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Original Research Article

Risk factors and complications in pregnancies associated with placenta previa among admitted cases in FMCH

Abanti Ghosh^{1*}, Suchita Rani Ghosh², Mita Das³

¹Directorate General of Health Services, Dhaka, Bangladesh

²Department of Obstetrics and Gynecology, Dhaka Medical College Hospital, Tangail, Bangladesh

³Department of Obstetrics and Gynecology, Sheikh Hasina Medical College, Tangail, Bangladesh

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***Correspondence:**

Dr. Abanti Ghosh,

E-mail: drabanti6@gmail.com

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ABSTRACT

Background: Placenta previa is a leading cause of antepartum haemorrhage. Placenta previa present a significant clinical problem and patients are at risk for significant haemorrhage, needing blood transfusion. The risks are increased in women with previous placenta previa, endometrial damage caused by DE and C, caesarean delivery, myomectomy, multiparity, alcohol cocaine use during pregnancy, smoking during pregnancy.

Methods: Admitted patients were selected with convenience sampling type of non-probability sampling type of non-probability sampling technique. The primary end point was to determine the risk factors of placenta previa and its complications. The secondary end point was to determine maternal morbidity and mortality of placenta previa.

Results: Incidence of placenta previa was 2.03% out of 2459 patients, 70% were associated with risk factors. Among them 42% had history of caesarean section, 14% had history of abortion, 10% had history of manual removal, 48% patients were more than 25% years old, 36% were more than 30 years. Placenta previa occurred in gravida 3rd or more. Forty two percent patients belonged to lower socioeconomic group. Only 12% patients had regular antenatal checkup. Malpresentations were present in 24% cases. In this study 50% patients were associated with central placenta previa. Eighty percent patients were in shock, only 2% patients were asymptomatic. Regarding management 76.34% patients were managed actively, 12% patients had expectant management. Only 2% patients delivered vaginally, 82% patients delivered by caesarean section. Maternal mortality rate was 02%. Regarding fetal outcome, 76% babies were alive and there were 20% perinatal deaths.

Conclusions: Although etiology of placenta previa largely remain obscure and speculative. There is a strong association between advanced maternal age, multiparity, history of caesarean section and abortion with subsequent development of placenta previa. Women aged >30 years, grand multipara, previa and must be monitored carefully. Hence the study advocates proper antenatal care early referral to hospital and prompt management of patients after proper selection can reduce maternal morbidity and mortality.

Keywords: Complications, Placenta previa, Pregnancies, Risk factor

INTRODUCTION

When the placenta is implanted partially or completely over the lower uterine segment (over and adjacent to the internal OS) It is called placenta previa.¹ It is a leading cause of antepartum haemorrhage.² It affects approximately 0.4-0.5% of all labours.³ Placenta previa

presents a significant clinical problem because patients are at risk for significant haemorrhage, needing blood transfusion. Cesarean hysterectomy may be required in case of intractable PPH with an incidence of 5.3%, with a three to four fold increase in perinatal mortality compared with normal pregnancy.⁴ The following have been identified as risk factors for placenta previa- endometrial damage caused by DE and C, caesarean delivery,

myomectomy, women have had multiple pregnancies, especially a large number of closely spaced pregnancies are at higher risk due to uterine damage alcohol and cocaine use during pregnancy smoking during pregnancy etc.⁵⁻⁷ Women who are younger than 20 are at higher risk and women older than 35 are at increasing risk as they get older. Women with a large placenta from twins; placental pathology (villamentous insertion, succinuriate lobes, bipartite) are of higher risk.⁸ Among grand multiparas the incidence may be as high as 1 in 20. Prematurity accounts for 60% of perinatal death.⁹ A single caesarean delivery increases the risk by 0.65%, two increase the risk by 1.5%, three increase the risk by 2.2% and four or more increase the risk by 10%. A study on department of family medicine, UMDNJ, New Brunswick, USA showed that the prevalence of placenta previa was 4.5 per 1000 births.¹⁰ In a study of risk factors of placenta previa in Asian population-there were 457 cases of placenta previa (1.2%) among the 37,702-pregnancy analysed.¹¹ Maternal mortality associate with placenta previa is as high as 4.2%. A study on department of obstetrics and gynecology. Bingham University Teaching Hospital showed association of placenta previa with previous caesarean section (40.7%), grandmultipara (28.3%), previous evacuation (20.4%), multiple pregnancy (6.2%) and previous placenta previa (4.28%).¹²

