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Maternal Outcome of Pregnancy with Previous History of Caesarean Section with Central Placenta Previa Admitted into DMCH Gynae Department (6 months study)

Dr. Aklima Akter[1*], Dr. Fowzia Yasmin[1], Dr. Dalia Rahman[1], Dr Syeda Ummay Kulsum[2], Dr. Anjuman Ara Doyel[3]

[1]Associate Professor, Gynaecology and Obstetrics, Dhaka Medical College, Dhaka, Bangladesh
[2]Assistant Professor, Gynaecology and Obstetrics, BSMMU, Dhaka, Bangladesh
[3]Indoor Medical Officer, Dhaka Medical College Hospital, Dhaka, Bangladesh

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***Corresponding author:** Dr. Aklima Akter
Associate Professor, Gynaecology and Obstetrics, Dhaka Medical College, Dhaka, Bangladesh

Abstract **Original Research Article**

Background: Placenta previa, a condition where the placenta is abnormally positioned in the lower uterine segment, poses significant risks to both maternal and neonatal health. It has become more prevalent with increasing cesarean deliveries, advanced maternal age, high parity, and assisted reproductive technologies. The impact of placenta previa on subsequent pregnancies, especially in women with a history of cesarean sections, remains an area of concern due to potential complications such as hemorrhage, transfusion needs, and adverse outcomes like peripartum hysterectomy. ***Objective:*** This study aimed to assess the maternal and neonatal outcomes in pregnancies with a history of cesarean sections complicated by central placenta previa, admitted to the Department of Obstetrics and Gynecology at DMCH from January 2023 to June 2023. ***Methodology:*** A Descriptive Cross sectional study was conducted using medical records from the Department of Obstetrics and Gynecology at DMCH. We analyzed data from 104 women with central placenta previa and previous cesarean sections. Diagnostic criteria were based on trans-abdominal or transvaginal ultrasound. Statistical analysis was performed using SPSS v21.0, employing chi-square and Mann–Whitney U tests for categorical and continuous variables, respectively. Multivariate analysis assessed the association between a history of placenta previa and adverse maternal and neonatal outcomes, with significance set at $P < 0.05$. ***Results:*** The majority of patients were aged between 29-39 years (58.7%). Most had a parity of 1 or 2 (75.0%) and were in their 3rd or 4th gravida category (64.4%). A predominant number were between 35-38 weeks gestation (68.3%). APH was present in 65.4% of patients, and the average number of transfusions required was 4. The uterus was preserved in 63.5% of cases. 36.5% cases peripartum hysterectomy was performed. Maternal outcomes showed a 93.3% improvement rate, with 6.7% mortality. Neonatal outcomes included 86.5% alive, with stillbirths and neonatal deaths each at 6.7%. ***Conclusion:*** The study indicates that while a history of central placenta previa and cesarean sections is associated with significant complications such as APH and high transfusion requirements, the overall maternal and neonatal outcomes are relatively favorable. However, the incidence of severe complications underscores the need for vigilant monitoring and management in such high-risk pregnancies.

Keywords: Placenta previa, cesarean section, neonatal outcome, antepartum hemorrhage (APH), transfusion, peripartum hysterectomy.

INTRODUCTION

Placenta previa is a significant obstetric complication that arises when the placenta attaches to the lower segment of the uterus, partially or entirely covering the internal cervical opening. It occurs in approximately 5 out of every 1,000 pregnancies. The incidence of placenta previa has been increasing, largely due to evolving risk factors such as cesarean deliveries, other uterine surgeries, advanced maternal age, high parity, smoking, cocaine use, and assisted reproductive technology (ART) [1-3].

Numerous studies have shown that placenta previa is linked to serious maternal and neonatal complications. For mothers, it increases the likelihood of cesarean delivery, hemorrhage, blood transfusion, placenta accreta spectrum (PAS) disorders which encompass placenta accreta, increta, and percreta. These conditions can lead to severe outcomes, including

hysterectomysepticemia, ICU admission, thrombophlebitis, and even maternal death. For the fetus, complications primarily include growth restriction and preterm birth [4].

Moreover, the complications associated with placenta previa can result in pathophysiological changes in the uterus, such as scar formation, endometrial damage, defective decidualization, and inflammation, potentially affecting the outcome of subsequent pregnancies [5-6]. The risk factors for placenta previa might also influence future pregnancies, with some studies indicating that a history of placenta previa increases the risk of recurrence in subsequent pregnancies. However, the full impact of placenta previa on the outcomes of future pregnancies remains inadequately understood.

