

Original Research Article

AN OBSERVATIONAL STUDY OF CASES OF PLACENTA PREVIA WITH FETOMATERNAL OUTCOME AT TERTIARY CARE CENTRE, RAJKOT

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ABSTRACT

Introduction: Placenta previa is clinical condition that carries substantial hazards for both the mother and the fetus. The objective of this research was to examine the frequency, symptoms, and results of placenta previa patients in a specialized medical facility. A study was performed on the medical records of pregnant women who were diagnosed with placenta previa. **Methods:** All the patients were met selection criteria comes in OPD and admitted in Obstetric department in P.D.U. medical college and hospital, Rajkot over a period of one year. 61 cases of placenta previa enrolled for the study. Demographic information, complications during pregnancy, method of delivery, and difficulties after childbirth were gathered and examined. Also, fetomaternal outcome recorded and Data was analysed appropriately. **Results:** The prevailing prenatal complication was second-trimester haemorrhage, occurring in 37.70% of cases, with third-trimester haemorrhage following closely behind at 21.31%. A breech presentation was detected in 14.75% of the cases, whereas 11.47% of the patients had pregnancy-induced hypertension. The majority of deliveries were performed by cesarean section, with 73.77% of them being emergency cesarean sections. Postpartum haemorrhage was seen in 18.03% of patients, and 78.69% of these instances needed a blood transfusion. In the present study, perinatal morbidity was studied as the percentage of babies requiring resuscitation and NICU admission. It was 42.62% of the cases. The percentage of perinatal death was 17.46% and poor survival rate is

seen with extremely low birth weight babies. **Conclusion:** In conclusion, 4.91% of patients required a hysterectomy owing to excessive bleeding. To summarize, placenta previa presents significant hazards to the health of both the mother and the fetus, necessitating vigilant observation and prompt treatments. The increased prevalence of cesarean section and postpartum haemorrhage underscores the need for implementing comprehensive care measures to enhance outcomes for mothers and their infants who are afflicted by these conditions.

Keywords: Placenta previa, Pregnancy complications, Cesarean section, Postpartum haemorrhage, Maternal and fetal outcomes.

INTRODUCTION

Placenta previa, a significant problem during pregnancy, is a primary factor behind vaginal bleeding in the latter stages of the second and third trimester. It occurs in around 2.8 out of every 1,000 pregnancies and 3.9 out of every 1,000 twin pregnancies [1]. It usually manifests as painless, recurring bleeding without any obvious reason [1]. Placenta previa may be classified into four basic categories based on the extent to which the placenta covers the cervix, which is the entrance of the uterus [2]: Placenta Type 1 (Low-lying): The majority of the placenta is located in the upper part of the uterus. At the same time, the bottom border extends to the lower uterine segment without covering the cervix [2]. Type 2 (Marginal): The placenta extends up to the inner cervix (internal os) but does not completely cover it [2]. The Placenta of Type 3 (Incomplete or partial central) covers the inner cervix that is closed but does not cover the cervix when it is completely dilated [2]. In Type 4 (Central or whole) placenta previa, the placenta entirely covers the entire inner cervix, even when it is fully dilated [2]. Several variables contribute to the increased risk of placenta previa, including three main ones: Experiencing several pregnancies (multiparity), Having twins or more babies (multifetal gestation), Advanced maternal age, Prior caesarean delivery, and Uterine injury. The Dilation and Curettage (D&C) method: The likelihood of the placenta inappropriately adhering to the uterus (placenta accreta) rises dramatically with each additional caesarean procedure. Specifically, there is an 11% risk with one previous caesarean section, a 40% risk with two, and a 61% risk with three [3]. Placenta previa may result in substantial problems for both the mother and the newborn, imposing a burden on healthcare systems [3]. Due to increasing rates of caesarean sections and the advancing age of mothers, it is anticipated that there will be a corresponding increase in the number of

instances of placenta previa and its associated complications, such as placenta accreta [3]. An early diagnosis achieved by using transvaginal ultrasonography is essential for decreasing the occurrence of illness and death in both the mother and the fetus [1, 3]. This facilitates improved blood transfusion management and the formation of a proficient team consisting of surgeons, anaesthetists, and paediatrics [3]. Advancements in ultrasound technology, improved healthcare access, avoidance of unnecessary internal examinations, easy availability of blood transfusions, round-the-clock access to caesarean section surgery, and coordinated care among surgeons, anaesthetists, and neonatologists have greatly decreased maternal and perinatal complications associated with placenta previa [3].

