Clinical Profile and Fetomaternal Outcomes of Placenta Previa in Scarred Uterus in a Tertiary Hospital in Chattogram, Bangladesh

Shahnaj Jahan Chawdhury[1*] Nahid Sultana[2] Fahmida Shirin[3] Munawar Sultana[1]

Abstract

Background: Placenta Previa (PP) is a significant cause of management challenges for obstetricians, with a greater challenge and risk when a PP occurs in a pregnancy with a previous uterine scar. Evidence of the complications associated with the occurrence of these two risk factors together is scarce in Bangladesh. This study aimed to describe PP's clinical profile and fetomaternal outcome coexisting with a previous uterine scar in a public teaching tertiary-level hospital in Chattogram, Bangladesh.

Materials and methods: A prospective observational study was conducted from January 2024 to June 2024 in Chittagong Medical College Hospital. Consecutively admitted 38 singleton pregnancies with PP with a history of Cesarean Section (CS) or myomectomy were included. Information was collected using a structured case record form and analyzed using MS Excel.

Results: The mean age of the patients was 29.5±5.4 (Range: 18 to 42) years. The mean value of the parity and gestational age was 3.42±1.41 and 35.08±2.59 weeks, respectively. Thirty-seven (97.4%) had cesarean scar, and the mean number of CS was 1.95± 0.89. Placenta accreta spectrum was present in 25 (65.8%) patients, and in 23 (60.5%) patients, PP was covering the uterine scar. Twenty-eight (73.7%) patients developed haemorrhage, 15.8% developed shock, 44.7% required ≥3 unit blood transfusion, 15.8% had bladder injury, 39.5% required a peripartum hysterectomy and the maternal mortality rate was 7.9%. According to the fetal outcome, NICU admission was 47.7%, perinatal death was 18.4%, and a low Apgar score at 5 minutes was observed in 71.1% of neonates.

Conclusion: PP in the scared uterus is associated with diverse maternal and neonatal complications. Therefore, careful monitoring, planning, and resource allocation for delivery are crucial in such cases to manage potential risks effectively.

Key words: Placenta previa; Pregnancy outcomes; Uterine scar.

1. Assistant Professor of Obstetrics & Gynecology
Chittagong Medical College, Chattogram.
2. Senior Consultant of Obstetrics & Gynecology
Chittagong Medical College Hospital, Chattogram.
3. Associate Professor of Obstetrics & Gynecology
Chittagong Medical College, Chattogram.

***Correspondence: Dr. Shahnaj Jahan Chawdhury**
Cell : 01711 30 82 60
E-mail: shahnajjahanchy @gmail.com

Submitted on : 10.02.2025
Accepted on : 26.04.2025

Introduction

PP is a severe complication of late pregnancy, where the placenta is abnormally placed in the 'lower uterine segment' that covers the cervix. PP affects 0.3% to 2% of pregnancies in the third trimester and has become more evident secondary to the increasing rates of CS.[1] Given the background knowledge that a history of previous CS on its own is a 6-8 risk for an index pregnancy, the double burden of having a PP and a uterine scar from previous CS occurring in the same woman carries a greater risk which is associated with several complications.[2]

The CS rate is alarming and increasing at an abnormal rate in Bangladesh. Compared to 2017, the incidence of CS in 2022 increased from 34% to 45%.[3] According to the World Health Organization (WHO), the rate of CS delivery should be 10–15% on a population level.[4] In the absence of effective global interventions to revert the trend, countries like Bangladesh will face a complex scenario with morbidity and mortality associated with the unmet need, the unsafe provision of CS, and the concomitant overuse of the surgical procedure, which drains resources and adds avoidable morbidity and mortality.[5] The CS and placenta-related pathological pregnancy have brought Bangladesh a severe challenge.[6] So, studying profile and outcomes of PP associated with uterine scar and then adopting effective prevention and treatment are the keys to improving the maternal and perinatal status of PP patients currently.[7]

In this study, we determined the sociodemographic and clinical profile of PP coexisting with previous uterine scars. We also assessed the maternal and fetal morbidity profiles associated with PP occurring in pregnancies with previous uterine scars in a government tertiary-level hospital located in southern Bangladesh. Such information in a country like Bangladesh would help obstetricians devise better management paradigms for these two severe problems.

Materials and methods

A prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Chittagong Medical College Hospital (CMCH) Chattogram, Bangladesh from January 2024 to June 2024.After getting ethical approval form ethical reviewed committee of Chitatgong Medical College (Memo No. 59.22.0000.013.19.PG.2024. 009/303) dated January 21, 2024, consecutive patients with PP after 28 weeks of gestation and who had previous CS or myomectomy and had delivery in the hospital were included. The diagnosis of placenta previa for this study was based on sonographic diagnosis during the third trimester at 28 weeks gestation or more. Furthermore the diagnosis was confirmed by direct inspection of placental location at the time of CS. Patients with second trimester bleeding due to other than PP, multiple pregnancies, or fetal malformation were excluded.