Objective

Therefore, this study aimed to determine whether a history of placenta previa was linked to adverse outcomes in the subsequent pregnancy.

METHODOLOGY

This descriptive cross sectional study was conducted in the Department of Obstetrics and Gynecology, DMCH from January 2023 to June 2023. Placenta previa was diagnosed using the last trans-abdominal or transvaginal ultrasonography performed before the delivery. All ultrasound examinations were performed by trained physicians.

Statistical analysis was performed using SPSS v21.0 for Mac. The chi-square test was used to compare categorical variables. The nonparametric Mann–Whitney U-test was used to compare continuous variables. Potential confounders considered were maternal age, gestational weeks, level of education, mode of delivery and conception, number of abortions and prior vaginal deliveries, and the time interval between the two deliveries. A multivariate analysis was performed to determine the role of a history of placenta previa in adverse maternal and perinatal outcomes of the subsequent pregnancy. Crude odds ratios (ORs) and adjusted odds ratios (aORs), along with their 95% confidence intervals (CIs), were calculated. Differences with P-values of < 0.05 were considered to be statistically significant.

RESULTS

The data represents the age distribution of 104 individuals. Of these, 43 individuals, accounting for 41.3% of the total, fall within the 19-28 years age range. The remaining 61 individuals, making up 58.7% of the total, are aged between 29-39 years. This indicates a higher concentration of individuals in the older age group (29-39 years) compared to the younger group (19-28 years).

Table-1: Age in years in the study group

Age in years	Frequency	Percent
19-28 years	43	41.3
29-39 years	61	58.7
Total	104	100.0

Table 2 presents the parity distribution of patients, categorizing them based on the number of times they have given birth. Among the 104 patients, the largest group consists of those with a parity of 1, representing 42 patients (40.4%). This is followed by 36 patients (34.6%) with a parity of 2, and 22 patients (21.2%) with a parity of 3. A smaller number of patients, 3 (2.9%), have a parity of 4, while only 1 patient (1.0%) has a parity of 5. The data shows that the majority of patients have fewer than three childbirths.

Table-2: Parity Distribution of the patients

Parity	Frequency	Percent
1	42	40.4
2	36	34.6
3	22	21.2
4	3	2.9
5	1	1.0
Total	104	100.0

Among the 104 patients, the most common gravida is the 3rd, with 38 patients (36.5%) falling into this category. The 2nd gravida is next, with 30 patients (28.8%), followed closely by the 4th gravida with 29 patients (27.9%). Additionally, 6 patients (5.8%) are classified under a 4.00 gravida category, and only 1 patient (1.0%) has a 5th gravida. This data highlights that the majority of patients have experienced between two to four pregnancies.

Table-3: Distribution of the patients according to Gravida

Gravida	Frequency	Percent
2nd	30	28.8
3rd	38	36.5
4th	29	27.9
4.00	6	5.8
5.00	1	1.0
Total	104	100.0

Out of 104 patients, the majority, 71 patients (68.3%), are between 35-38 weeks of gestation. This is followed by 27 patients (26.0%) who are between 30-34 weeks gestation. A smaller group of 6 patients (5.8%) have a gestational age of more than 38 weeks.

Table-4: Distribution of the patients according to Gestational Age

Gestational age	Frequency	Percent
30-34 weeks	27	26.0
35-38 weeks	71	68.3
>38 weeks	6	5.8
Total	104	100.0

The majority had undergone one prior cesarean section, accounting for 52.9% of the cohort. A substantial portion had experienced two previous cesarean sections, representing 34.6% of the patients. Fewer patients had three prior cesareans (10.6%), and only a small minority had four (1.9%).

Table-5: Number of previous c/s

Number of previous c/s	Frequency	Percent
1	55	52.9
2	36	34.6
3	11	10.6
4	2	1.9
Total	104	100.0

A majority of 68 patients (65.4%) experienced antepartum hemorrhage (APH), while 36 patients (34.6%) did not. This indicates that APH was a relatively common condition among the patients in this study.

