

Neonatal and Maternal Complications of Placenta Previa: A Single Center Study in Bangladesh

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Abstract

Background: Placenta previa is a disorder which happens during pregnancy when the placenta is abnormally placed in the 'lower uterine segment', covers the cervix. The increasing trends of cesarean delivery rate causes a marked increase in abnormally invasive placenta over the past decades. We are in need of more research-based data regarding possible complications of placenta previa in Bangladesh. Aim of the study: The aim of the present study was to assess the neonatal and maternal complications of placenta previa. **Methods:** This prospective observational study was conducted in the Department of Obstetrics & Gynaecology, Dhaka Medical College Hospital of Dhaka, Bangladesh during the period from April 2020 to March 2021. In total 87 placenta previa cases whose singleton deliveries took place at the mentioned hospital during the first year of the study were selected as the study subjects for analysis. For data cleaning, the coded-data were entered into EPI Info version 3.5. The cleaned data were exported to SPSS version 25 and analyzed. P value < 0.05 was considered as statistically significant. **Results:** In this study, in analyzing the maternal complications we observed, 'hospital stay ≥ 14 days', 'anemia', 'blood transfusion ≥ 2 and 'PPH (Post-partum hemorrhage)' were the most frequent maternal complications. Those 4 major complications were found in 36.78%, 29.89%, 24.14% and 21.84% cases respectively. On the other hand, 'admission to NICU', 'dead babies', 'APGAR score at 1 min <7, and 'low birth weight' were found as the 4 most frequent neonatal complications in this study. Those 4 major complications were found in 22.99%, 21.84%, 13.79% and 12.64% cases respectively. Conclusion: Women with placenta previa should be considered as caring high risk and compatible blood should always be ready for such cases before considering caesarian section. Family planning should also be emphasized as a strategy to reduce of parity, caesarean section rate and possibilities of placenta previa. Strategies and protocols should be settled to reduce the rate of CS (caesarean section) and senior staffs and proper instruments have to be involved in the management of cases of placenta previa.

Keywords: Neonatal, Maternal complication, Placenta previa, Cervix.

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1. INTRODUCTION

Placenta previa is a disorder that occurs during pregnancy when the placenta is abnormally placed in the 'lower uterine segment', covers the cervix. Over the past decades, the increasing trends of cesarean delivery rate cause a marked increase in abnormally invasive placenta. Basically, placenta previa is associated with an 'increased risk of bleeding, postpartum anemia, hysterectomy, septicemia, thrombophlebitis, blood transfusion and maternal death' [1]. It was noted in 44.4% of patients with placenta previa delivered before 37 weeks of gestation, 16.9% of these delivered before 34 weeks of gestation, and neonatal mortality rates were

increased by threefold to fourfold, noted [2]. The reported incidence for placenta previa (PP) was higher in Asia (1.2%) and lower in Europe (0.36%), North America (0.29%), and sub-Saharan Africa (0.27%) [3]. A previous research [4] mentioned that the incidence of placenta previa was between 0.93% and 2.01% in mainland China. Several factors⁵ increases the risk for placenta previa (PP), including prior cesarean delivery, prior surgical abortion, advancing maternal age, multiparity, multiple pregnancies, as well as assistive reproductive technology. Particularly placenta previa becomes dangerous when covering a uterine scar (PPCS). In a study by Chattopadhyay *et al.*, [6] PPCS

which also known as pernicious placenta previa (PPP), one of the most dangerous types of placenta-previa. In China and often leads to ‘unexpected bleeding’ during delivery and increased risk for ‘peripartum hysterectomy’ the incidence of PPCS has increased correspondingly with the increase of cesarean section [7]. A large number of studies have reported that the clinical outcomes and associated risk factors of placenta previa (PP), and only a few reports have focused on comparing PPCS and Non-PPCS [8]. Studies have shown that placenta previa also carries greater risks of surgical complications [9]. The complication of placenta previa is limited not only to the antepartum period but also to the intrapartum and postpartum courses which can also be complicated with a high rate of cesarean delivery, peripartum hysterectomy, morbid adherence of placenta, and postpartum hemorrhage [10]. Previous studies have estimated the rate of hysterectomy among women with placenta previa to be 5%. Pregnancies complicated with placenta previa have also a significantly higher rate of postpartum anemia (OR 5.5, 95% CI: 4.4–6.9) which delayed discharge from the hospital [11].

