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"MATERNAL AND PERINATAL OUTCOME IN PATIENTS WITH PLACENTA PREVIA IN A TERTIARY CARE CENTRE – AN OBSERVATIONAL STUDY"

Obstetrics & Gynaecology

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ABSTRACT

Background: Placenta previa, characterized by the abnormal implantation of the placenta over or near the cervical os, is a significant obstetric complication associated with increased maternal and perinatal morbidity. This study was conducted to evaluate maternal and perinatal outcomes in patients diagnosed with placenta previa, focusing on demographic factors, clinical features, and management strategies. **Methods:** A prospective observational study was conducted on pregnant women diagnosed with placenta previa at the Department of Obstetrics and Gynaecology, Ballari medical college and research centre (formerly VIMS), Ballari, between September 2023 and February 2024. The study included women beyond 28 weeks of gestation confirmed via ultrasonography. Detailed clinical examinations, ultrasound assessments, and laboratory investigations were performed, and patients were followed until delivery. Maternal outcomes, such as haemorrhage, mode of delivery, and postpartum complications, were recorded. Perinatal outcomes, including preterm birth, NICU admission, and neonatal complications, were also analyzed. **Results:** The study included 25 patients, 56% of whom were 25 years or younger. A significant proportion (36%) had a history of caesarean delivery, and 48% experienced third-trimester bleeding. All patients underwent caesarean sections due to the risk of haemorrhage. Postpartum haemorrhage occurred in 44% of the cases, and 80% required blood transfusions. Neonatal outcomes showed that 48% were preterm, and 32% required NICU admission. Three cases of early neonatal death (12%) were reported, primarily due to prematurity-related complications. **Conclusion:** Placenta previa is associated with significant maternal and neonatal risks, including antepartum haemorrhage, caesarean delivery, and preterm birth. Effective management, including timely delivery and preparedness for postpartum haemorrhage, is essential for minimizing complications. The study emphasizes the need for early diagnosis and multidisciplinary care to improve outcomes for both mother and baby.

KEYWORDS

Placenta previa, Caesarean section, Antepartum haemorrhage, Preterm birth, Neonatal outcomes

INTRODUCTION

Placenta previa, a significant obstetric complication, is characterized by the abnormal positioning of the placenta in the lower uterine segment, which partially or entirely covers the internal cervical os. The condition poses substantial risks to both maternal and fetal health, especially maternal complications are often the result of excessive haemorrhage, which can lead to hypovolemic shock, disseminated intravascular coagulation (DIC), and the need for blood transfusions or even peripartum hysterectomy in severe cases, premature delivery, and increased perinatal morbidity and mortality. Its incidence is estimated to affect approximately 1 in 200 pregnancies, although the rates may vary depending on geographical region and population characteristics [1]. Advances in diagnostic techniques, especially the widespread use of obstetric ultrasonography, have improved the early detection of this condition, allowing for better prenatal care and management strategies.

The exact etiology of placenta previa remains uncertain, but several risk factors have been identified, including advanced maternal age, multiparity, previous caesarean deliveries, and uterine surgeries. Smoking, multiple pregnancies, and assisted reproductive technologies are also associated with an increased likelihood of developing placenta previa [2]. The rising rate of caesarean sections globally has been particularly implicated in the increasing incidence of placenta previa, as uterine scarring predisposes women to abnormal placentation [3]. The degree of bleeding is influenced by the extent of the placental coverage of the cervical os, with total previa posing the highest risk.

The clinical presentation of placenta previa often involves painless vaginal bleeding during the third trimester. This bleeding may vary in severity and can be recurrent, requiring multiple hospital admissions for management. Other symptoms may include premature contractions or abnormal fetal positioning, such as breech or transverse lie, due to the lower uterine segment's inability to support normal fetal descent [4]. However, some women with placenta previa may remain asymptomatic, with the condition being diagnosed incidentally during routine ultrasonography.

Placenta previa has been classified into two types based on the placental location in relation to the cervical os: 1) Low Lying placenta, 2) Placenta previa (Partial and complete). This classification is crucial for determining the appropriate clinical management and delivery approach. Complete previa, in which the placenta completely covers the cervical os, presents the greatest risk of complications, including massive haemorrhage during labor and delivery, necessitating planned caesarean sections.