Nevertheless, the increased accessibility of ultrasound technology has resulted in a reported rise in the number of placenta previa diagnoses [3]. In addition, the increasing rate of caesarean sections is a contributing factor to the growing number of cases [3]. To reduce the likelihood of placenta previa, it is important to minimize unnecessary primary care procedures. Global Prevalence: The observed prevalence (1.03%) falls within the range reported in retrospective studies from other countries (0.73% - 2.8%) [5, 6, 7, 8, 9, 10]. However, it varies significantly: Japan (1.39%) [5] and Israel (0.42%) show higher and lower rates, respectively. Geographic or ethnic differences might explain this variation. Age: Similar to other studies [4], most women with placenta previa (80.9%) were between 22 and 30 years old. Management of Major Placenta Previa (M.A.P.): The high incidence of M.A.P. (20%) could be because the hospital is a referral centre for complex cases. Sarojini et al. reported a much lower M.A.P. rate (4.7%) in their general population study [11]. Risk Factors: Parity: There was a higher proportion of women with placenta previa who had multiple pregnancies (multigravida) compared to first-time pregnancies (primipara). However, the percentage of multigravida and grand multipara women was lower than reported elsewhere [12, 13].

This research aims to investigate the incidence, etiology & risk factors and fetomaternal outcomes in case of placenta previa.

MATERIAL AND METHODS

This research examined the occurrence of placenta previa in pregnant women at P.D.U. Medical College and Hospital, Rajkot, India, for the period of one year. Data Source: The study included patients who satisfied the selection criteria and either attended the outpatient department (O.P.D.) or were admitted to the obstetrics department during the research period.

Research Population: The research comprised a total of 61 confirmed instances of placenta previa. Study Design: This study used an observational approach, Criteria for selection: Inclusion Criteria: Confirmed diagnosis of placenta previa based on both clinical examination and ultrasound. Gestational age beyond 28 weeks. Exclusion Criteria: Participants with a gestational age of less than 28 weeks will not be included.

RESULTS

Table 1: Analysis of the relation between placenta and parity

Parity analysis	No. of Cases active	Percentage of cases active
Primi gravida	17	27.87%
Multi gravida (2-3)	34	55.74%
Grand Multi gravida (>=4)	10	16.39%
Total	61	100%

Table 1 shows a link between the number of times a woman has been pregnant (parity) and placenta previa. Most women (56%) with placenta previa had 2-3 prior pregnancies. Fewer women (28%) had placenta previa with their first pregnancy, and even fewer (16%) had it after four or more pregnancies. Overall, there were 61 cases of placenta previa studies.

Table 2: Analysis of the link between maternal age and placenta previa

Age (years)	No. of Cases active	Percentage of cases active
<=19	3	4.91%
20-25	31	50.82%
26-30	17	27.87%
30-35	9	14.75%
>=35	1	1.64%
Total	61	100%

Table 2 shows the age of moms when they had placenta previa. Most women (51%) with placenta previa were between 20-25 years old. Fewer women had it in other age groups: 31% (26-30 years old), 14% (30-35 years old), 5% (under 19 years old), and only 2% (35 years and older). There were 61 cases of placenta previa studied in total. This table suggests placenta previa is more common in younger moms.