2. OBJECTIVE

General Objective

- To assess the neonatal and maternal complications of placenta previa.

Specific Objective:

- To assess the demographic status of the participants.
- To determine the antenatal characteristics of the participants.
- To collect data of maternal and neonatal complications.

3. METHODOLOGY

This prospective observational study was conducted in the Department of Obstetrics & Gynaecology, Dhaka Medical College Hospital of Dhaka, Bangladesh during the period from April 2020 to March 2021. In total 87 placenta previa cases whose singleton deliveries took place at the mentioned hospital during the first year of the study were selected as the study subjects for analysis. According to the inclusion criteria of this study, only singleton pregnancies diagnosed with placenta previa trans-vaginally or transabdominal either during the second and third trimesters of pregnancy or intraoperatively were included. On the other hand, according to the exclusion criteria of the study case with missing medical notes and women with multiple gestation pregnancies were also excluded. In this study, sociodemographic factors, obstetric factors as well as neonatal and maternal

complications were the independent variables and placenta previa was the dependent variable. To collect data about study participant's ‘sociodemographic characteristics’, ‘obstetric and gynecological history’, ‘history of current pregnancy’, ‘mode of delivery, and ‘maternal and neonatal complications a checklist was designed. All data were checked for completeness and consistency before data entry by the principal investigator; the completed questionnaire was coded. For data cleaning, the coded data were entered into EPI Info version 3.5. The cleaned data were exported to SPSS version 25 and analyzed. P-value < 0.05 was considered as statistically significant.

4. RESULT

In this study, in analyzing the demographic status we observed, the highest number of participants were from the 25-29 year's age group which was 38%. The majority of the participants (56%) were from rural areas and the majority of them (59%) got an antenatal follow-up. About half (48%) women were multiparous and the rest 24% were nulliparous and about 28% were primiparous. In this study, gestational ages at delivery were 28-33, 34-36, and ≥ 37 weeks in 31.03%, 19.54%, and 49.43% cases respectively. In most of the cases (92%) cesarian sections were performed. In 7%, SVD and in only one 1.15% cases instrumental delivery were performed. For the majority of the cases (72%) spinal anesthesia was used. In this study, in analyzing the maternal complications we observed, ‘hospital stay ≥ 14 days’, ‘anemia’, ‘blood transfusion ≥ 2 ’ and ‘PPH (Post-partum hemorrhage)’ were the most frequent maternal complications. Those 4 major complications were found in 36.78%, 29.89%, 24.14%, and 21.84% cases respectively. On the other hand, ‘admission to NICU’, ‘dead babies’, ‘APGAR score at 1 min <7’, and ‘low birth weight’ was found as the 4 most frequent neonatal complications in this study. Those 4 major complications were found in 22.99%, 21.84%, 13.79%, and 12.64% cases respectively.

Table 1: Demographic status of the participants (N=87)

Characteristics	n	%
Age Distribution in year		
<25 yrs.	24	28.0
25-29 yrs.	33	38.0
30-35 yrs.	18	21.0
>35 yrs.	11	13.0
Residence area distribution		
Rural	49	56.32
Urban	38	43.68
Antenatal follow-up		
Antenatal follow-up	51	58.62
No	36	41.38