Perinatal complications in placenta previa primarily stem from preterm delivery, which occurs in up to 40% of cases. The premature rupture of membranes and the need for early delivery to manage maternal bleeding often result in neonatal complications such as respiratory distress syndrome, intraventricular haemorrhage, and low birth weight [5]. Intrauterine growth restriction (IUGR) is another concern, as placental insufficiency may compromise fetal growth and development. Neonatal intensive care unit (NICU) admissions are common, with many infants requiring respiratory support and other critical care measures. Ultrasonography is now the gold standard for diagnosing placenta previa, allowing clinicians to assess the placental location, proximity to the cervical os, and any potential complications such as placental accreta[6]. Additionally, the use of color Doppler imaging has improved the detection of placental vascular abnormalities, aiding in the early identification of placenta accreta spectrum disorders.

The role of magnetic resonance imaging (MRI) has also expanded in cases where ultrasonography findings are inconclusive or when abnormal placental attachment is suspected. MRI provides a detailed assessment of placental invasion into the myometrium and surrounding structures, enabling clinicians to plan for appropriate surgical interventions, including pre-delivery preparation for massive haemorrhage [7]. The management of placenta previa depends on several factors, including the gestational age at diagnosis, the severity of bleeding, the type of placenta previa, and the presence of any additional complications such as placenta accreta. In cases of asymptomatic or minor placenta previa detected early in pregnancy, expectant management with close monitoring is often employed.

Regular ultrasonography is conducted to monitor the placental position, as some cases of low-lying placenta may resolve spontaneously as the uterus enlarges during the course of pregnancy [8]. For symptomatic women or those with major placenta previa, hospitalization is often required, particularly after 28 weeks of gestation, to ensure immediate access to emergency care. Corticosteroids may be administered to accelerate fetal lung maturity in anticipation of preterm delivery. In cases of severe antepartum haemorrhage or when the gestational age approaches 37 weeks, delivery is recommended. Elective caesarean section is the preferred mode of delivery in most cases of placenta previa, especially in cases of complete or partial previa, to avoid life-threatening maternal haemorrhage during vaginal delivery [9].

The management of placenta accreta spectrum disorders complicating placenta previa requires a multidisciplinary approach, involving obstetricians, anaesthesiologists, neonatologists, and vascular surgeons. Preoperative planning, including the availability of blood products, interventional radiology for embolization, and surgical expertise in performing peripartum hysterectomy, is critical for reducing maternal morbidity and mortality [10].

The rise in caesarean section rates globally has also led to a corresponding increase in the incidence of placenta previa and its associated complications. This highlights the need for careful consideration of the indications for caesarean delivery and the promotion of safe and evidence-based practices in obstetric care. Reducing the primary caesarean section rate could significantly mitigate the risk of placenta previa in subsequent pregnancies [11].

Methodology

1. Study Design

The study was designed as a prospective observational study. It aimed to evaluate maternal and perinatal outcomes among women diagnosed with placenta previa. The observational approach was chosen to assess risk factors, complications, and perinatal morbidity and mortality associated with placenta previa.

2. Study Setting

The research was conducted at the Department of Obstetrics and Gynaecology at Ballari medical college and research centre (Formerly VIMS), Ballari.

3. Study Duration

The study was carried out over a span of approximately six months, starting from September 1, 2023, and concluding on February 29, 2024.

4. Participants: Inclusion and Exclusion Criteria

The study population comprised pregnant women diagnosed with placenta previa who were beyond 28 weeks of gestation. Inclusion criteria were confirmed via ultrasonography, and women were included regardless of their parity or type of placenta previa.

The exclusion criteria applied to antenatal women with normally situated placentae and women experiencing multiple pregnancies. These conditions were excluded to maintain homogeneity within the study sample and reduce potential confounders.

5. Study Sampling

The sample was obtained from pregnant women admitted to the obstetrics department at BMC&RC with placenta previa. The selection was prospective and purposive, focusing on all eligible participants during the defined study period. Informed consent was obtained from all the participants before including them in the study.

6. Study Sample Size

The sample size was calculated based on the prevalence of placenta previa at BMC&RC, which was estimated to be around 1% between January 2022 and December 2022. Using a 95% confidence level, a sample size of 25 subjects was estimated for this study using the standard formula for sample size calculation, incorporating an absolute error of 5%.

