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Original Article

Maternal Complications and Outcomes in Women with Major Placenta Previa

Shukla Dey[1*], Mithun Kumar Bakshi[2], Lipy Bakshi[3], Sharmin Akhter[4], Rownak Jahan[5], Ruma Afroz[6], Ahsanul Habib[7], Sirajul Kader[8]

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*Corresponding author

ABSTRACT

Introduction: Placenta previa is a condition in which the placenta implants in the lower uterine segment and partially or completely covers the internal cervical os. Major placenta previa, in which the placenta covers the cervical os, is a significant obstetric complication that may result in severe antepartum haemorrhage, haemorrhagic shock, operative complications, postpartum haemorrhage, and maternal death. This study aimed to assess the maternal complications and outcomes among women with major placenta praevia. **Methods & Materials:** This cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital (MMCH), Mymensingh, Bangladesh, over six months from May 2013 to October 2013. A total of 50 patients with major degree placenta praevia were enrolled using a purposive sampling technique. Data were analysed using SPSS 20.0. **Results:** Among 50 patients with major placenta praevia, 46.0% were aged 27–31 years and 60.0% had parity 2–4; 66.0% belonged to the lower socioeconomic class, while 50.0% had irregular and 30.0% had no antenatal care. Most patients (82.0%) had no intraoperative complications, with placenta accreta being the most frequent complication (8.0%). Postoperatively, anaemia (30.0%) and PPH (22.0%) were the leading complications. Maternal mortality was 4.0% (2/50), with both deaths resulting from severe haemorrhage. **Conclusion:** The study demonstrated that major placenta praevia was responsible for substantial maternal morbidity, with haemorrhage representing the principal clinical challenge. Haemorrhagic presentation occurred in 64.0% of the patients, and 14.0% developed haemorrhagic shock. Among intraoperative complications, placenta accreta was the most frequent, occurring in 8.0% of cases. Postoperatively, anaemia (30.0%) and postpartum haemorrhage (22.0%) were the predominant complications. Maternal death occurred in 4.0% of the patients, with severe haemorrhage being the underlying cause in both fatal cases.

Keywords: *Placenta Previa, Haemorrhagic Shock, Maternal mortality*

1. *Assistant Professor, Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh (ORCID: 0009-0001-4832-5053)*
2. *Assistant Professor, Department of Surgery, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*
3. *Associate Professor, Department of Obstetrics and Gynaecology, Dhaka National Medical Institute Hospital, Dhaka, Bangladesh*
4. *Assistant Professor, Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*
5. *Assistant Professor, Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*
6. *Assistant Professor, Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*
7. *Junior Consultant, Department of Surgery, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*
8. *Assistant Professor, Department of Surgery, Mymensingh Medical College Hospital, Mymensingh, Bangladesh*

