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Maternal and Perinatal Outcomes in Pregnancies with First-Trimester Vaginal Bleeding: A Prospective Observational Cohort Study

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Abstract: ***Background: The first-trimester of pregnancy spans ovulation, fertilization, implantation, and organogenesis. First-trimester vaginal bleeding is a common obstetric presentation associated with varying maternal and fetal outcomes. Objective: To evaluate maternal and perinatal outcomes in viable pregnancies complicated by first-trimester vaginal bleeding. Methods: This prospective observational cohort study included 250 pregnant women with vaginal bleeding before 12 weeks of gestation at a tertiary care hospital. Participants were followed until delivery, and maternal neonatal outcomes were recorded. Results: Most participants were aged 18–25 years (50%) and multigravida (68%). Spotting was the most common bleeding pattern (65.2%), with presentation most frequently at 7–8 weeks (52%). Viable pregnancy continued in 76% of cases, while 19.2% ended in miscarriage and 4.8% were ectopic pregnancies. Severe bleeding and abdominal pain were associated with poorer pregnancy viability. Maternal complications included anemia, PROM/PPROM, hypertensive disorders, and placental complications. Fetal complications included low birth weight, preterm birth, NICU admission, and perinatal mortality. Conclusion: First-trimester vaginal bleeding is associated with increased maternal and fetal risks, particularly when bleeding is severe or accompanied by abdominal pain. Close monitoring and individualised antenatal management are recommended.***

Keywords: First-trimester vaginal bleeding; threatened miscarriage; pregnancy viability; maternal outcome; perinatal outcome

Take home message: Counselling of the women, proper antenatal care and follow up has to be given to women who present with first-trimester bleeding.

1. Introduction

The first-trimester of pregnancy is a dynamic period that spans ovulation, fertilization, implantation, and organogenesis. The term 'Safe- Motherhood' is not only in relation to mother but also in relation to fetus. Vaginal bleeding in early pregnancy represents a definite threat to developing embryo and constitutes a source of anxiety to both the patient and the clinician. It has been estimated to affect 7 to 24% of all pregnancies[1]. It is also one of the commonest causes for the majority of the emergency admissions.

Threatened miscarriage refers to vaginal bleeding before 20 weeks in a viable pregnancy with a closed cervix, sometimes with mild cramping.

First-trimester bleeding has multiple causes, including implantation bleeding, various types of miscarriage, blighted ovum, ectopic pregnancy, and trophoblastic disease, making diagnosis and management challenging.

As bleeding may be an early marker of placental dysfunction, few studies have evaluated the association between bleeding and development of preeclampsia in later pregnancy. A significant association was found between first-trimester vaginal bleeding and placenta previa.[2,3]

Outcomes of pregnancies with first-trimester bleeding are important for guiding antenatal care and interventions. Prognosis of threatened abortion is unpredictable and requires close monitoring, as it increases risks influencing delivery decisions and outcomes.

Any bleeding after a positive pregnancy test needs evaluation to rule out abnormal or pathological conditions.

In order to understand other risks of first-trimester vaginal bleeding, we evaluated the incidence of a variety of outcomes, such as pregnancy loss, preterm delivery, IUGR (Intra Uterine Growth Restriction), preeclampsia, PPROM (Preterm Prelabour Rupture of Membranes), PROM (Prelabour Rupture of Membranes), placental abruption, placenta previa, and caesarean delivery in pregnancies with first-trimester bleeding.

Purpose of the study: To study maternal and fetal outcomes in viable pregnancies with first-trimester vaginal bleeding.

The objective of the present study is to evaluate maternal and perinatal outcomes in viable pregnancies complicated by first-trimester vaginal bleeding and prospective observational cohort, is used to meet the purpose of this project.

2. Materials and Methods

Study design

- Study type: Prospective observational cohort study.
- Study Site: Department of Obstetrics and Gynaecology.

Eligibility Criteria

Inclusion criteria

All the consenting women who met the following criteria:

a) First trimester of pregnancy with less than 12 weeks of gestation
b) Urine pregnancy test positive
c) Ultrasound showing presence of fetus with cardiac activity.
d) Bleeding per vaginum.
e) Consenting pregnant woman visiting civil hospital, Ahmedabad

Exclusion criteria

Patient who does not fit in the inclusion criteria.

