, Mazor M. Pregnancy outcome following recurrent spontaneous abortions. Eur J Obstet Gynecol Reprod Biol. 2005;118:61-5.
6. Reginald PW, Beard RW, Chapple J, Forbes PB, Liddle HS, Mowbray JF. Outcome of pregnancies progressing beyond 28 weeks gestation in women with history of recurrent miscarriage. Br J Obstet Gynecol. 1987;94:643-8.
7. Brigham SA, Conlon C, Farquharson RG. A longitudinal study of pregnancy outcome following idiopathic recurrent miscarriage. Human Reprod. 1999; 4(11):2868-71.
8. Wu J, Lin S, Huang P, Qiu L, Jiang Y, Zhang Y, et al. Maternal anxiety affects embryo implantation via impairing adrenergic receptor signaling in decidual cells. Commun Biol. 2022;5(1):840.
9. Sultana S, Nallari P, Ananthapur V. Recurrent pregnancy loss (RPL): an overview. J Women's Health Dev. 2020;03:302-15.
10. Agrawal S, Khoiwal S, Jayant K, Agarwal R. Predicting adverse maternal and perinatal outcome after threatened miscarriage. Open J Obstet Gynecol. 2014;4:1-7.
11. Regan L, Braude PR, Trembath PL. Influence of past reproductive performance on risk of spontaneous abortion. BMJ. 1989;299:541-5.
12. Clifford K, Rai R, Regan L. Future pregnancy outcome in unexplained recurrent first trimester miscarriage. Human Reproduction. 1997;12(2):387-9.
13. Saccone G, Schoen C, Franasiak JM, Scott RT Jr, Berghella V. Supplementation with progestogens in the first trimester of pregnancy to prevent miscarriage in women with unexplained recurrent miscarriage: a systematic review and meta-analysis of randomized, controlled trials. Fertil Steril. 2017;107(2):430-8.
14. Bhattacharya S, Lowit A, Bhattacharya S, Raja EA, Lee AJ, Mahmood T, et al. Reproductive outcomes following induced abortion: a national register-based cohort study in Scotland. BMJ Open. 2012;2(4):e000911.
15. Cunningham FG. Abortion. Williams Obstetrics. 2014;24(18):350-65.

Cite this article as: Patel MR, Rathod N, Bhatt JK, Patel MK. A prospective study on the outcome of pregnancies with a history of prior single or multiple early pregnancy losses. Int J Reprod Contracept Obstet Gynecol 2024;13:1234-8.