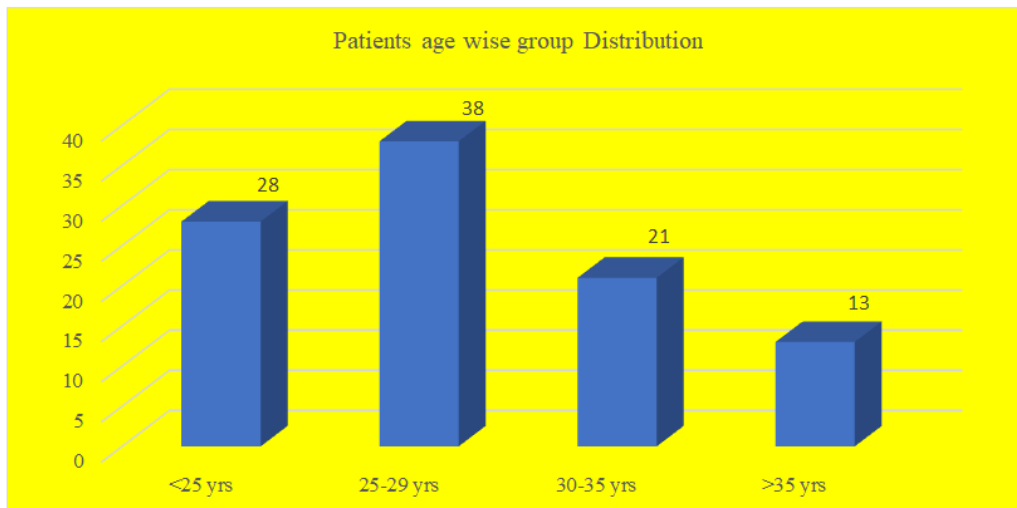


Figure I: Patients Age Wise group Distribution

Table 2: Antenatal characteristics of the participants (N=87)

Characteristics	n	%
Parity distribution		
Nulliparous	21	24.14
Primiparous	24	27.59
Multiparous	42	48.28
Gestational age at delivery		
28-33 weeks	27	31.03
34-36 weeks	17	19.54
≥37 weeks	43	49.43
Mode of delivery		
C/S	80	91.95
SVD	6	6.9
Instrumental	1	1.15
Types of anesthesia		
General	19	21.84
Spinal	63	72.41
No anesthesia	5	5.75

Table 3: Maternal complication distribution (N=87)

Complication	n	%
Hospital stay ≥14 days	32	36.78
Anemia	26	29.89
Blood transfusion ≥2	21	24.14
PPH	19	21.84
Adherent placenta	8	9.2
PROM	6	6.9
Hysterectomy	4	4.6
UTI	3	3.45
Surgical site infection	2	2.3

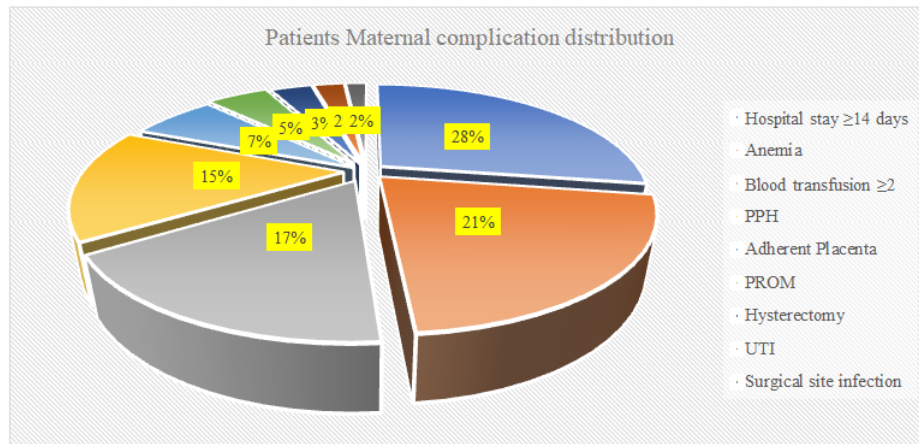


Figure II: Patients Maternal Complications Distribution

Table 4: Neonatal complication distribution (N=87)

Complication	n	%
Admission to NICU	20	22.99
Dead babies	19	21.84
APGAR score at 1 min <7	12	13.79
Low birth weight	11	12.64
Respiratory distress syndrome	6	6.9
Spina bifida	4	4.6
IUGR	3	3.45
Neonatal jaundice	2	2.3
Hypothermia	1	1.15