7. Study Parameters

The primary parameters evaluated in the study included maternal outcomes such as risk factors, complications, and the need for emergency procedures (e.g., caesarean sections). The study also focused on fetal outcomes, such as prematurity, low birth weight, NICU admissions, and stillbirths. Secondary parameters included the incidence of placenta accreta syndrome and perinatal outcomes like the mode of delivery and maternal morbidity.

8. Study Procedure

Participants with confirmed placenta previa were included after applying the inclusion and exclusion criteria. Informed consent was obtained from all participants. A thorough clinical examination was conducted, focusing on abdominal examination, laboratory tests, and ultrasound for fetal well-being. Placental localization and haemorrhage risks were evaluated for each participant.

Clinical histories, including age, parity, and risk factors like multiple pregnancies, smoking, anaemia, and prior surgeries, were collected. Participants were followed through delivery, with observations recorded for maternal complications, perinatal morbidity, and outcomes.

9. Study Data Collection

Data collection involved detailed clinical histories, ultrasonographic findings, and obstetric and perinatal outcomes for each participant. This included the recording of maternal complications during labor, the mode of delivery, APGAR scores, birth weights, NICU admissions, and any signs of placenta accreta or haemorrhage. Data on maternal factors such as anaemia, previous caesarean sections, and smoking habits were also recorded.

10. Data Analysis

The data collected from the participants were analyzed using appropriate statistical tools. Continuous variables, such as birth weights and gestational ages, were expressed as means and standard deviations. Categorical variables, such as complications and the type of delivery, were presented as frequencies and percentages. Statistical significance was set at a p-value of less than 0.05. The primary analysis aimed to evaluate the correlation between placenta previa and maternal and perinatal outcomes.

11. Ethical Considerations

Ethical clearance for the study was obtained from the institutional ethics committee at Ballari Medical College and Research Centre. All participants were informed about the purpose of the study and the procedures involved, and written informed consent was obtained. Privacy and confidentiality were maintained throughout the study, and participants were given the option to withdraw from the study at any stage. The study adhered to the principles of the Declaration of Helsinki and other relevant guidelines for conducting research with human subjects

Result And Data Analysis

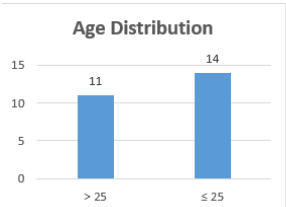
1. Demographic Profile of the Respondent

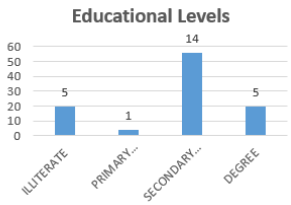
In the study on 25 patients with placenta previa , 56% of the patients are 25 years or younger, indicating a younger demographic is predominantly affected. The educational level reveals that 76% have completed school, suggesting basic educational attainment. A large portion, 80%, are homemakers, highlighting their primary societal role. Economically, 88% fall within the lower middle socioeconomic class, emphasizing economic challenges.

Table 1. Demographic Profile of the Respondent

Patient Demographics	Frequency/ Mean±SD	Percent
AGE (in Yrs)		
≤25	14	56.0
>25	11	44.0
EDUCATION		
ILLITERATE	5	20.0
PRIMARY SCHOOL	1	4.0
SECONDARY SCHOOL	14	56.0
DEGREE	5	20.0
OCCUPATION		
FARMER	4	16.0
HOMEMAKER	20	80.0
LABOURER	1	4.0
Socioeconomic Status		
LOWER	3	12.0
LOWER MIDDLE	22	88.0

MARRIED LIFE (YRS)	5.900±3.3850



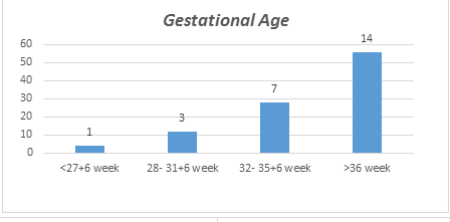


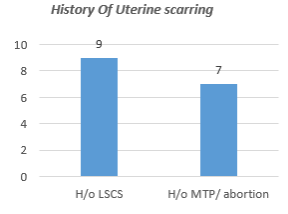
2. Pregnancy and Obstetric History of Respondent