The patients were selected from antenatal clinic and labor ward of CMCH by careful history taking, clinical examination and necessary investigations. A structured data sheet was used to obtain sociodemographic and obstetric history. Transabdominal sonography was done for obstetrical reasons as well as for exact location of placenta. Patients were followed up till their in hospital postnatal period for assessing maternal and fetal outcomes.

Only descriptive statics were used in this study and data were analyzed using MS Excel. Categorical data were reported as numbers and percentages (%) and quantitative data were expressed as the means ± Standard Deviations (SD) or the median with upper quartileand lower quartile.

Results

A total of 38 patients were included during the study period and the mean age of them was 29.5±5.4 years (Ranged 18-45). About 45% had no formal education, and most of them lived in urban (34.2%) or semi-urban (44.7%) areas. The majority of the patients had a history of CS (97.4%) and the mean number of CS was 1.95±0.89. Different baseline demographic and obstetric characteristics are shown in Table I.

Table I Baseline characteristic of the patients

Characteristics	Frequency	Per cent
Age, years, mean±SD (Range)	29.5±5.4 (18.0-45.0)	
Education		
No formal education	17	44.7
Formal education	21	55.3
Residence		
Rural	8	21.1
Urban	13	34.2
Semi-urban	17	44.7
Antenatal check up		
Irregular	5	13.2
Regular	33	86.8
Comorbidity		
Absent	24	63.2
Present	14	36.8
Body mass index, kg/m^2	24.4±3.1	
Parity	3.42±1.41	
Interval from last child birth, years	3.82±1.97	
Gestational age, weeks	35.08±2.59	
Type of previous uterine surgery		
Cesarean section	37	97.4
Myomectomy	1	2.6
No. of cesarean section	1.95±0.89	
Time of diagnosis		
During antenatal period	36	94.7
During delivery	2	5.3

Most of the PP was located in the anterior uterine wall (78.9%) and 13 (34.2%) patients had a placenta accreta spectrum. PP with coverage of a uterine scar and without coverage of a uterine scar were 60.5% and 39.6%, respectively (Table II).

Table II Characteristics of PP

Characteristics	Frequency	Percent (%)
Position of PP		
Anterior	30	78.9
Posterior	6	15.8
Lateral/Central	2	5.3
Placenta accreta spectrum		
Absent	13	34.2
Present	25	65.8
PP covering uterine scar		
Yes	23	60.5
No	15	39.6

All of the patients were delivered by cesarean delivery, 28 (73.7%) patients developed bleeding and 15.8% developed shock. The entire cohort required blood transfusion and 44.7% had three or more units. Six patients (15.8%) had bladder

injury, 39.5% required a peripartum hysterectomy, and the maternal mortality rate was 7.9%. The median duration of hospital stay was nine days and half (50%) of the patients had ten days or more LOS (Table III).

Table III Maternal morbidities associated with PP coexisting with a previous scar

Characteristics	Frequency	Percent (%)
Hemorrhage	28	73.7
Shock	6	15.8
Need peripartum hysterectomy		
No	22	57.9
Peripartum hysterectomy	16	42.1
Ligation of uterine artery	27	71.1
Use of uterine compression suture	17	44.7
No. of blood transfusion		
One unit	11	28.9
Two unit	10	26.3
Three or more unit	17	44.7
Bladder injury	6	15.8
Wound infection	9	23.7
Length of stay, days, Median (IQR)	9.0 (7.0-10.0)	
Maternal mortality	3	7.9

Table IV depicts the fetal and neonatal outcomes. Malpresentation was observed in 28.9% of fetuses, and more than half (55.3%) had pre-term birth. The perinatal mortality rate was 18.4%, and 47.4% required NICU admission. Low APGAR scores at 1 and 5 minutes were 60.5% and 71.1%, respectively (Table IV).

Table IV Fetal and neonatal outcome associated with PP coexisting with a previous scar

Variables	Frequency	Percent (%)
Malpresentation	11	28.9
Preterm birth (<37 weeks)	21	55.3
Birth weight, <2.5 kg	18	47.4
APGAR<7 at 1 minute	23	60.5
APGAR<7 at 5 minute	27	71.1
NICU admission	18	47.4
Perinatal death	7	18.4

Discussion

The mean age of the patients was 29.5±5.4 years in the present study which agreed with the study of Rao et al. Where the mean age was 31.71±.25.[8] PP is more common among increasing age group and previous study observed that 51% of the scarred cases with PP were in age group 31-35 years.[9] About 45% had no formal education and most of them lived in urban (34.2%) or semi-urban (44.7%) areas. However, 86.8% of the pregnant women had regular ANC. As the study was conducted in a urban public Terliary-Level hospital, findings were expected and agreed with other studies conducted in similar hospital setting.[10-12]

Most of the PP was located in the anterior uterine wall (78.9%) and 34.2% patients had a placenta accreta spectrum. This is because the anterior wall of the uterus is larger and has more surface area for the placenta to attach to compared to the posterior wall. PP with coverage of a uterine scar and without coverage of a uterine scar were 60.5% and 39.6%, respectively, which agreed with a large study in China, where out of 726 women, 20.9% had PPCS and 79.1% had Non-PPCS.[8]