3. Methodology

This longitudinal prospective study was conducted over 2 years (from April 10, 2023) after ethics committee approval, involving 250 pregnant women with first-trimester bleeding at the Department of Obstetrics and Gynaecology, Civil Hospital, Ahmedabad. Informed consent was obtained from all participants.

First-trimester bleeding was defined as obstetrician-confirmed vaginal bleeding before 12 weeks of gestation. Women with absent fetal cardiac activity or hydatidiform mole were excluded.

Participants were followed from initial presentation until delivery. Data on age, gravidity, gestational age, bleeding characteristics, treatment, and outcomes were collected using a structured questionnaire and hospital records, with telephone follow-up when needed.

All patients underwent clinical examination, investigations, and received antenatal care as per protocol. Maternal and fetal status was assessed at each visit, and complications were managed accordingly. The low-risk women had visited every four weeks till 28 weeks of pregnancy, fortnightly from 28 - 35 weeks and once every week in the last month of pregnancy.

Pregnancy details, including bleeding timing and volume, obstetric history, comorbidities, gestational duration, and birth weight, were recorded. Outcomes, including obstetric and fetal complications were noted.

Bleeding severity criteria

- Spotting (+): Mild vaginal bleeding – only few drops noticed or soaking less than 1 pad or tampon in more than 4 hours.
- Moderate bleeding (++): Soaking more than 1 pad or tampon in 4 hours.
- Severe bleeding (+++): Soaking more than 1 pad or tampon every 1 to 2 hours or passage of large blood clots or recognizable pregnancy tissue.

Outcome Definitions

- Incomplete Abortion: During miscarriage, the cervix opens and placental separation causes bleeding. Tissue may remain entirely within the uterus or partially extrude through the cervix.
- Complete abortion: all products of conception has been expelled from uterus, with completion bleeding ebbs and internal cervical os subsequently closes.
- Missed abortion: dead products of conception before 20 weeks (24 weeks in UK, 28 weeks in India) of gestation in the uterus with closed cervical os.
- Inevitable abortion: abortion has progressed to the extent that expulsion of products of conception is inevitable with no chance of continuation of pregnancy.
- Ectopic Pregnancy- Implantation and development of blastocyst at a site other than the endometrial lining of the uterine cavity.

4. Results

Present study of first-trimester vaginal bleeding was conducted at a tertiary care hospital in department of obstetrics and gynaecology, civil hospital Ahmedabad, Gujarat, prospectively during the period of April 10, 2023 to April 9, 2025. A total of 250 patients were studied as regards their demographic characteristics, maternal and fetal outcomes.

Pregnant women seeking hospital assessment for vaginal bleeding less than 12 weeks of gestation were considered for study. Patients were not on drugs for hematological problems. Patients do not have known hematological disorders.

1) Maximum number of patients were from the age group of 18-25 years were 125 (50%), followed by age group of 26-35 years who were 115 (46%) and 10 (4%) of >35years age. Maximum age was 39 years and minimum age was 20 years.
2) Most patients were multigravida - 170 (68%) and primigravida were - 80 (32%).
3) Majority of first trimester bleeding patients - 130 (52%) presented at 7-8 weeks of gestation, followed by 9-10 weeks of gestation - 62 (24.8%). <7 weeks of gestation – 36 (14.4%) and 11-12 weeks of gestation – 22 (8.8%) patients had first trimester bleeding episode.
4) Amount of bleeding in the women in first trimester. Maximum number of patients - 163 (65.2%) only had spotting (mild bleeding) per vaginum, followed by moderate bleeding – 52 (20.8%) and 35 (14%) with severe bleeding.
5) Incidence of Non obstetric causes of first trimester bleeding among the study participants: Total of 13 patients (5.2%) out of 250, had presented with first trimester bleeding with a non-obstetric cause. Majority of - 4 patients had bleeding due to sexual intercourse in non-obstetric cause. While there were cervical erosions in – 3, fibroid in – 2, bleeding due to PS/PV examination in – 2, trauma in – 1 and cervical carcinoma in – 1 patient.
6) 105 (42%) patients had past history of (P/H/O) one or more abortions in previous pregnancy and 145 (58%) patients had no P/H/O abortion.
7) Non-viable group of 60 (24%) patients includes 12 ectopic pregnancy (4.8%) and 48 abortions (19.2%) out of 250 patients. Majority of patients – 190 (76%) had viable pregnancy.
8) Total 12 (4.8%) out of 250 patients had ectopic pregnancy. Out of which 10 patients had fallopian tube ectopic pregnancy and 2 patients had scar ectopic pregnancy.