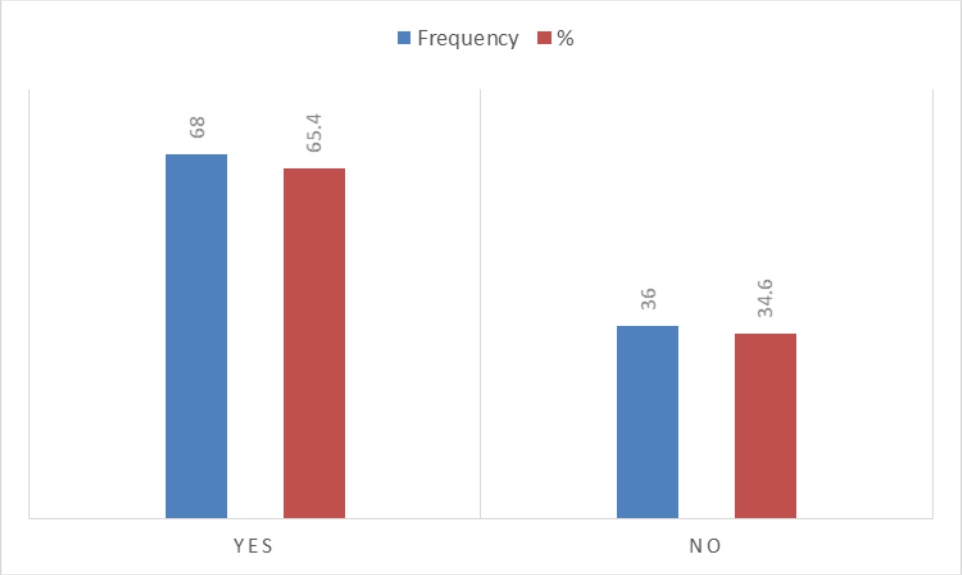

Figure-1: Presence of APH

Among the 104 patients, the most common number of transfusions needed was 4, with 32 patients (30.8%) falling into this category. This is followed by 28 patients (26.9%) requiring 2 transfusions and 15 patients (14.4%) needing 3 transfusions. Additionally, 14 patients (13.5%) required 5 transfusions, 8 patients (7.7%) required 6 transfusions, and 7 patients (6.7%) required 8 transfusions.

Table-6: Number of transfusion required

Number of transfusion required	Frequency	Percent
2	28	26.9
3	15	14.4
4	32	30.8
5	14	13.5
6	8	7.7
8	7	6.7
Total	104	100.0

Out of 104 patients, the uterus was preserved in 66 patients (63.5%), while in 38 patients (36.5%), Peripartum Hysterectomy was done. This indicates that in the majority of cases, the uterus was retained, while a significant minority underwent procedures where it was not.

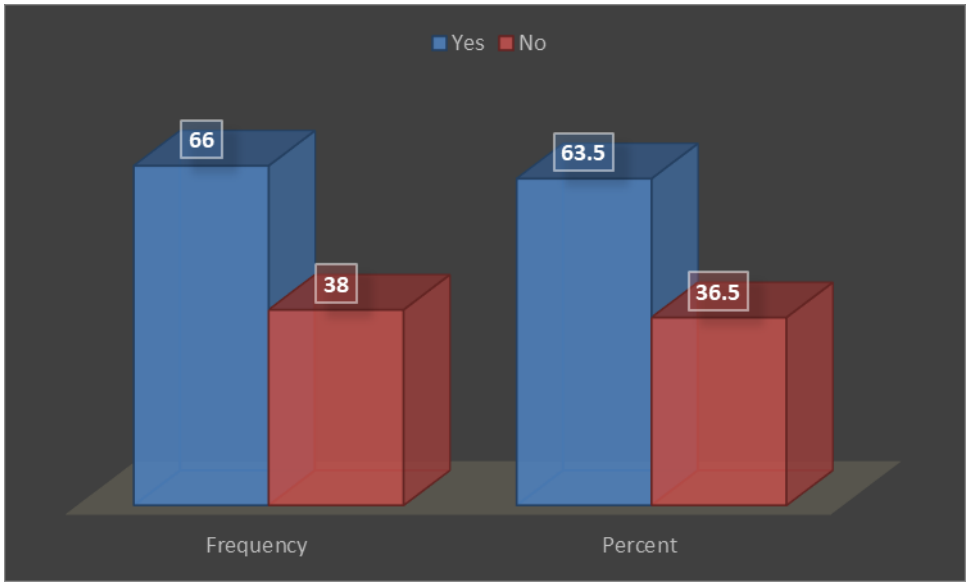

Figure-2: Distribution of the patients according to Uterus Status

Out of 104 patients, the vast majority, 97 patients (93.3%), showed improvement in their condition. Unfortunately, 7 patients (6.7%) did not survive.