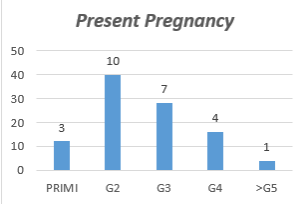
In the study analyzing placenta previa, several key observations about pregnancy and obstetric history were noted. The distribution of the current pregnancy number showed 40% were in their second pregnancy, and lesser proportions in third and fourth pregnancies, indicating a variety of reproductive histories. Notably, 48% of these patients experienced bleeding during the third trimester, highlighting a common complication of placenta previa. In terms of gestational age, 44% were under 36 weeks, pointing to a prevalence of preterm labor in this condition. Additionally, 36% of the participants had a history of cesarean sections, and 28% had undergone a medical termination of pregnancy or abortion.

Table 2. Pregnancy and Obstetric History of Respondent

Pregnancy and Obstetric History	Frequency/ Mean±SD	Percent
GESTATIONAL AGE (IN WEEKS)		
< 27+6	1	4.0
28-31+6	3	12.0
32-35+6	7	28.0
>36	14	56.0
Present pregnancy		
PRIMI	3	12.0
G2	10	40.0
G3	7	28.0
G4	4	16.0
>G5	1	4.0
3rd trimester H/o Bleeding PV	12	48.0
HISTORY OF UTERINE SCARRING :		
H/o LSCS	9	36.0
H/o MTP/ abortion	7	28.0







3. Examination of the Respondent

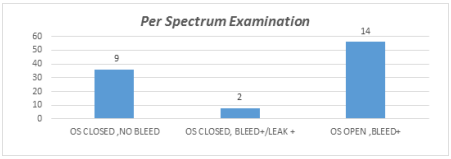
In the general physical examination of patients with placenta previa in the study, most participants (100%) were found to be conscious and oriented with stable vitals.

General Physical Examination	Frequency/Mean±SD	Percent
Conscious / Oriented with stable vitals	25	100.0

In the systemic examination of patients with placenta previa, a variety of findings were observed across abdominal, speculum, and vaginal examinations:

- **Speculum Examination**: The cervical status varied significantly among patients. The majority (56%) had an open cervical os with active bleeding, posing a high risk of haemorrhage. Only a minimal number (36%) had a completely closed os without any complications, emphasizing the prevalent risk of bleeding in placenta previa.
- **Vaginal Examination**: This was predominantly avoided, with 96% not undergoing the examination, likely due to the potential risk of provoking bleeding. Only 1 case (4%) were examined during latent labor, reflecting a cautious approach in managing these high-risk pregnancies.

Systemic Examination	Frequency	Percent
Per Speculum Examination (P/S)		
OS CLOSED,NO BLEED	9	36.0
OS CLOSED , ALTERED BLEED +	2	8.0
OS OPEN, BLEED +	14	56.0
Per Vaginum Examination (P/V)		
LATENT LABOUR	1	4.0
NOT DONE	24	96.0



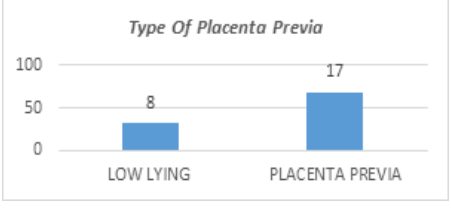
4. Management and Delivery of the Respondent

Management Approach: All participants (100%) were under active management, of symptoms or risk of complications. A smaller proportion (8%) were initially expectant, suggesting a watch-and-wait approach was considered for these cases.

Type of Placenta: The distribution of placenta types among the participants varied, with the majority (68%) having placenta previa, which is partially or completely covering the cervical os. Low lying placenta was observed in 32% of the cases, not covering the cervical os.