Table 3: The percentage of the occurrence of the risk factors in placenta previa

Risk Factor Analysis	No. of Cases	Percentage analysis of cases
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Previous Lower segment caesarean section	14	22.95%
>=2 Previous Lower segment caesarean section	3	4.92%
Dilation and Evacuation	12	19.67%
Twin gestation patients	2	3.28%
Multiparity >=3	29	47.54%
Total	61	100%

The table 3 shows what makes a woman more likely to get placenta previa. The most common risk factor is having had three or more pregnancies before (48%). Other risk factors include having a C-section before (23%), having a procedure to remove pregnancy tissue before (20%), having twins (3%), and having had two or more C-sections before (5%). There were 61 cases of placenta previa studied in total.

Table 4: The percentage of the occurrence of different degrees of placenta previa

Types of Placenta Previa	No. of Cases	Percentage analysis
Type I	10	16.39%
Type II	20	32.79%
Type III	13	21.31%
Type IV	18	29.51%
Total	61	100%

The table 4 describes a classification system for placenta previa based on how much of the cervix the placenta covers. There are four types, with Type I being the least severe (placenta does not reach the opening) and Type IV the most severe (placenta completely covers the opening). Analyzing the provided data, Type II (partially covers the opening) is the most common, followed by Type IV. Type I is the least common, and Type III falls in the middle. This suggests severity increases as the type number goes up, making Type IV most concerning for potential pregnancy complications.

Table 5: The different routes of delivery methods

Route of Delivery	No. of Cases	Percentage analysis
Vaginal delivery	2	3.28%
Emergency LSCS (EmLSCS)	45	73.77%
Elective LSCS (ELSCS)	14	22.95%

Total	61	100%
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Table 5 shows how babies were delivered in placenta previa cases. There are three main delivery methods: vaginal birth, emergency C-section (EmLSCS), and planned C-section (EILSCS). Looking at the statistics, most deliveries (73.77%) were emergency C-sections, suggesting serious situations like bleeding required immediate action. Planned C-sections were done in 22.95% of cases, possibly due to how severe the placenta previa was or other factors. Vaginal birth, with only 3.28%, was the least common route. This aligns with doctors typically avoiding vaginal delivery for placenta previa to minimize bleeding risks.

Table 6: The percentage of the occurrence of different antenatal complications

Complication factors analysis	No. of Cases active	Percentage analysis
1st trimester bleeding	4	6.55%
2nd trimester bleeding	23	37.70%
3rd trimester bleeding	13	21.31%
Breech case analysis	9	14.75%
Transverse lie case study	2	3.27%
Hypertension in pregnancy case	7	11.47%
Intrauterine fetal demise study	4	6.35%
Anaemia <7 gm%	4	6.56%
Total	61	100%

The Table 6 study followed women with placenta previa and found various pregnancy problems: bleeding in all trimesters, breech babies, delivery complications, high blood pressure, fetal death, and anaemia. This shows placenta previa can be serious and needs careful monitoring throughout pregnancy for both mom and baby.