Table-7: Distribution of the patients according to Maternal Outcome

Maternal outcome	Frequency	Percent
Improved	97	93.3
Dead	7	6.7
Total	104	100.0

Among 104 patients, 90 neonates (86.5%) were alive at the time of assessment. Both stillborn and deceased neonates each accounted for 7 cases (6.7%).

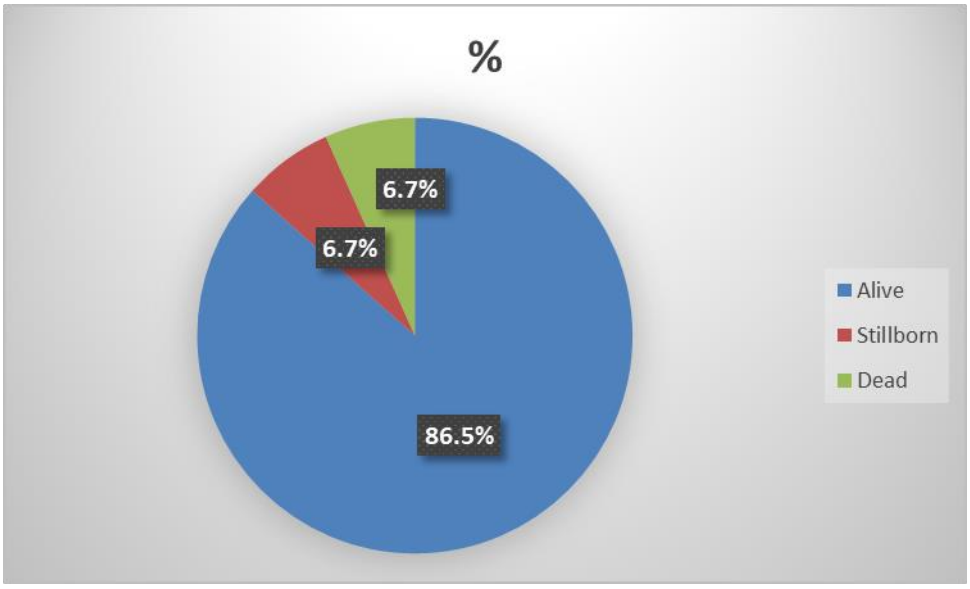

Figure-3: Distribution of the patients according to Neonatal Outcome

DISCUSSION

The study found that the majority of patients were between 29-39 years of age (58.7%), with a significant portion in the younger group of 19-28 years (41.3%). This age distribution is consistent with findings from other studies where advanced maternal age is often associated with higher pregnancy-related complications. For instance, other studies similarly identify a predominance of older women in high-risk pregnancies [7-8]. Regarding parity, the study shows that most patients had 1 or 2 children, with fewer having 3 or more.

This pattern aligns with other research, which demonstrates that women with fewer previous births are often more frequently represented in high-risk pregnancy studies, possibly due to fewer complications related to previous deliveries [9].

The most common gravida among patients was the 3rd (36.5%), followed by the 2nd (28.8%) and the 4th (27.9%). This finding is comparable to other studies which also report a high proportion of patients with 2-4 pregnancies in similar clinical settings [10-11]. The gestational age data indicate a majority of patients were between 35-38 weeks (68.3%), with fewer in the 30-34 weeks and >38 weeks categories. This distribution mirrors the trends observed by Jolly *et al.*, (2000), who found that most high-risk pregnancies reach a gestational age of 35 weeks or later, reflecting the clinical focus on monitoring and managing pregnancies that approach full term.

The study indicates that most patients required 2 to 4 transfusions, with 30.8% needing 4. This is consistent with literature on high-risk pregnancies where multiple transfusions are often necessary due to complications such as severe bleeding. Other Studies support these findings, showing similar transfusion needs among patients with significant obstetric complications [12]. Additionally, 65.4% of patients experienced APH, a rate that aligns with other research where APH was also prevalent in a substantial proportion of patients with complex pregnancy conditions [13].

In terms of uterus preservation, 63.5% of patients had their uterus preserved, which is a relatively high proportion compared to other studies where rates can vary significantly based on clinical decisions and patient conditions [14-15]. Maternal outcomes in this study were predominantly positive, with 93.3% improving, while 6.7% did not survive. Neonatal outcomes showed 86.5% of neonates were alive, with stillbirths and neonatal deaths each comprising 6.7%. These results reflect a generally favorable outcome but highlight areas for improvement, particularly in managing high-risk pregnancies. Comparative studies, similarly indicate high survival rates but underscore the need for continued focus on reducing mortality rates among both mothers and neonates [16].