9) In the types of spontaneous miscarriage – 48 out of 250 (19.2%), missed miscarriage constitutes maximum number of 23 followed by incomplete miscarriage of 15, 5 of inevitable miscarriage and 5 of complete miscarriage.
10) Table 1 shows probable causes of miscarriage.

Table 1: Probable causes of Miscarriage

Probable causes of Miscarriage	No. of patients	Percentage
Maternal age > 40 years	15	31.2%
Chronic Hypertension	4	8.3%
Overt Diabetes Mellitus	3	6.2%
Hypothyroidism	2	4.1%
Infection	8	16.6%
Anemia	5	10.4%
Trauma	1	2%
Unexplained	10	20.8%
Total	48	100%

11) Pregnancy outcomes among viable pregnancies. Out of 250 patients 190 (76%) had viable pregnancy, of which 108 (56.8%) patients underwent vaginal delivery and 82 (43.2%) patients had caesarean section.
12) Types of Vaginal delivery. Out of 108 patients who had vaginal delivery, maximum - 85 patients had full term normal delivery, 15 had preterm vaginal delivery and 8 had instrumental delivery.
13) Patients who underwent lower segment caesarean section. Total 82 (43.2%) patients out of 190 viable pregnancies, underwent caesarean section, out of which 67 were full term, 15 were preterm, for fetal and maternal indications.
14) Patients who underwent lower segment caesarean section. Total 82 (43.2%) patients out of 190 viable pregnancies, underwent caesarean section, out of which 66 underwent emergency LSCS and 16 patients underwent elective LSCS.
15) Only 78 (32.7%) out of 238 patients took progesterone support and 160 (67.2%) patients did not take progesterone support. 12 patients of ectopic pregnancy were excluded.
16) Table 2 (A) and (B) shows Relation between Viability and progesterone support.

Table 2: Relation between Viability and progesterone support

Table 2 (A)

Progesterone Support		No. of patients	Percentage
Taken	Viable	62	79.5%
	Non-viable	16	20.5%
Total		78	100%

Table 2 (B)

Progesterone Support		No. of patients	Percentage
Not taken	Viable	120	75%
	Non-viable	40	25%
Total		160	100%

17) Table 3 shows majority of patients (65.2%) presented with spotting, among those 153 (61.2%) had a favourable outcome.

Table 3

		No. of patients	Percentage
Spotting (+)	Viable	153	61.2%
	Non-viable	10	4%
Moderate bleeding (++)	Viable	32	12.8%
	Non-viable	20	8%
Severe bleeding (+++)	Viable	5	2%
	Non-viable	30	12%
Total		250	100%

18) Table 4 shows that pain in abdomen along with first trimester vaginal bleeding increases the percentage of non-viable pregnancy.

Table 4: Abdominal pain

Abdominal pain		No. of patients	Percentage
Absent	Viable	166	66.4%
	Non-viable	10	4%
Present	Viable	24	9.6%
	Non-viable	50	20%
Total		250	100%

19) Maternal complications in women with first trimester vaginal bleeding. Out of 250 patients, 48 had abortion, 12 had ectopic pregnancy and 190 patients proceeded for continuation of pregnancy, out of which 250 patients 186 (74.4%) patients had maternal complications. Majority of complications include Anemia – 58 (23.2%), PPROM/PROM- 25 (10%), Placenta previa 20 (8%), others include abruption placentae – 5 (2%), placenta accreta – 1 (0.4%), gestational hypertension – 7 (2.8%), pre-eclampsia – 17 (6.8%), eclampsia – 6 (2.4%), gestational diabetes mellitus – 10 (4%), non-progression of labour – 10 – (4%), oligohydramnios – 15 (6%), post-partum hemorrhage – 12 (4.8%).
20) Table 5 shows that high risk factors associated with first trimester vaginal bleeding. Out of 250 patients, 50 (20%) patients had high risk factors before the onset of vaginal bleeding.

