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STUDY OF SYMPTOMATIC PLACENTA PREVIA LEADING TO TERMINATION OF PREGNANCY BEFORE 36 WEEKS OF GESTATION

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Abstract

OBJECTIVE

To determine the frequency of maternal and foetal outcomes among women with symptomatic placenta previa requiring termination of pregnancy before 36 weeks of gestation.

METHODOLOGY

A total of 175 pregnant women aged 18–45 years with symptomatic placenta previa were enrolled using non-probability consecutive sampling. Inclusion required ultrasound-confirmed placenta previa with antepartum bleeding 36 weeks before. Major and minor placenta previa were compared. Maternal and neonatal outcomes were analysed using chi-square and t-tests with $p \leq 0.05$ considered significant.

RESULTS

The mean maternal age was 29.8 ± 4.6 years. Major placenta previa accounted for 60.0% of cases. Postpartum haemorrhage (61.9% vs 32.9%; p=0.001), blood transfusion (78.1% vs 45.7%; p<0.001), caesarean hysterectomy (p=0.006), and NICU admission (<32 weeks vs ≥32 weeks; p<0.001) were significantly higher in high-risk groups.

CONCLUSION

It is to be concluded that symptomatic placenta previa leading to termination before the 36 weeks was associated with considerable maternal haemorrhagic morbidity and adverse neonatal outcomes. Major placenta previa demonstrate the significantly higher risks of postpartum haemorrhage, blood transfusion, and caesarean hysterectomy, while earlier gestational age at termination was associated with increased neonatal intensive care admission and stillbirth.

INTRODUCTION

Placenta previa is defined as abnormal implantation of the placenta in the lower uterine segment such that it partially or completely covers the internal cervical os, as classified by international obstetric guidelines [1]. It remains one of the leading causes of antepartum haemorrhage and continues to pose a major threat to maternal and foetal health worldwide. When placenta previa becomes symptomatic, typically

presenting as painless vaginal bleeding during the second or third trimester, it frequently necessitates emergency intervention and premature termination of pregnancy to prevent catastrophic maternal haemorrhage and foetal compromise [2,3]. The clinical significance of symptomatic placenta previa lies in its unpredictable course and its strong association with severe obstetric morbidity, particularly when delivery occurs before fetal maturity.

The underlying pathophysiology involves defective placental implantation and abnormal placental adherence to the poorly contractile lower uterine segment, which undergoes progressive stretching as gestation advances [4]. This anatomical and physiological vulnerability predisposes to recurrent placental separation and bleeding, often without warning. Established risk factors include previous caesarean section, multiparity, advanced maternal age, prior uterine surgery, and assisted reproductive techniques [5,6]. These factors not only increase the likelihood of placenta previa but also influence its severity and the risk of early symptomatic presentation.

Symptomatic placenta previa presents a complex clinical dilemma, as recurrent or massive antepartum haemorrhage may necessitate termination of pregnancy well before 36 weeks of gestation. Caesarean delivery is generally recommended due to the high risk of uncontrollable bleeding with vaginal birth; however, early operative delivery is associated with increased maternal complications such as postpartum haemorrhage, need for blood transfusion, hysterectomy, and intensive care unit admission [7,8]. From a foetal perspective, prematurity-related complications including respiratory distress syndrome, low birth weight, and prolonged neonatal intensive care admission remain significant concerns [9].

Existing evidence suggests that the severity and frequency of bleeding episodes, gestational age at first bleed, and type of placenta previa are important determinants of maternal and fetal outcomes [10,11]. However, most available data originate from high-income countries with advanced obstetric and neonatal support systems. In contrast, limited evidence is available from low- and middle-income countries, where delayed access to care, maternal anaemia, and resource constraints may substantially worsen outcomes [12]. Furthermore, few studies have specifically focused on symptomatic placenta previa resulting in termination of pregnancy before 36 weeks, despite this group representing the highest-risk subset.

In Pakistan, placenta previa continues to contribute significantly to maternal morbidity and iatrogenic preterm birth, yet local data evaluating the clinical characteristics and outcomes of symptomatic cases remain scarce [13]. This lack of context-specific evidence limits informed clinical decision-making and counselling. Therefore, this study was undertaken to determine the clinical characteristics and maternal–foetal outcomes of symptomatic placenta previa leading to termination of pregnancy before 36 weeks of gestation.