CONCLUSION

The study shows that while a history of central placenta previa and multiple cesarean sections is linked to significant complications like antepartum hemorrhage (APH) and elevated transfusion needs, overall maternal and neonatal outcomes remain relatively positive. Nonetheless, the prevalence of severe complications highlights the necessity for careful monitoring and management of these high-risk pregnancies.

REFERENCE

1. Jing, L., Wei, G., Mengfan, S., & Yanyan, H. (2018). Effect of site of placentation on pregnancy outcomes in patients with placenta previa. *PloS one*, *13*(7), e0200252.
2. Karami, M., Jenabi, E., & Fereidooni, B. (2018). The association of placenta previa and assisted reproductive techniques: a meta-analysis. *The Journal of Maternal-Fetal & Neonatal Medicine*, *31*(14), 1940-1947.
3. Cresswell, J. A., Ronsmans, C., Calvert, C., & Filippi, V. (2013). Prevalence of placenta praevia by world region: a systematic review and meta-analysis. *Tropical medicine & international health*, *18*(6), 712-724.
4. Roustaei, Z., Vehviläinen-Julkunen, K., Tuomainen, T. P., Lamminpää, R., & Heinonen, S. (2018). The effect of advanced maternal age on maternal and neonatal outcomes of placenta previa: A register-based cohort study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *227*, 1-7.
5. Ahmed, S. R., Aitallah, A., Abdelghafar, H. M., & Alsammani, M. A. (2015). Major placenta previa: rate, maternal and neonatal outcomes experience at a tertiary maternity hospital, sohag, Egypt: a prospective study. *Journal of clinical and diagnostic research: JCDR*, *9*(11), QC17.
6. Jauniaux, E. R. M., Alfirevic, Z., Bhide, A. G., Belfort, M. A., Burton, G. J., Collins, S. L., ... & Sentilhes, L. (2018). Placenta praevia and placenta accreta: diagnosis and management: green-top guideline no. 27a. *Bjog*, *126*(1), e1-e48.
7. Silver, R. M. (2015). Abnormal placentation: placenta previa, vasa previa, and placenta accreta. *Obstetrics & Gynecology*, *126*(3), 654-668.
8. Jung, E. J., Cho, H. J., Byun, J. M., Jeong, D. H., Lee, K. B., Sung, M. S., ... & Kim, Y. N. (2018). Placental pathologic changes and perinatal outcomes in placenta previa. *Placenta*, *63*, 15-20.
9. Weiner, E., Miremberg, H., Grinstein, E., Mizrachi, Y., Schreiber, L., Bar, J., & Kovo, M. (2016). The effect of placenta previa on fetal growth and pregnancy outcome, in correlation with placental pathology. *Journal of perinatology*, *36*(12), 1073-1078.
10. Yu, L., Hu, K. J., & Yang, H. X. (2016). A retrospective analysis on the pernicious placenta previa from 2008 to 2014. *Zhonghua fu chan ke za zhi*, *51*(3), 169-173.
11. Lyu, B., Chen, M., & Liu, X. X. (2016). Risk factors of peripartum hysterectomy in placenta previa: a retrospective study of 3 840 cases. *Zhonghua fu chan ke za zhi*, *51*(7), 498-502.
12. Rosenberg, T., Pariente, G., Sergienko, R., Wiznitzer, A., & Sheiner, E. (2011). Critical analysis of risk factors and outcome of placenta previa. *Archives of gynecology and obstetrics*, *284*, 47-51.

13. Baumfeld, Y., Herskovitz, R., Niv, Z. B., Mastrolia, S. A., & Weintraub, A. Y. (2017). Placenta associated pregnancy complications in pregnancies complicated with placenta previa. *Taiwanese Journal of Obstetrics and Gynecology*, *56*(3), 331-335.
14. Vahanian, S. A., Lavery, J. A., Ananth, C. V., & Vintzileos, A. (2015). Placental implantation abnormalities and risk of preterm delivery: a systematic review and metaanalysis. *American journal of obstetrics and gynecology*, *213*(4), S78-S90.
15. Anderson-Bagga FM, Sze A. Placenta previa. StatPearls [Internet]. Treasure Island: StatPearls Publishing; 2020. p. 1.