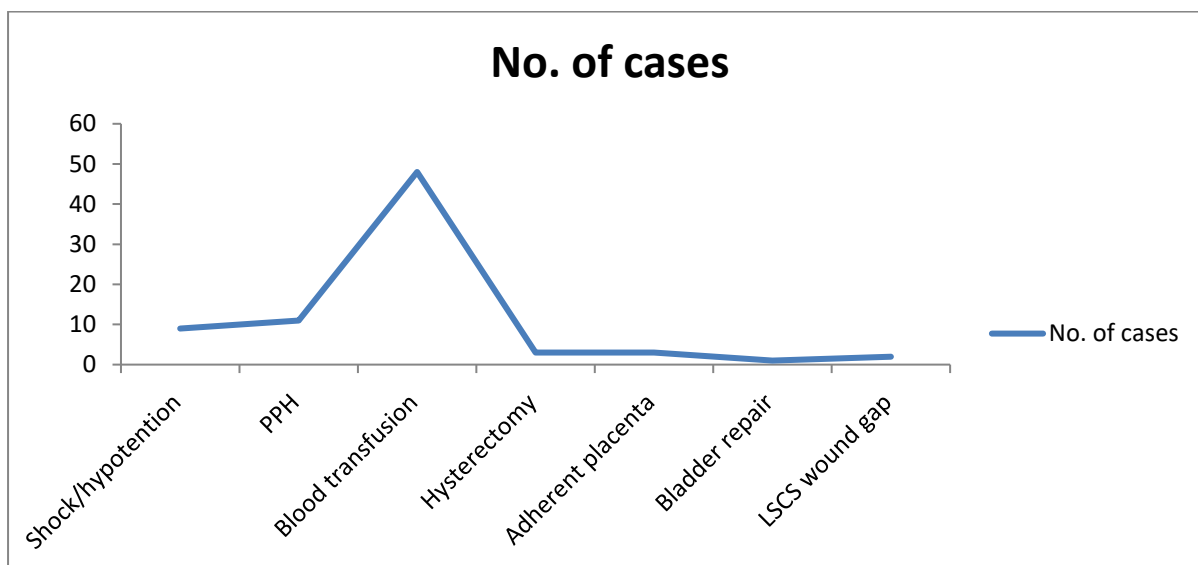


Fig 1: Distribution of intranatal and postnatal complication in placenta previa patients

Figure 1 displays shock or hypotension was seen in 9 patients, representing 14.75% of the total. Hemorrhage may lead to shock or severe hypotension, which is a critical issue requiring prompt care to stabilize the patient. Postpartum Hemorrhage (P.P.H.) was seen in 11 instances, accounting for 18.03% of the total. Postpartum haemorrhage (P.P.H.) is a condition characterized by abnormally heavy bleeding after delivery. It is a well-documented consequence of placenta previa since there is a heightened risk of bleeding from the location where the placenta is attached. Blood transfusion was necessary for 48 instances, accounting for 78.69% of the total. This signifies the intensity of haemorrhaging and the need to replenish the depleted blood in order to sustain sufficient circulation and provide oxygen to the tissues. Hysterectomy, the surgical excision of the uterus, was performed in three instances, accounting for 4.91% of the cases. This method is a last and extreme measure used to regulate excessive bleeding that cannot be effectively controlled using other methods. Adherent placenta, a condition characterized by aberrant attachment of the placenta to the uterine wall, was seen in 3 instances (4.91%). This might result in challenges while extracting the placenta during delivery and can heighten the likelihood of haemorrhaging and other issues. Bladder repair was necessary in one instance, accounting for 1.64% of cases. This might have been required as a result of bladder damage after a cesarean section or other surgical procedures. The occurrence of a wound gap after a Lower Segment Cesarean Section (LSCS) was observed in two instances, accounting for 3.28% of the total. An open space in the incision made after a lower segment cesarean section (LSCS) might result in issues such

as infection and delayed wound healing. The complexities underscore the potential gravity of placenta previa and the need for vigilant observation and prompt action to address difficulties and guarantee optimal results for both the mother and the infant.

Intra operative intervention: No any specific surgical intervention required in 16 cases of our study. While unilateral and bilateral uterine artery ligation were done in 10 and 32 cases respectively in our study. Pressure hemostatis in form of uterine packing done in 4 patients. We need to do obstetric hysterectomy in 3 patients; all were cases of adherent placenta.

Maternal mortality and morbidity: No any maternal death occurred in this study, in present study, 41.27% of cases required NICU admission and from that, 73.07% babies recovered. 17.46% perinatal mortality and 11.11% neonatal mortality happened.

Table 7: Perinatal morbidity & mortality in this present study

	No. of cases	Percentage
Normal	33	52.38%
NICU admission	26	41.27%
Perinatal mortality	11	17.46%
Neonatal mortality	7	11.11%

Table 7 shows 41.27% of cases required NICU admission and from that 73.07% babies recovered. 17.46% perinatal mortality and 11.11% neonatal mortality happened.

Table 8: Correlation between perinatal mortality and gestational age in placenta previa

Gestational age (Weeks)	No. of birth	Perinatal deaths	Percentage
28-33+6	10	6	60%
34-36+6	33	4	12.12%
=>37	20	1	5%
total	63	11	17.46%

Table 8 shows perinatal mortality was more in the 28-33+6 weeks gestation group (60%), while only 5% perinatal death seen in more than 37 weeks of gestation group.