Table 4: Placental Findings of the Respondent

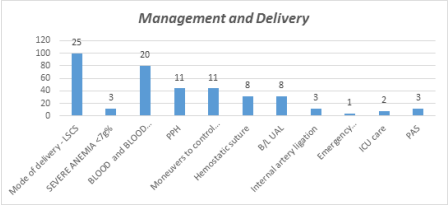
Placenta Findings	Frequency	Percent
Initial Expectant	2	8.0
Active	25	100.0
Type of Placenta Previa (ACOG)		
LOW LYING	8	32.0
PLACENTA PREVIA	17	68.0



- **Mode of Delivery**: All the participants (100%) underwent a Caesarean section (LSCS), underscoring the necessity of surgical intervention in managing placenta previa to prevent complications during delivery.
- **Severe Anaemia and Blood Transfusion**: Severe anaemia (Hb < 7%) was reported in 3 cases (12%). The majority required blood transfusions (20 cases), with 56% needing 1 pack of red blood cells (PRBC), and smaller percentages requiring multiple units, highlighting the significant blood loss associated with this condition.
- **Postpartum Haemorrhage (PPH)**: Postpartum haemorrhage occurred in 11 cases (44%), a common and serious complication of placenta previa. Similarly, manoeuvres to control bleeding were necessary in 44% of cases, indicating frequent and significant haemorrhagic challenges.
- **Bleeding Control Measures**: Specific interventions included haemostatic sutures and bilateral uterine artery ligation, each used in 8 cases (32%). Internal iliac ligation was performed in 3 cases, and intrauterine balloon techniques were used in 5 cases(20%), showing a range of strategies to manage severe bleeding. An emergency hysterectomy was necessary in 1 case , reflecting a last-resort measure to control life-threatening haemorrhage.
- **Critical Care**: ICU care was required for 8% of the patients, and Postpartum Acute Shock (PAS) was observed in 3 case (12%), highlighting the critical nature of complications that can arise from placenta previa.

Table 5: Delivery details of the Respondent

Management and Delivery	Frequency	Percent
mode of delivery		
LSCS	25	100.0
Severe anaemia Hb <7%	3	12.0
need for blood transfusion		
1 PRBC	14	56.0
2 PRBC	2	8.0
3 PRBC	2	8.0
4 PLATELETS	1	4.0
8 PRBC	1	4.0
NO	5	20.0
Postpartum Hemorrhage (PPH)	11	44.0
Manoeuvre to control bleeding	11	44.0
HEMOSTATIC SUTURE	8	32
bilateral uterine artery ligation	8	32.0
internal iliac ligation	3	12.0
INTRAUTERINE BALLON	5	20.0
emergency hysterectomy	1	4.0
ICU care	2	8.0
PAS	3	12.0



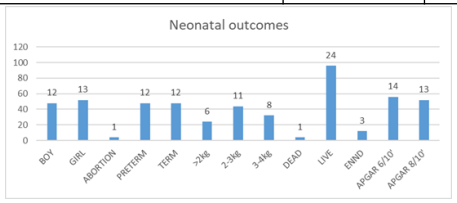
5. Perinatal outcome of the Respondent

The final segment of the study on placenta previa covers neonatal outcomes, encompassing gender distribution, term status, birth weight, vitality, and initial health assessments:

- **Gender Distribution**: There was a near-even split between male (48%) and female (52%) neonates, totaling 100% for the 25 cases assessed.
- **Term Status**: The data indicates an equal distribution between preterm and term births (48% each), with a single case (4%) of abortion. This highlights the challenges of maintaining pregnancy to full term under conditions of placenta previa.
- **Birth Weight**: Neonatal weights showed 24% of newborns weighed over 4 kg, 44% between 2 and 3 kg, and 32% between 3 and 4 kg. This distribution indicates that despite high-risk pregnancies, a significant number of neonates had healthy birth weights.
- **Vital Status**: Among the newborns, 96% were live births, with a single instance (4%) of neonatal death, illustrating the high survival rate despite the complicated conditions of their births.
- **Early Neonatal Death (ENND)**: There were three cases of ENND on days 2, 3, and 4, each accounting for 4%, with the vast majority (88%) having no early neonatal deaths.
- **APGAR Scores**: Initial APGAR scores at 1 minute varied, with 56% scoring a 6, indicating moderate distress; by the 5-minute mark, 52% scored an 8, suggesting most recovered well shortly after birth. The progression in APGAR scores from 1 minute to 5 minutes generally shows improvement in neonatal condition post-delivery.
- **NICU Admission**: 32% of the neonates required NICU admission due to various complications such as bradycardia, respiratory distress syndrome (RDS), prematurity, low birth weight, spina bifida with meningocele and hydrocephalus, and weak cry.