In the present study, all of the patients were delivered by cesarean delivery, 28 (73.7%) patients developed bleeding and 15.8% developed shock. The entire cohort required blood transfusion, and 44.7% had three or more units. Out of 38 patients, 15.8% had bladder injury, 39.5% required a peripartum hysterectomy, the maternal mortality rate was 7.9% and 50% of the patients had length of stay in hospital ten days or more. In another study from Pakistan, where half of the patient had scared uterus, hysterectomy was done in 19.2% cases, 8.3% had hypovolemic shock, 8.3% had prolonged hospital stay, 5.8% were admitted in ICU and 1.1% patients died. However, very low hysterectomy rates (1.2-2.8%) were reported from China and Israel.[8,12]

Malpresentation was observed in 28.9% of fetuses and more than half (55.3%) had pre-term birth. The perinatal mortality rate was 18.4%, and 47.4% required NICU admission. Low APGAR scores at 1 and 5 minutes were 60.5% and 71.1%, respectively. Previously, in patients with PP with or without scared uterus, 20.83% of the babies were admitted in the NICU, most of them were due to prematurityand perinatal mortality observed in 6.25% cases.[13]

Limitations

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. Despite these limitations, this study was able to add to the existing body of knowledge on PP in Bangladesh.

Conclusions

As the rate of CS increases with Bangladesh's universal two children policy, the rate of PP, especially PP with scared uterus, will most likely increase as well. PP in scared uterus leads to increased maternal morbidity due to haemorrhage, operative procedures, multiple blood transfusions. Neonatal morbidity depends on gestational age at the time of delivery.

Recommendations

Based on the study findings, obstetricians should proactively reduce the CS at their facility level to mitigate the risk of subsequent pregnancies, including developing a PP. Secondly, obstetricians should have sufficient resources on the ground when preparing for a CS in a woman with PP coexisting with a previous uterine scar.

Acknowledgement

Gratitude to all respondents, who assisted in this study.

Contribution of authors

SJC-Acquisition of data, data analysis, drafting and final approval.
NS-Conception, interpretation of data, critical revision and final approval.
FS-Design, interpretation of data, critical revision and final approval.
MS-Acquisition of data, data analysis, drafting and final approval.

Disclosure

All the authors declared no competing interest.

References

1. Anderson-Bagga FM, Sze A. Placenta Previa. [Updated 2023 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. 2023. https://www.ncbi.nlm.nih.gov/books/NBK539818/.

2. Keag OE, Norman JE, Stock SJ. Long-term risks and benefits associated with cesarean delivery for mother, baby and subsequent pregnancies: Systematic review and meta-analysis. PLoS medicine. 2018 Jan 23;15(1):e1002494.

3. Bangladesh Demographic and Health Survey- 2022. National Institute of Population Research and Training, Medical Education and Family Welfare Division, Ministry of Health and Family Welfare, Dhaka, Bangladesh, The DHS Program, ICF, Rockville, Maryland, USA. 2022.

4. Althabe F, Belizán JM. Caesarean section: The paradox. The Lancet. 2006;368(9546):1472-1473.

5. Betran AP, Ye J, Moller AB, Souza JP, Zhang J. Trends and projections of caesarean section rates: Global and regional estimates. BMJ Global Health. 2021;6(6):e005671.

6. Ahmmed F, Manik MM, Hossain MJ. Caesarian section (CS) delivery in Bangladesh: A nationally representative cross-sectional study. PloS one. 2021;16(7):e0254777.

7. Sinha P, Mishra M. Caesarean scar pregnancy: A precursor of placenta percreta/accreta. Journal of Obstetrics and Gynaecology. 2012;32(7):621-623.

8. Rao J, Fan D, Zhou Z, Luo X, Ma H, Wan Y, Shen X, Lin D, Zhang H, Liu Y, Liu Z. Maternal and neonatal outcomes of placenta Previa with and without coverage of a uterine scar: A retrospective cohort study in a tertiary hospital. International Journal of Women's Health. 2021:671-681.

9. Tahseen H, Tahira T, Hafiz SI, Noreen Z. Placenta previa: A comparative study of obstetrics outcome in previously scarred and unscarred uterus at services hospital, Lahore. Pakistan J Med Health Sci. 2018;12(3):889-891.

10. Sultana M. Neonatal and Maternal Complications of Placenta Previa: A Single Center Study in Bangladesh. Sch Int J Obstet Gynec. 2021;4(11):413-417.

11. Anuradha K, Majumder SP, Sheuly B, Fahmida S. Maternal and Perinatal Outcome in Placenta Previa: One Year Study in Enam Medical College Hospital. Sch J App Med Sci. 2022;4:623-629.

12. Walfisch A, Sheiner E. Placenta previa and immediate outcome of the term offspring. Arch Gynecol Obstet. 2016;294(4):739–744.

13. Sharmin T, Hasan MR, Mirza TT, Shamsi S, Panna LK. Evaluation of the Patients with Placenta Praevia in Mymensingh Medical College Hospital, Bangladesh. Community Based Medical Journal. 2024;13(2):135-140.