INTRODUCTION

Placenta previa is an important obstetric complication in which the placenta implants in the lower uterine segment and, in major placenta previa, lies over the internal cervical os. It is clinically important because placental separation from the lower uterine segment at the time of cervical effacement, labour, or cesarean delivery can produce severe maternal haemorrhage. Increasing cesarean delivery rates, advanced maternal age and assisted reproductive technology have contributed to the growing clinical burden of abnormal placentation. Current guidelines emphasise that placenta previa and placenta accreta spectrum (PAS) are associated with substantial maternal morbidity and mortality, particularly when diagnosis is delayed until delivery [1,2]. Haemorrhage is the principal maternal complication of placenta previa and may occur before delivery, during cesarean section, or postpartum. A systematic review and meta-analysis of 29 studies involving 4,687 women found that the pooled prevalence of antepartum haemorrhage among women with placenta previa was 51.6% (95% CI 42.7–60.6%) [3]. Importantly, placenta previa itself is associated with significant haemorrhagic morbidity even in the absence of placenta accreta. In a large cohort analysis of 496 women with placenta previa without accreta compared with 24,201 women without previa, composite maternal haemorrhagic morbidity occurred in 19% versus 7%, respectively (adjusted relative risk 2.6, 95% CI 1.9–3.5). Women with previa also had higher risks of uterotonic treatment for atony, red-cell transfusion and hysterectomy [4]. The anatomical location of the placenta may further influence surgical risk; a study of 285 women undergoing cesarean delivery for placenta previa specifically evaluated differences in transfusion and hysterectomy according to anterior versus posterior placentation [5]. A major concern in women with placenta previa is coexistence with PAS, particularly in those with previous cesarean delivery. PAS includes placenta accreta, increta and percreta and may cause catastrophic haemorrhage when attempts are made to detach an abnormally adherent placenta. The American College of Obstetricians and Gynaecologists reports that the risk of PAS among women with placenta previa increases markedly with the number of previous cesarean deliveries, reaching approximately 67% in women with five or more previous caesareans [6]. A 2017 study of women with placenta previa found that ultrasound-based identification of suspected morbidly adherent placenta was associated with major blood loss and hysterectomy; among women with high suspicion for abnormal placental adherence, all nine ultimately underwent hysterectomy after pathological confirmation [7]. The RCOG guideline therefore recommends specialist multidisciplinary management and immediate access to blood products and critical care for women with placenta previa at high risk of massive haemorrhage [2]. Recent evidence further demonstrates that placenta previa has consequences beyond the immediate delivery episode. A 2022 systematic review and meta-analysis confirmed important differences in clinical

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characteristics and maternal outcomes according to whether PAS coexists with placenta previa [8]. Moreover, even women whose placenta previa resolves antenatally may retain increased haemorrhagic risk: in a matched cohort of 450 women, postpartum haemorrhage occurred in 9.8% of women with resolved low placentation compared with 4.4% of controls, with resolved previa associated with an adjusted odds ratio of 2.58 for postpartum haemorrhage [9]. This study aimed to assess the maternal complications and outcomes among women with major placenta praevia.

METHODS & MATERIALS

This cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, Mymensingh Medical College Hospital (MMCH), Mymensingh, Bangladesh, over six months from May 2013 to October 2013. A total of 50 patients with major-degree placenta praevia were enrolled using a purposive sampling technique. Patients with major-degree placenta praevia diagnosed by ultrasonography, confirmed during caesarean section, or identified by double-setup examination after 28 weeks of gestation were included. Patients with multiple gestations, mild-degree placenta praevia, placenta succenturiata, placental abruption, or incomplete clinical records were excluded. Relevant data were collected through a pre-designed, structured questionnaire following clinical assessment, review of antenatal and hospital records, and appropriate obstetric and operative evaluation. Information regarding demographic characteristics, parity, socioeconomic status, antenatal care attendance, clinical presentation, haemorrhagic manifestations, intraoperative findings, operative procedures, intraoperative complications, postoperative complications, blood transfusion requirements, and maternal outcomes, including mortality, was recorded. Major placenta praevia was assessed according to the clinical and ultrasonographic findings available at the time of admission and delivery. All patients were managed according to the clinical condition and standard obstetric practice of the hospital, including appropriate resuscitation, blood and blood-product support, and operative intervention when indicated. Written informed consent was obtained from the study participants, and confidentiality of the collected information was maintained throughout the study. The collected data were checked for completeness, coded, tabulated, and entered into a computer using SPSS 20.0 for Windows for statistical analysis. Descriptive statistics were used to present the findings as frequencies, percentages, means, and standard deviations where appropriate. The results were presented in tables and figures.

RESULTS

Among the 50 patients, the majority (46.0%) were aged 27–31 years, followed by 28.0% aged 22–26 years. Most patients (60.0%) had a parity of 2–4, while 28.0% had parity >5. Regarding socioeconomic class, 66.0% belonged to the lower class, 20.0% to the middle class, and 14.0% to the upper class. Antenatal care attendance was irregular in 50.0% of patients, while 30.0% had no antenatal care and only 20.0% attended regularly (*Table I*).