Table 5: Association of first trimester vaginal bleeding with high risk factors

High risk factor	No. of patients	Percentage
Multiple pregnancy	10	4%
Heterotopic pregnancy	2	0.8%
Chronic hypertension	10	4%
Overt DM	8	3.2%
Hypothyroidism	5	2%
Cardiac disease	5	2%
Infertility treatment conceived	10	4%

21) Fetal complications in women with first trimester vaginal bleeding. Maximum babies had Low birth weight – 65 (26%), 30 (12%) had preterm birth, 25 (10%) had NICU admission, 25 (10%) had APGAR <7 at 1 minute, 21 (8.4%) had fetal distress, 17 (6.8%) had meconium-stained amniotic fluid, 10 (4%) had IUGR, 10 (4%) had anomaly and 5 (2%) underwent perinatal mortality.
22) Birth weight of the newborn with maximum babies - 81 (40.7%) falling under the category of 2.6-3kg. 50 (25.1%) newborns had birth weight of 2.1-2.5kg, 42 (21.1%) had birth weight of >3kg and 26 (13%) were <2kg. It also includes newborn of patients with multiple pregnancy.

5. Discussion

This was a Prospective cohort study conducted at a tertiary care hospital from 10th April 2023 to 9th April 2025 i.e. total duration of 24 months.

In this study, according to **Result 1: Age distribution among the study participants**, 50% of patients had age of 18-25 years. Shivanagappa M et al., also noticed first trimester bleeding per vagina was very high (69%) in age group 21-30 years.[4]

In the present study, according to **Result 2: Gravida status among the patients**, about 68% patients were multigravida and 32% patients were primigravida. Kavyashree HS & Rajeshwari K, and Patel NG et al., found in their studies that multigravida were 60% and 66% respectively.[5,6]

In the present study, according to **Result 3: Gestational age at bleeding**, shows majority 130 (52%) of women with first trimester bleeding presented between 7-8 weeks of gestation. A study by Shaheen Hokabaj et al showed incidence of 49.5% of patients with first-trimester bleeding presented between 7-8 weeks of gestation[7].

In early pregnancy, progesterone is produced by the corpus luteum until the placenta takes over around week 7. A significant drop during this transition may trigger bleeding, similar to the end of luteal phase of menstrual cycle, and could indicate inadequate early placental function.

Bleeding Characteristics
In this study, majority (52%) of patients presented at 7-8 weeks of gestation with complaint of vaginal bleeding.

According to **Result 4: Amount of bleeding-** majority of patients had spotting (65.2%), moderate bleeding (20.8%) followed by heavy bleeding (14%). This is in accordance with the study of Patel NG et al, majority (68%) had spotting, 22% had moderate bleeding followed by heavy bleeding (10%)[6]

Result 5: Non obstetric causes of first trimester bleeding, shows total 13 (5.2%) patients had bleeding other than obstetric reason. History and speculum examination can help identify the cause of bleeding.

Result 6: Past history of Miscarriage
In this study, 42% patients had past history of abortion in previous pregnancy, showing significant association[8]. Similar result was found in the study of Patel NG et al, showing 40% patients had a history of previous abortion.[6]

Result 7: Viability of pregnancy by the end of first trimester in patients with first trimester vaginal bleeding among study participants. Non-viable group included 60 (24%) patients with ectopic pregnancy or abortions. In this study 76% (190 out of 250) of pregnant women with first trimester vaginal bleeding continued their pregnancy that shows more than half of these women continued pregnancy successfully to delivery. In the study by Shaheen Hokabaj et al. showed 54.3% women had continuation of pregnancy in the study group[7]. In study conducted by Barik S et al, 65.95% of cases continued pregnancy[9]. Whereas study by Pooja nandedkar et al. showed 91.6% of pregnant women with first trimester vaginal bleeding continued their pregnancy[10].