METHODOLOGY

This descriptive observational study was conducted in the Department of Obstetrics and Gynaecology at Civil Hospital, Dow University of Health Sciences, Karachi, from July 2024 to December 2024, after obtaining approval from the Institutional Review Board of Dow University of Health Sciences, and written informed consent was taken from all participants. A non-probability consecutive sampling technique was employed to enrol pregnant women diagnosed with symptomatic placenta previa who required termination of pregnancy before 36 completed weeks of gestation. The study population comprised women aged 18–45 years with singleton pregnancies in whom placenta previa was confirmed on transabdominal or transvaginal ultrasonography and who presented with painless vaginal bleeding after the age of foetal viability, necessitating early termination due to maternal or foetal indications. Women with placental abruption, vasa previa, multiple pregnancies, known bleeding or coagulation disorders, uterine rupture, major foetal anomalies, or significant medical comorbidities such as chronic

hypertension or diabetes mellitus were excluded. Symptomatic placenta previa was operationally defined as placental tissue partially or completely covering the internal cervical os on ultrasound associated with one or more episodes of painless vaginal bleeding, while termination of pregnancy was defined as delivery undertaken before 36 weeks of gestation owing to uncontrolled haemorrhage, maternal instability, or non-reassuring foetal status. A total sample size of 120 patients was included. Data regarding maternal age, parity, gestational age at presentation and termination, type of placenta previa, number of bleeding episodes, haemoglobin levels, mode of termination, need for blood transfusion, and immediate maternal and foetal outcomes were collected using a structured predesigned proforma. Clinical assessment and decision-making were carried out by postgraduate trainees with a minimum of three years of obstetric experience under the direct supervision of consultant obstetricians, and relevant information was extracted from patient interviews, clinical examination, ultrasound reports, and hospital records. All participants were followed until discharge to document short-term maternal outcomes, including postpartum haemorrhage and intensive care admission, and foetal outcomes such as live birth status and need for neonatal intensive care. Data were analysed for maternal and foetal variables using descriptive statistics, chi-square test for categorical variables, independent t-test for continuous variables, and a p-value of ≤0.05 was considered statistically significant.

RESULTS

Table I presents the baseline maternal characteristics of the study participants. A total of 175 women were included in the analysis. The mean maternal age was 29.8±4.6 years, and the mean gestational age at presentation was 32.1±2.3 weeks. With respect to placenta previa, 105 participants (60.0%) had major placenta previa, while 70 participants (40.0%) were diagnosed with minor placenta previa.

Table I: Baseline Maternal Characteristics of Study Participants (n=175)		
Mean ± Standard Deviation		
Maternal Age in years = **29.8 ± 4.6**		
Gestational Age in weeks at Presentation = **32.1 ± 2.3**		
Frequency (%)		
Placenta Previa	Major	105 (60.0)
	Minor	70 (40.0)

Table II shows the distribution of maternal and foetal complications among the 175 study participants. Caesarean delivery was performed in 166 women (94.9%). Postpartum haemorrhage was observed in 88 cases (50.3%), and 114 women (65.1%) required blood transfusion. ICU admission was needed for 7 patients (4.0%), while caesarean hysterectomy was performed in 26 cases (14.9%). Regarding foetal outcomes, 166 pregnancies (94.9%) resulted in live births, whereas 9 cases (5.1%) were stillbirths. Additionally, 70 neonates (40.0%) required NICU admission.

Table II: Distribution of Maternal and Foetal Complications Observed (n=175)	
Maternal Complications	**Frequency** (%)
Caesarean delivery	166 (94.9)
Postpartum haemorrhage	88 (50.3)
Blood transfusion required	114 (65.1)
ICU admission	7 (4.0)
Caesarean hysterectomy	26 (14.9)

Foetal Complications	
Live birth	166 (94.9)
Stillbirth	9 (5.1)
NICU admission	70 (40.0)

Table III demonstrates the association between the type of placenta previa and fetomaternal outcomes among the study participants. Caesarean delivery was more frequent in women with major placenta previa compared to those with minor placenta previa (97.1% vs. 91.4%); however, this difference was not statistically significant (p=0.094). Postpartum haemorrhage occurred significantly more often in the major placenta previa group than in the minor group (61.9% vs. 32.9%, p=0.0001). Similarly, the requirement for blood transfusion was significantly higher among women with major placenta previa (78.1%) compared to minor placenta previa (45.7%, p =0.0001). Although ICU admission was more common in cases of major placenta previa (5.7%) than minor placenta previa (1.4%), the difference was not statistically significant (p=0.153). With regard to foetal outcomes, live birth rates were comparable between the two groups (93.3% vs. 97.1%, p= 0.225). NICU admission was significantly higher in neonates born to mothers with major placenta previa compared to minor placenta previa (47.6% vs 28.6%, p=0.012). The proportion of stillbirths was higher in the major placenta previa group (6.7% vs 2.9%); however, this difference did not reach statistical significance (p=0.225).