Table I
Sociodemographic and obstetric characteristics of the study patients (*n*=50).

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	22–26	14	28.0
	27–31	23	46.0
	32–36	11	22.0
	37–41	2	4.0
Parity	1	6	12.0
	2–4	30	60.0
	>5	14	28.0
Socioeconomic class	Lower	33	66.0
	Middle	10	20.0
	Upper	7	14.0
Antenatal care attendance	Regular	10	20.0
	Irregular	25	50.0
	None	15	30.0

Among the 50 patients, 36.0% presented without haemorrhage, while 64.0% had haemorrhage. Haemorrhage with labour pain was the most common presentation (30.0%), followed by haemorrhage without shock (20.0%) and haemorrhage with shock (14.0%) (*Table II*).

Table II
Clinical Presentation of the Study Patients (*n*=50).

Clinical Presentation	No. of Patients (n)	Percentage (%)
Haemorrhage with shock	7	14.0
Haemorrhage without shock	10	20.0
Haemorrhage with labour pain	15	30.0
No haemorrhage	18	36.0
Total	50	100.0

Most patients (82.0%) had no intraoperative complications. Among the reported complications, placenta accreta was the most common (8.0%), followed by caesarean hysterectomy (4.0%), while placenta percreta, bladder injury, and retained placenta each occurred in 2.0% of patients (*Table III*).

Table III
Intraoperative Complications of the Study Patients (*n*=50).

Intraoperative Complications	Frequency (n)	Percentage (%)
Placenta accreta	4	8.0
Placenta percreta	1	2.0
Bladder injury	1	2.0
Caesarean hysterectomy	2	4.0
Retained placenta	1	2.0
No complication	41	82.0
Total	50	100.0

Anaemia was the most common postoperative complication, occurring in 30.0% of patients, followed by PPH in 22.0%. Wound infection occurred in 4.0% of patients, while re-exploratory laparotomy and emergency peripartum hysterectomy were required in 2.0% each. No postoperative complication was reported in 20.0% of patients (*Table IV*).

Table IV
Postoperative Complications of the Study Patients (*n*=50).

Postoperative Complications	Frequency (n)	Percentage (%)
Anaemia	15	30.0
PPH	11	22.0
Wound infection	2	4.0
Re-exploratory laparotomy	1	2.0
Emergency peripartum hysterectomy	1	2.0
No complication	10	20.0
Total	50	100.0

The table shows that the maternal mortality rate was 4.0% (2 out of 50 patients). Both maternal deaths were attributed to complications related to severe haemorrhage (*Table V*).

Table V
Maternal Mortality among the Study Patients (*n*=50).