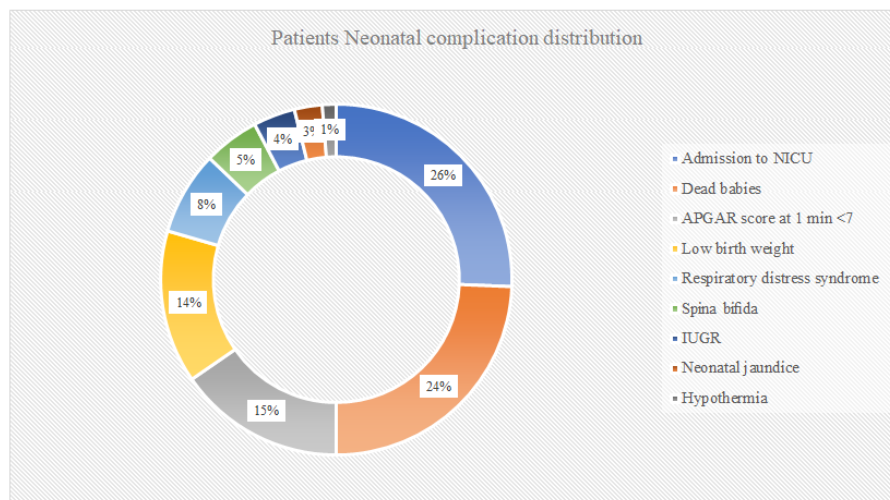


Figure III: Patients Neonatal Complications Distribution

5. DISCUSSION

The aim of the present study was to assess the neonatal and maternal complications of placenta previa. Multiparity increases twofold the risk of placenta previa. This result was in congruence with studies from Tuzovic and Kollmann *et al.*, They reported, ‘Women with parity of two or more showed an increased risk of placenta Previa. They showed that, a greater risk of placenta previa with ‘higher parity’ [12]. In our study, about half (48%) women were multiparous and the rest 24% were nulliparous and about 28% were primiparous. In this study, in analyzing the maternal

complications we observed, ‘hospital stay \geq 14 days, ‘anemia’, ‘blood transfusion \geq 2’ and ‘PPH (Post-partum hemorrhage)’ were the most frequent maternal complications. This result was comparable with a previous study done by Sheiner where women with placenta praevia were about six times more likely to have postpartum anemia [11]. Our findings were also similar to the retrospective study conducted at the obstetric unit of ‘Abha General Hospital, Saudi Arabia’, the odds of blood transfusion ‘>3 units’ in major placenta previa were threefold higher than their counterparts [13]. Generally, neonates born to mothers

with placenta previa more likely suffer from 'preterm birth', 'perinatal death', 'congenital malformations, and 'Apgar scores at 1 minute and 5 minutes lower than 7 [14]. Similarly, in our study, 'admission to NICU', 'dead babies', 'APGAR score at 1 min <7', and 'low birth weight' were found as the 4 most frequent neonatal complications in this study. Perinatal morbidity is also studied and it was found that the majority of the babies require resuscitation and NICU admission [15]. Moreover, the most substantial outcome of this disorder is small for gestational age and low birth weight [16].

6. LIMITATION OF THE STUDY

This was a single-centered study with a small-sized sample. Due to the limited sample size, the findings of this study may not reflect the exact scenario of the whole country.

7. CONCLUSION & RECOMMENDATION

Women with placenta previa should be considered as caring high risk and compatible blood should always be ready for such cases before considering caesarian section. Family planning should also be emphasized as a strategy to reduce parity, caesarian section rate and possibilities of placenta previa. Strategies and protocols should be settled to reduce the rate of CS (caesarian section) and senior staffs and proper instruments have to be involved in the management of cases of placenta previa. For getting more specific information regarding this issue we would like to recommend conducting more studies in several places with large sample size.

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