Table 6. Perinatal outcome of the Respondent

Perinatal details	Frequency	Percent
Sex		
BOY	12	48.0
GIRL	13	52.0
Total	25	100.0
Term/Preterm		
ABORTION	1	4.0
PRETERM	12	48.0
TERM	12	48.0
Weight in KG		
> 2	6	24.0
2 – 3	11	44.0
3 – 4	8	32.0
live/still born/dead		
DEAD	1	4.0
LIVE	24	96.0
ENND	3	12.0
NO	22	88.0
APGAR 1(5.08±1.498)		
6	14	56.0
APGAR 5 (7.16±1.519)		
8	13	52.0
NICU admission	8	32.0
Indication		
BRADYCARDIA, RDS	3	12.0
PRETERM, LBW	4	16.0
SPINAFIBIDA WITH MENINGOCELE WITH HYDROCEPHALUS	1	4.0



7. Laboratory Findings Of The Respondent

The laboratory findings from your study on patients with placenta previa provide an extensive overview of various haematological and biochemical parameters:

- **Haemoglobin (HB)**: The haemoglobin levels ranged from 8.0 to 14.5 g/dL, with an average of 11.12 g/dL and a standard deviation of 1.914, indicating moderate variability among the patients. This suggests varying degrees of anaemia within the group.
- **Platelet Count**: Platelet counts varied from 1.06 to 4.30 x 10^5 cells per µL, with an average of 2.4264 x 10^5 cells per µL and a standard deviation of 0.69585, showing a range within normal limits but leaning towards the lower end.
- **Post-Operative Haemoglobin**: Post-operative haemoglobin levels were significantly lower, ranging from 5.3 to 12.6 g/dL, with an average of 9.488 g/dL and a standard deviation of 1.7424, reflecting surgical blood loss.
- **Prothrombin Time (PT) and International Normalized Ratio (INR):** PT ranged from 13.4 to 50.0 seconds, with a mean of 16.652 seconds, and INR values ranged from 0.90 to 3.40, with an average of 1.1816. Both show a variability in clotting function, which is critical in managing bleeding risks.
- **Activated Partial Thromboplastin Time (APTT)**: APTT values ranged from 28.2 to 66.0 seconds, with an average of 32.692 seconds and a standard deviation of 7.7403, indicating diverse responses to coagulation status.

Table 7. Laboratory Findings Of The Respondent

Laboratory findings	N	Minimum	Maximum	Mean	Std. Deviation
HB	25	8.0	14.5	11.120	1.9140
Placental count	25	1.06	4.30	2.4264	0.69585
post operative Hb	25	5.3	12.6	9.488	1.7424
PT in seconds	25	13.4	50.0	16.652	7.0789
INR	25	0.90	3.40	1.1816	0.47707
APTT in seconds	25	28.2	66.0	32.692	7.7403

DISCUSSION

Placenta previa is a condition marked by the abnormal positioning of the placenta in the lower part of the uterus, which often leads to complications during pregnancy, particularly in the third trimester. This study aimed to explore the maternal and perinatal outcomes in patients diagnosed with placenta previa, focusing on various clinical, obstetric, and neonatal outcomes. The findings from this study are reflective of global trends in the incidence and management of placenta previa, with significant implications for obstetric care, particularly in resource-limited settings.

The **demographic profile** of the patients provides an important context for understanding the population most affected by placenta previa. In this study, it was found that 56% of the patients were 25 years of age or younger, indicating that younger women are more susceptible

to this condition. This could be attributed to a variety of factors, including reproductive health education and access to prenatal care. Furthermore, the educational status of the patients revealed that 56% had only completed school-level education, with only 20% having any form of higher education. This limited educational attainment could contribute to delayed recognition of pregnancy complications, including placenta previa, which requires timely medical attention. A significant proportion (80%) were homemakers, reflecting the societal roles that could influence their health-seeking behaviour and autonomy in making healthcare decisions.

The **obstetric history** of the patients sheds light on the reproductive patterns in this population. In terms of gestational age, 14 cases (56%) were >36weeks of gestation , signifying as third trimester complication. The high proportion of multiparous women in this study aligns with previous findings that suggest an increased risk of placenta previa in women with multiple pregnancies.