Total Number of Patients	Number of Deaths	Mortality (%)
50	2	4.0

DISCUSSION

In the present study of 50 women with major placenta praevia, the largest age group was 27–31 years (46.0%), followed by 22–26 years (28.0%). Ahmed et al. studied 52 women with major placenta previa and reported a mean age of 30.9±3.7 years, with ages ranging from 22–37 years [10]. Regarding parity, 60.0% of our patients had parity 2–4, and 28.0% had parity >5. Ahmed et al. reported a mean parity of 2.58±1.11, while Alsammani and Nasralla reported a mean parity of 2.08±0.47 among women with major placenta previa [11]. Antenatal attendance was relatively limited in our cohort, with only 20.0% attending regularly, 50.0% irregularly and 30.0% receiving no antenatal care. Wasim et al. reported that 86.1% of women with placenta previa were booked, suggesting substantially better antenatal engagement than in the present study [12]. Clinical presentation showed that 64.0% of our patients had haemorrhage, including 30.0% with haemorrhage and labour pain, 20.0% with haemorrhage without shock and 14.0% with haemorrhage-associated shock; 36.0% had no haemorrhage. Fan et al., in a systematic review of 29 studies, found a pooled antepartum haemorrhage prevalence of 51.6% among women with placenta previa [3]. Alsammani and Nasralla specifically reported antepartum haemorrhage in 33.3% of women with major placenta previa, while 71.3% experienced intraoperative bleeding [11]. The 64.0% overall haemorrhagic presentation in the present study was higher than the Sudanese report but remained within the broad range documented in the literature, while the occurrence of shock in 14.0% highlights the severity of blood loss in a subset of patients. Intraoperative complications in our study included placenta accreta in 8.0%, placenta percreta in 2.0%, bladder injury in 2.0%, caesarean hysterectomy in 4.0% and retained placenta in 2.0%, while 82.0% had no recorded complication. Ahmed et al. reported placenta accreta in 26.9%, bladder injury in 13.2%, bowel injury in 3.8% and obstetric hysterectomy in 15.1% of 52 women with major placenta previa [10]. In the Sudanese major placenta previa series, bladder injury occurred in 28.7%, bowel injury in 4.6%, and hysterectomy in 23.0% [11]. Shaamash et al. also found that previous caesarean section among major placenta previa patients was associated with increased odds of hysterectomy (OR 20.46), urinary tract injury (OR 12.36), PAS (OR 4.38) and moderate/heavy intraoperative bleeding (OR 2.15) [13]. The lower complication frequencies in the present study may reflect the smaller sample and differences in case selection and severity. Postoperatively, anaemia was the commonest complication in our study (30.0%), followed by PPH (22.0%), wound infection (4.0%), re-exploratory laparotomy (2.0%) and emergency peripartum hysterectomy (2.0%); 20.0% had no postoperative complication. Fan et al. reported a pooled PPH incidence of 22.3%, increasing to 27.4% specifically in placenta previa [3]. Our PPH rate of 22.0% therefore fell close to the overall pooled estimate. Alsammani and Nasralla documented anaemia in 25.3%, re-laparotomy in 4.6% and wound infection in 10.4% of major placenta previa patients [11]. Wasim et al. reported PPH >2000 mL and other major complications, particularly among women with morbidly adherent placenta, with markedly greater transfusion and operative morbidity [12]. Gibbins et al. further found haemorrhagic morbidity in 18.6% of 496 women with placenta previa without accreta, including red-cell transfusion in 12.9% and hysterectomy in 2.0% [4]. Maternal mortality was 4.0% in the present study, with two deaths attributed to severe

haemorrhage. Alsammani and Nasralla reported six maternal deaths among 87 women with major placenta previa, giving a mortality of 6.9% [11]. In contrast, Gibbins et al. reported one maternal death among 496 women with placenta previa (approximately 0.2%) [4].

LIMITATIONS

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The study concluded that major placenta praevia produced a considerable burden of maternal complications and adverse outcomes, with haemorrhage being the predominant clinical problem. Nearly two-thirds of the patients (64.0%) presented with haemorrhage, including 14.0% with haemorrhagic shock. Placenta accreta was the leading intraoperative complication (8.0%), while postoperative anaemia (30.0%) and postpartum haemorrhage (22.0%) were the most frequent postoperative complications. Maternal mortality occurred in 4.0% of cases, and both deaths resulted from severe haemorrhage.

RECOMMENDATION

Early diagnosis and close antenatal surveillance should be strengthened for women with major placenta praevia, with timely referral to adequately equipped tertiary-care facilities. Hospitals should ensure availability of blood and blood products, experienced obstetric and anaesthesia teams, and rapid surgical intervention to manage massive haemorrhage. Particular attention should be given to prevention and early treatment of anaemia and postpartum haemorrhage. Further larger, multicentre studies are recommended to identify modifiable risk factors and evaluate strategies for reducing maternal morbidity and mortality.

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CONFLICT OF INTEREST

None declared

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