Result 8&9: Non-viable pregnancy outcome. It includes 12 ectopic pregnancy (4.8%) and 48 abortions (19.2%) out of 250 patients.

Miscarriage and ectopic pregnancy
This study showed 9.2% patients had missed abortion and 4.8% patients had ectopic pregnancy. In Patel NG et al observed missed abortions in 7% of cases, ectopic pregnancy in 8% of cases[6].

Result 10 & Table 1: Probable causes of miscarriage. It shows that out of 48 patients, 15 (31.2%) patients had increased maternal age, 8 (16.6%) patients had infection, 5 (10.4%) patients had anemia. The BMJ study showed risk of miscarriage was lowest in women aged 25-29 (10%), and rose rapidly after age 30, reaching 53% in women aged 45 and over.[11]

Study by Sevi Giakoumelou et. Al showed the evidence that infections may adversely affect pregnancy outcome. Bacteria, viruses and protozoa utilize various mechanisms to infect fetal and maternal tissues.[12]

Díaz-López A et al. study showed the rate of miscarriage in anaemia and normal Hb concentrations was 8.4%, 5.1%, respectively.[13]

Result 11: Pregnancy outcome among viable pregnancy. Out of 250 patients 190 (76%) had viable pregnancy.

Delivery Characteristics (Results 12-14)
In this study, 76% continued pregnancy in which preterm delivery occurred in 15.7% and full-term delivery occurred in 84.2% of patients. In study conducted by Barik S et al, 65.95% of cases continued pregnancy in which 77.7% delivered full term and 22.3% delivered preterm[9].

Mode of Delivery
In this study, vaginal delivery (including instrumental delivery, full term and preterm vaginal delivery) was carried out in 43.2% and LSCS was carried out in 32.8% of patients out of 250 patients.

Instrumental Delivery: The risk of instrumental delivery was not significantly altered, as in our study it was 3.2% (including both vacuum and forceps delivery), whereas it was 5.4% in Pooja Nandedkar et al. study[10] and it was 5.3% in study by Shaheen Hokabaj et al[7].

Caesarean Section: In our study 32.8% (82) of C-section were done whereas in study conducted by Sarmalkar MS et al, rate of LSCS was 38% and most common indication was fetal distress[14].

Result 15 & 16: Progesterone Support (Table 2 a & b)
In present study, 32.7% patients with first trimester bleeding took progesterone support and bed rest. Bed rest, pelvic rest, vitamins, uterine relaxants, and administration of beta subunit of human chorionic gonadotropin are not recommended[15]. Progesterone has physiologic roles in maintaining pregnancy.

When progestogens were compared with placebo, there were no differences in pregnancy-induced hypertension, antepartum hemorrhage, stillbirth, low birth weight, or respiratory distress syndrome[16].

The incidence of live births after at least 34 weeks of gestation in Arri Coomarasamy, M.B. et al. study was 75% (1513 of 2025 women) in the progesterone group and 72% (1459 of 2013 women) in the placebo group, thus among women with bleeding in early pregnancy, progesterone therapy administered during the first trimester did not result in a significantly higher incidence of live births than placebo.

Result 17 & Table 3 shows majority of patients (65.2%) presented with spotting, among those 153 (61.2%) had a favourable outcome and most (30 out of 35) patients of severe bleeding category had unfavourable outcome.

Khanam M et al, reported that first trimester bleeding is an independent risk factor for adverse obstetric outcome that is directly proportional to amount of bleeding[17].

Table 3 & 4 shows the probability of abortion and adverse pregnancy outcome increases as amount of bleeding increases especially when accompanied with abdominal pain, these results are consistent with the results of Study by Patel NG et, al[6].

Table 6 (A)

	Present study	Study by Patel NG et. Al.
Spotting	65.2%	68%
Moderate bleeding	20.8%	22%
Severe bleeding	14%	10%

Table 6 (B)

Viable outcome among:	Present study	Study by Patel NG et. Al.
Spotting	93.8%	86.7%
Pain in abdomen	32.4%	45%

Result 19: Maternal complications

Vaginal bleeding during the first trimester of pregnancy causes placental abruption, placenta previa and preterm birth[18].