One of the most concerning findings was that **48% of the patients experienced bleeding during the third trimester**, a hallmark complication of placenta previa. This finding is consistent with existing literature, where antepartum haemorrhage is one of the leading causes of maternal morbidity in placenta previa. In this study, 36% of the participants had a history of caesarean delivery, a known risk factor for placenta previa. This reinforces the association between uterine scarring and abnormal placental implantation. Moreover, 28% of the women had a history of medical termination of pregnancy or abortion, which could also be contributing factors due to the disruption of the uterine lining.

The **general physical examination** findings provide further insights into the clinical status of the patients. All 25 cases (100%) were presented with stable vitals.

The **systemic examination** further highlighted the progression of pregnancies in women with placenta previa, the speculum examination revealed a concerning finding: 56% of the patients had an open cervical os with active bleeding. This underscores the high risk of haemorrhage in placenta previa, which necessitates prompt medical intervention to prevent maternal and fetal morbidity.

The **management approach** in this study was largely centered on active intervention, with 100% of the patients receiving immediate clinical management. This reflects the high-risk nature of placenta previa, where expectant management is often not feasible due to the risk of haemorrhage. Notably, 17 cases (68%) of the patients were found to have Placenta previa, which is the most severe form, where the placenta completely covers the cervical os. This finding aligns with the need for caesarean delivery in all cases, as vaginal delivery is contraindicated in such cases to prevent catastrophic bleeding.

Mode of delivery was a critical aspect of the study. All the participants underwent caesarean section, reflecting the standard of care in managing placenta previa. This finding is in line with global recommendations that advocate for caesarean delivery as the safest mode of delivery for women with this condition. The high rate of caesarean deliveries also underscores the need for surgical expertise and the availability of resources such as blood transfusion services, particularly in resource-limited settings.

Severe anaemia was another significant finding, with 3 case(12%) of the patients having haemoglobin levels below 7 g/dL. This is a concerning complication, as anaemia can exacerbate the risks associated with haemorrhage in placenta previa. A majority of the patients (56%) required at least one unit of packed red blood cells, with some requiring more extensive transfusions. This highlights the importance of having readily available blood products in facilities managing high-risk pregnancies like placenta previa.

Postpartum haemorrhage (PPH) was observed in 11 cases (44%) , a common and serious complication of placenta previa. This finding is consistent with previous studies that have shown a high incidence of PPH in placenta previa due to the abnormal placental attachment and the increased vascularity of the lower uterine segment. Various manoeuvres were employed to control bleeding, including haemostatic sutures in 8 cases (32%), bilateral uterine artery ligation in 8 cases (32%), and intrauterine balloon tamponade in 5 cases (20%). In the most severe cases, one patient (4%) required an emergency hysterectomy to control life-threatening haemorrhage. These findings underscore the complexity of managing placenta previa and the need for a multi-disciplinary approach involving obstetricians, anaesthetists, and surgeons.

The **neonatal outcomes** were equally significant. The study revealed a near-equal gender distribution, with 48% of the neonates being male and 52% female. There was a notable prevalence of preterm births (48%), which is a common outcome in placenta previa due to the risk of haemorrhage and the need for early delivery to protect both the mother and the fetus. Despite the high-risk pregnancies, most of the neonates had healthy birth weights, with 44% weighing between 2 and 3 kg, and 32% weighing between 3 and 4 kg. The overall survival rate was high, with 96% live births, although there was one neonatal death (4%). Additionally, 3 cases of early neonatal death (ENND) were reported, which highlights the importance of neonatal intensive care in managing these high-risk deliveries.

The **laboratory findings** provided further insights into the physiological status of the patients. The average haemoglobin level was 11.12 g/dL, indicating that most patients were not severely anaemic at baseline, although some had lower levels post-operatively due to blood loss during delivery.

CONCLUSION

In conclusion, this study on placenta previa highlights the significant maternal and neonatal risks associated with this condition. The findings emphasize the need for early diagnosis, close monitoring, and timely intervention, particularly in resource-limited settings. Caesarean section remains the safest mode of delivery for women with placenta previa, and comprehensive management strategies, including blood transfusions and surgical interventions, are critical in preventing maternal morbidity and mortality. Additionally, the high rate of preterm births and neonatal complications underscores the importance of neonatal intensive care in ensuring favourable outcomes for the infants.

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