Fig 2: The ultrasound image of placenta previa

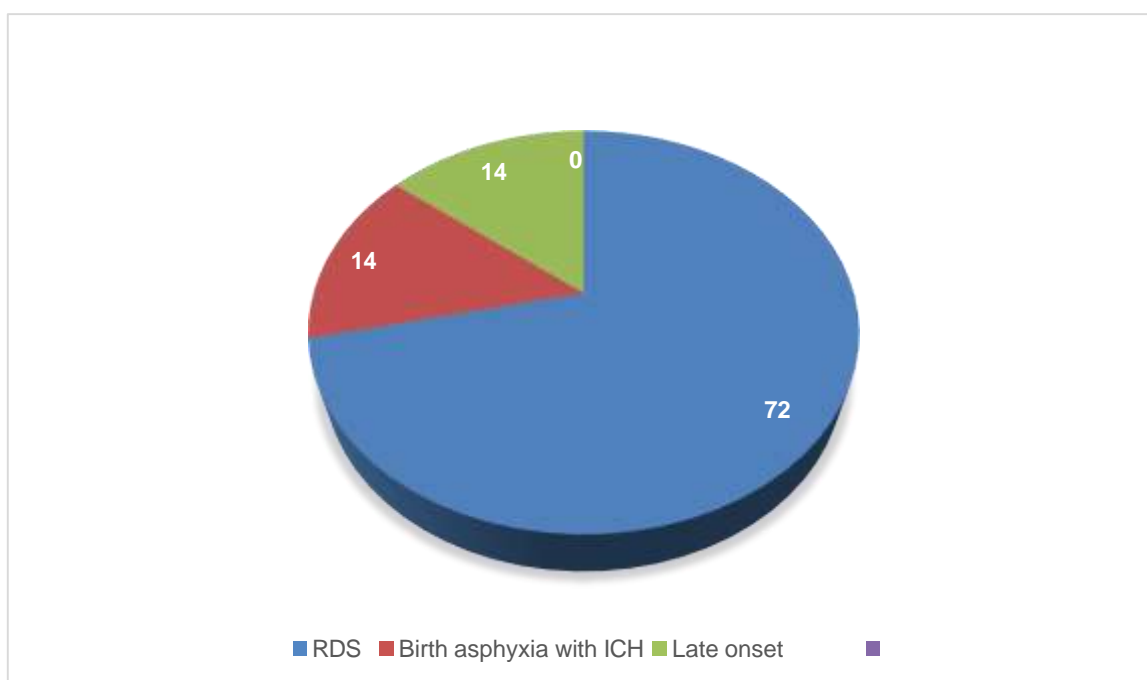


Fig 3: Cause of neonatal mortality

Fig 3 shows that RDS (72%) is main cause for neonatal mortality due to prematurity.

New born with birth weight above 2500 gm had a good survival rate as compared to <1500 gm had a poor survival rate. In this study, highest perinatal mortality seen in 500- 999 gms birth weight group.

DISCUSSION

Over half (54.1%) of the women had prior uterine surgery, with caesarean sections being the most common Type (56.9%). This aligns with other studies [14, 15] suggesting a link

between previous caesarean sections and placenta previa risk. Antenatal Care (A.N.C.): A significant portion of women (69.2%) lacked proper antenatal care (unbooked cases) compared to Rajeshwari et al. [4] (84.6% unbooked). This highlights the need for improved access to A.N.C. services. The most common gestational age for bleeding due to placenta previa was 37 weeks or later (68.4%). The study confirms established risk factors and emphasizes the importance of age-appropriate screening and early detection for improved pregnancy outcomes. It also suggests the potential benefits of improved access to antenatal care services [16].