In our study incidence of **PROM / PPROM** was 10% while a study by Pooja Nandedkar et al showed incidence of PROM / PPROM of 10.83%[10].

The incidence of **PIH-** Gestational hypertension was 2.8%, pre-eclampsia was 6.8% and eclampsia was 2.4% whereas PIH was seen in 6.2% cases in study by Patel NG et al [6] while 17.5% patients had preeclampsia in study by Shaheen Hokabaj et al[7].

In our study, the risk of **Placental abruption** was 2%. Pooja Nandedkar et al. study showed the risk of abruption was 1.67%[10].
Our results revealed incidence of **Placenta previa** as 8% and placenta accreta as 0.4% in the study population. In comparison with the study by Sachin siddu et al, where placenta previa incidence rates were 9.43%[19].

In this study, **PPH** was found in 4.8% of patients. In study conducted by Dwivedi S et al, PPH was found in 5.6% of cases[20].

Our results revealed incidence of **Non progress of labour** 4%, whereas Pooja Nandedkar et al. study revealed its incidence of 5.83%[10].

Our results revealed incidence of **oligohydramnios** 6%, similar results were found in BalaN et al study with incidence of 6.71%[21].

Our results revealed incidence of anemia 23.2%, whereas study of Patel NG et al. revealed its incidence of 29%[6].

Result 20 & Table 5: According to study by Jennifer L. eaton, women giving birth to IVF twins, first-trimester bleeding is associated with increased risk of low birth weight[22].

Fetal Complications (Results 21 and 22)
First-trimester bleeding was associated with significantly higher rates of preterm birth, low birth weight babies and stillbirth[18].
In our study, NICU admission in new born due to low birth weight and poor APGAR were 10%, similarly in the study of Kanmaz AG et al., reported 11% NICU admission[23].

6. Conclusion

First-trimester vaginal bleeding is a key clinical finding affecting maternal and fetal outcomes. It occurs most often at 7–8 weeks, typically as spotting, and is commonly linked to placental dysfunction during the luteal–placental shift.

Most patients were aged 18–25 and multigravida. Causes included both obstetric and non-obstetric factors, with many having prior miscarriages, though most pregnancies remained viable. Miscarriages were often missed or incomplete, associated with age and infections.

Progesterone support showed no significant impact. Complications included preterm labour, PROM, IUGR, anemia, and placental complications, while fetal risks included low birth weight and perinatal morbidity. High-risk factors included multiple pregnancies and systemic diseases.

First-trimester vaginal bleeding is associated with an increased risk of adverse maternal and perinatal outcomes, particularly when bleeding is severe or accompanied by abdominal pain. However, a substantial proportion of pregnancies remain viable and progress to delivery. Early evaluation, risk stratification, close antenatal surveillance, and appropriate management may improve outcomes.

7. Recommendations

The study recommends for counselling of the women, proper antenatal care and follow up has to be given to women who present with first trimester bleeding.

Abbreviations

ANC- Antenatal Care
APGAR- Appearance, Pulse, Grimace, Activity and Respiration
C-section- Caesarean section
DNA- Deoxy ribonucleic Acid
ELLSCS- Elective Lower Segment Caesarean section
EMLSCS- Emergency Lower Segment Caesarean section
IUGR- Intra Uterine Growth Restriction
LBW- Low Birth Weight
LSCS- Lower Segment Caesarean section
NICU- Neonatal Intensive Care Unit
NPOL- Non-Progression of Labour
Overt DM- Overt Diabetes Mellitus
P/H/O- Past History Of
PIH- Pregnancy Induced Hypertension
PNM- Perinatal Mortality
PPH- Post Partum Haemorrhage
P/S – Per speculum
P/V- Per Vaginum