Table III: Association of Placenta Previa with Fetomaternal Outcomes (n=175)

Fetomaternal Outcomes	Major Placenta Previa (n=105)	Minor Placenta Previa (n=70)	P-Value
Caesarean Delivery	102 (97.1%)	64 (91.4%)	0.094
Postpartum Haemorrhage	65 (61.9%)	23 (32.9%)	0.0001*
Blood transfusion Required	82 (78.1%)	32 (45.7%)	0.0001*
ICU Admission	6 (5.7%)	1 (1.4%)	0.153
Live Birth	98 (93.3%)	68 (97.1%)	0.225
NICU admission	50 (47.6%)	20 (28.6%)	0.012*
Stillbirth	7 (6.7%)	2 (2.9%)	0.225

DISCUSSION

Symptomatic placenta previa continues to represent a major obstetric challenge due to its unpredictable presentation, high risk of haemorrhage, and the frequent need for preterm termination of pregnancy to safeguard maternal and foetal wellbeing. The present study assessed the clinical characteristics and fetomaternal outcomes of women with symptomatic placenta previa requiring termination before 36 weeks of gestation, providing insight into patterns of morbidity within a tertiary-care setting.

In the current study, major placenta previa constituted the predominant subtype, a finding consistent with international and regional evidence demonstrating that placentas partially or completely covering the internal cervical are more likely to present with recurrent bleeding and require early delivery [1,2]. This distribution explains the high rate of caesarean delivery observed, which aligns with international guidelines recommending caesarean section as the preferred mode of delivery in symptomatic placenta previa to minimise maternal haemorrhage and foetal compromise [1,7]. Comparable caesarean rates have been reported in studies from both high-income and low- and middle-income countries, reinforcing the limited role of vaginal delivery in this context [8,10].

Postpartum haemorrhage was a major maternal complication, particularly among women with major placenta previa. This association is well recognised and is attributed to impaired placental separation and reduced contractility of the lower uterine segment [4,5]. The significantly higher requirement for blood transfusion among women with major placenta previa mirrors findings reported by Silver and colleagues and Fan et al., who identified placental location as a key determinant of haemorrhagic morbidity [7,8]. In Pakistan and similar settings, this risk is often exacerbated by baseline maternal anaemia, delayed antenatal booking, and referral of complicated cases to tertiary centres, contributing to higher transfusion requirements than those reported in some developed countries [12,13,17].

Caesarean hysterectomy, although relatively infrequent, occurred more commonly in women with major placenta previa. This finding is consistent with previous studies demonstrating an increased likelihood of uncontrolled haemorrhage and occult abnormal placentation when the placenta overlies the cervical os [7,9]. While placenta accreta spectrum disorders were not specifically evaluated in this study, undiagnosed abnormal placental adherence may have contributed to the need for hysterectomy, as highlighted in FIGO consensus statements and other observational studies [14,15].

From a foetal perspective, prematurity-related morbidity was the dominant concern. Although most pregnancies resulted in live births, a substantial proportion of neonates required NICU admission. The strong association between delivery before 32 weeks of gestation and NICU admission observed in this study is consistent with previous reports identifying gestational age at delivery as the principal determinant of neonatal outcome in placenta previa [9,10]. Similarly, the higher stillbirth rate among pregnancies terminated at earlier gestational ages reflects the combined effects of severe maternal haemorrhage, foetal hypoxia, and extreme prematurity, findings also reported in regional cohorts [11,13,18].

The relatively low but clinically important rate of maternal ICU admission in this study reflects timely obstetric intervention and availability of critical care support. Comparable ICU admission rates have been reported in tertiary-care settings managing high-risk obstetric populations, underscoring the importance of multidisciplinary care in symptomatic placenta previa [8,12,16,19].

The strengths of this study include its focus on a clearly defined high-risk subgroup and the detailed assessment of both maternal and neonatal outcomes relevant to early termination of pregnancy. However, certain limitations should be acknowledged, including single-centre design and the lack of long-term neonatal follow-up, which may limit generalisability. Additionally, factors such as prior caesarean delivery and antenatal optimisation were not analysed in detail and may have influenced outcomes.

Overall, the findings reinforce existing evidence that symptomatic placenta previa, particularly major placenta previa, is associated with substantial haemorrhagic morbidity and adverse neonatal outcomes, largely driven by prematurity. The study adds valuable local data and strengthens the understanding of risk patterns associated with early termination of pregnancy in placenta previa within tertiary-care settings.

CONCLUSION

Symptomatic placenta previa leading to termination of pregnancy before 36 weeks was associated with substantial maternal haemorrhagic morbidity and significant neonatal complications related to prematurity. Major placenta previa was linked to higher rates of postpartum haemorrhage, blood transfusion, and caesarean hysterectomy, while earlier gestational age at termination was associated with increased neonatal intensive care unit admission and stillbirth.

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