The recorded prevalence (2%) is somewhat more than the 1.8% reported by Shonali Mayerkar et al. (2008). Age Demographics: The majority of women with placenta previa were young adults, with 72.9% falling between the ages of 20 and 29. The next largest age group was 30-35 years old, accounting for 20.3% of cases. Parity: The prevalence of placenta previa was greatest among women who had previously given birth several times (73.55%), followed by women who were giving birth for the first time (26.43%), and women who had given birth multiple times before (6.32%). Factors that increase the likelihood of a negative outcome: This research did not report any instances of prior placenta previa. Prior operations and treatments posed major risks. Previous caesarean sections accounted for 39.08% of cases. The percentage of Dilation and Curettage (D&C) surgeries is 37.93%. Myomectomies account for 1.72% of all procedures. Issues: The prevalence of major placenta previa (Type I.I.B., III, and IV) was higher, with 143 instances, in comparison to minor previa (Type I and I.I.A.), which had 31 cases. Transfusions of blood were required in 39.65% of instances. Additional problems seen were hypotension and shock, occurring in 3.7% of cases. Postpartum haemorrhage (P.P.H.) occurs in 27.9% of cases. Out of the total cases, 7.46% of them required a hysterectomy, with three instances specifically related to anterior placenta previa. Placenta adherents (3.44%): Administration: The results indicate a potential change in the causes of emergency peripartum hysterectomy, with aberrant placentation becoming more significant compared to the conventional cause of uterine atony [17].

The prevalence recorded (0.51%) is comparable to the prevalence reported (0.51%) by Faiz et al. [20]. Age Demographics: The majority of women diagnosed with placenta previa were young adults, with 71.42% falling between the ages of 20 and 30. The next largest age group was 30-35 years old. Factors that increase the likelihood of a negative outcome: Age: The research recognizes a possible association between advancing age and placenta previa.

However, the observed proportion of women over 35 (14.28%) may be lower because of early marriage among the Indian population. Parity: In line with previous research, having multiple pregnancies was identified as a risk factor, with a prevalence of 77.14%. Socioeconomic Status: A significant majority of women (74.28%) was not registered for prenatal care and was from a disadvantaged economic background, which might possibly result in anaemia and malnutrition, hence affecting the development of the placenta. Prior Caesarean Sections: Consistent with the prior research, having had previous caesarean sections posed a danger. The occurrence of one and two previous portions was 14.28% and 2.85%, respectively, which corresponds to the results reported by Sarella et al. [22].

Smoking: In contrast to the previous research, none of the women said that they smoked, which emphasizes the possibility of differences influenced by demography and cultural aspects. Issues: Prematurity: A significant proportion of neonates (68.57%) were born before reaching 37 weeks of gestation, which aligns with findings from previous research [18-20]. The neonatal death rate (19.99%) and maternal mortality rate (2.85%) were similar to the rates reported in the research conducted by Singhal et al. [21]. Birth Weight: The majority of neonates had a birth weight ranging from 1.5 to 2.5 kg, which aligns with findings from previous research [21]. Additional complexities: Coagulation failure occurred in 2.85% of cases. Postpartum haemorrhage (P.P.H.) is treated using a variety of treatments, which account for 11.42% of cases. Acute renal failure has a prevalence of 2.85%. Transfusions of blood (51.42%) Uterine artery ligation with a success rate of 5.71%. There was one instance of a caesarean hysterectomy performed as a result of uncontrollable bleeding [23].

CONCLUSION

To summarize, the examination of placenta previa instances uncovers many prenatal and postnatal issues that underscore the intricate nature and seriousness of this illness. A majority of cases need caesarean section delivery, with a substantial proportion categorized as urgent interventions. Observations were made about antenatal problems, including bleeding in different trimesters, breech presentation, and pregnancy-induced hypertension. These findings highlight the need to closely monitor and promptly intervene in such cases as postnatal problems, including postpartum haemorrhage, the need for blood transfusions, and, in extreme instances, hysterectomy. These findings emphasize the need for timely identification, meticulous treatment, and availability of suitable medical resources to maximize results for moms and infants impacted by placenta previa.

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