References

[1] Hendriks E, MacNaughton H, MacKenzie MC. First Trimester Bleeding: Evaluation and Management. Am Fam Physician. 2019 Feb 1;99(3):166-174. PMID: 30702252.
[2] Kamble PD, Bava A, Shukla M, Nandanvar YS. First trimester bleeding and pregnancy outcome. Int J Reprod Contracept Obstet Gynecol. 2017;6:1484-7.
[3] Siddu S, Dhama V, Chaudhary R, Singh S. The study of outcome of pregnancy with first trimester vaginal bleeding and its complications. Int J Reprod Contracept Obstet Gynecol 2022;11:1150-5.
[4] Shivanagappa M, Sagar SG, Manoli N. Ultrasound evaluation of vaginal bleeding in first trimester of pregnancy: A comparative study with clinical examination. Int J Sci Stud. 2015;3(7):202-06.
[5] Kavyashree HS, Rajeshwari K. A study on pregnancy outcome in patients with first trimester vaginal bleeding. Int J Reprod Contracept Obstet Gynecol. 2019;8:820-24. Doi: https://doi.org/10.18203/2320-1770.ijrcog20161292.
[6] Patel NG, Patel MS, Shah SR, Jani SK, Patel JA, Shah JU. Study of outcome of pregnancy in patients with first-trimester bleeding per vaginum. Int J Adv Med. 2014;1:230-33. Doi: 10.5455/2349-3933.ijam20141111.
[7] Hokabaj S, Rashmi M, Roy P, Shanthi S, Karat C, Garg R. A Prospective Cohort Study of Maternal and Perinatal Outcome in Pregnancy with First-trimester Vaginal Bleeding. J South Asian Feder Obst Gynae 2018;10(1):49-53.
[8] Bhattacharya S, Townend J, Shetty A, Campbell D. Does miscarriage in an initial pregnancy lead to adverse obstetric and perinatal outcomes in the next continuing pregnancy?. BJOG: An International Journal of Obstetrics &Gynaecology. 2008 Dec 1;115(13):1623-9
[9] Barik S, Javed S, Datta S, Chowdhury B, Datta P. Outcome of pregnancies having bleeding per vagina in the first trimester. J Evol Med Dent Sci.2016;5(55):3750-5.
[10] Pooja Nandedkar et al.2021, Maternal And Perinatal Outcome In First Trimester Vaginal Bleeding. Int J Recent Sci Res. 10(01), pp. 23712-23717. DOI: http://dx.doi.org/10.24327/ijrsr.2021.23717.4700
[11] Magnus MC, Wilcox AJ, Morken NH, Weinberg CR, Håberg SE. Role of maternal age and pregnancy history in risk of miscarriage: prospective register based study. BMJ. 2019 Mar 20;364:l869. doi: 10.1136/bmj.l869. PMID: 30894356; PMCID: PMC6425455.
[12] Sevi Giakoumelou, Nick Wheelhouse, Kate Cuschieri, Gary Entrican, Sarah E.M. Howie, Andrew W. Horne, The role of infection in miscarriage, *Human Reproduction Update*, Volume 22, Issue 1, January/February 2016
[13] Díaz-López A, Ribot B, Basora J, Arija V. High and Low Haemoglobin Levels in Early Pregnancy Are Associated to a Higher Risk of Miscarriage: A Population-Based Cohort Study. Nutrients. 2021 May 8;13(5):1578. doi: 10.3390/nu13051578. PMID: 34066873; PMCID: PMC8151332.
[14] Sarmalkar MS, Singh S, Nayak AH. Maternal and perinatal outcome in women with threatened abortion in first trimester. Int J Reprod Contracept Obstet Gynecol.2016;5(5):1438-45.
[15] Committee on Practice Bulletins—Gynecology. The American College of Obstetricians and Gynecologists Practice Bulletin no. 150. Early pregnancy loss. *Obstet Gynecol.* 2015;125(5):1258-1267.
[16] reviews from Cochrane library https://www.aafp.org/pubs/afp/issues/2019/0901/p279.html
[17] Khanam M, Yusuf N, Ashraf F.Outcome of threatened abortion in a series of 100 cases in RMCH. J Teacher Association.2005;18(2):76-9.
[18] Karimi, A., Sayehmiri, K., Vaismoradi, M., Dianatinasab, M., & Daliri, S. (2024). Vaginal bleeding in pregnancy and adverse clinical outcomes: a systematic review and meta-analysis. Journal of Obstetrics and Gynaecology, 44(1). https://doi.org/10.1080/01443615.2023.2288224
[19] Siddu S, Dhama V, Chaudhary R, Singh s. The study of outcome of pregnancy with first trimester vaginal bleeding and its complications. Int J Reprod Contracept Obstet Gynecol 2022; 11: 1150-5
[20] Dwivedi S, Verma K, Malhotra V, Jahan U, Gupta N, Verma S, et al. Pregnancy outcome in threatened miscarriage and correlation with USG parameters. Inter J Recent Sci Res.2017;8(2):15539-43.
[21] BalaN, Kaur N, Shifali A, Wakhloo A, Tabassum N.A study of maternal outcome in first trimester bleeding. Int J Reprod Contracept Obstet Gynecol2020;9:2104-12.
[22] Eaton JL, Zhang X, Kazer RR. First-trimester bleeding and twin pregnancy outcomes after in vitro fertilization. Fertil Steril. 2016 Jul;106(1):140-143. doi: 10.1016/j.fertnstert.2016.03.027. Epub 2016 Apr 7. PMID: 27060729.
[23] Kanmaz AG, Inan AH, Beyan E, Budak A. The effects of threatened abortions on pregnancy outcomes. Ginekologia Polska. 2019;90(4):195-200. Doi: https://doi. org/10.5603/GP.a2019.0035. PMID: 30901073

Author Profile

Dr. Trusha D. Parikh (MBBS, MS) is an OB/GYN specialist, currently at Siyaa Maternity and Women's Hospital, Ahmedabad, committed to comprehensive women's care. She has completed her MBBS from Medical College Baroda (2020) and MS in Obstetrics & Gynaecology from B.J. Medical College, Ahmedabad (Jan 2025). She has served one year as a Class-1 Medical Officer at District Hospital, Singarva, Ahmedabad (Apr 2025- Apr 2026) and was recognized as a frontline COVID-19 warrior during her internship at SSG Hospital, Baroda (2020-2021). She cleared MRCOG Part 1 with 75% (2025), presented a poster at an international PPH conclave (2023), published research in International Journal of Science and Research (IJSR) (2026), and has an accepted manuscript in Journal of The Indian Medical Association (JIMA).

Ethical Permission Letter

CIVIL HOSPITAL Amdavad

The Institutional Ethics Committee
B. J. Medical College & Civil Hospital, Ahmedabad
(Registration No. : ECR/72/Inst/GJ/2013/RR-2019
Office of the Drug Controller General, India)

B.J.MEDICAL COLLEGE

Dr. R. K. Dikshit
Chairman
Basic Medical Scientist

Dr. Rakesh Joshi
Member Secretary
Clinician

Dr. Chetna Desai
Member Coordinator
Basic Medical Scientist

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Clinician

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Clinician

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Social Worker

Mr. P. K. Yadav
Lawyer

Mr. Kaushik Brahmbhatt
Lay Person

Chairperson
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Dr. Rakesh S Joshi
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Member-Coordinator
Dr. Chetna Desai
Professor & Head
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B. J. Medical College
Ahmedabad 380016

Ref. No. SS/2024

Date: 1/4/2024

Certificate

This is to certify that the research project titled, "PREGNANCY NIGHTMARE: STUDY AND ANALYSIS AFTER FIRST TRIMESTER BLEEDING" submitted by Dr.Trusha Parikh, department of Obstetrics and Gynaecology, under guidance of Dr.Hina V. Oza has been approved by the Institutional Ethics Sub-committee held on 08/04/2023 under the following terms and conditions:

1. The project is hereby granted an approval valid for 2 years.
2. The Committee has approved the ethical aspects of the proposed work. However, all other concerns related to the work (e.g. scientific, procedural, legal, financial, regulatory etc.) remain the sole responsibility of the Chief Investigator and/or the Guide.
3. Any serious adverse event occurring during the course of the study should be reported to the IEC within a period of seven days.
4. A yearly progress report of the project has to be submitted to the IEC for review.

Dr. Chetna Desai
Member-Coordinator
Dept.: Pharmacology

To:
Dr. Trusha Parikh
Dept: Obstetrics and Gynaecology

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