Maternal complications of placenta previa are antepartum haemorrhage, postpartum haemorrhage, air embolism ascending infection of the raw placental bed and placenta accreta. Fetal complications are increased perinatal mortality, fetal growth restriction, major congenital malformation. unexpected fetal death. fetal malpresentation and fetal anaemia.¹³ A study in Ghulam Muhammad Maher Medical College Hospital Sukkur showed 7% cases of placenta previa ended up in caesarean hysterectomy due to postpartum haemorrhage and morbid adherent placenta. Intra operative haemorrhage was found in 11 (14.7%) cases and 2-4 units of blood transfusion were required in 52 (69%) cases. Pre-maturity was found commonest cause of perinatal mortality which was about 87%.¹⁴ In a study in department of obstetrics and gynecology, American University of Beirut Medical Center, Beirut. Lebanon showed that placenta was removed piecemeal in 5 (22.7%), suturing of placental bed was required in 4 (18.2%), hypogastric artery ligation in 1 (4.5%), and hysterectomy in 2 (9.1%). The study had no cases of bladder or bowel invasion and no maternal mortalities. The neonatal outcome was similar in all respects, including respiratory distress (9.1% and 11.1%), need for mechanical ventilation (4.5% and 13.2%), intraventricular haemorrhage (0% and 3.7%), necrotizing enterocolitis (0% and 1.5%), suspected sepsis (13.6% and 14.2%), confirmed sepsis (0% and 2.2%), patent ductus (4.5% and 1.5%), periventricular leukomalacia (0% and 6%), and retinopathy of prematurity (4.5% and 3%) in cases and controls, respectively.¹⁵ Severe bleeding in placenta previa is associated with high maternal morbidity and mortality. The determinants of severe bleeding in placenta previa can be used in the antenatal period to

identify mothers at risk. These, with prompt interventions to deliver the women and appropriate management in a timely manner can prevent serious consequences that lead to maternal morbidity and mortality.

Objectives

General Objective

To find out the frequency of known risk factors and complications related with placenta previa.

Specific objectives

To find out the demographic characteristics of patients having placenta previa. To find out the association of known risk factors with development of placenta previa. To find out the complications related with placenta previa.

METHODS

This was an observational study. The study used to be carried out in the admitted patient's department of obstetrics and gynecology, Faridpur Medical College and Hospital, Faridpur, Bangladesh. The duration of the study was from June 2013 to December 2013. This study was carried out on 120 patients the find out about the population including female patients <20 years to >35 years of age in the department of obstetrics and gynecology, Faridpur Medical College and Hospital, Faridpur, Bangladesh. The medical gynecologist and the physician were primarily involved in the decision-making process. The choice of treatment was made by the patient after a full discussion with the multidisciplinary team consisting of physician.

The data for this study about had been accumulated from patients' medical information and radiographs. Statistical evaluation of the results used to be got via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

RESULTS

During this study period, 2990 patients were admitted in obstetric ward of FMCH. Among these patients, 50 patients were placenta previa and percentage was 2.03%.

Table 1: Incidence of placenta praevia cases.

Total no of patients	n=50	%
2459	50	2.03

Maternal age in this study ranged from 18-45 years. The commonest age group was 25-29 years, which included 48.0%, 36.0% belonged to 30-34 years age.

Regarding socioeconomic status of the study patients, 21 (42%) patients came from low-income family and 29 (58.0%) from lower-middle income family.

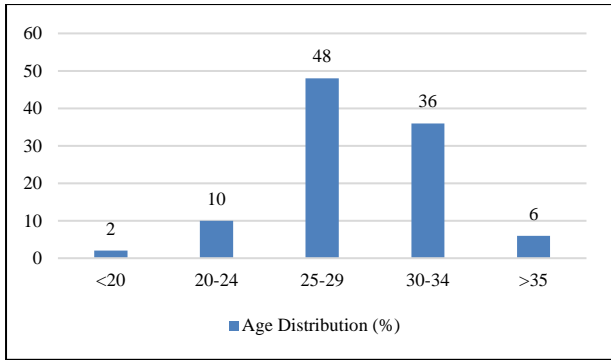


Figure 1: Age distribution of the study patients.

Table 2: Socioeconomic status of the patients.

Socioeconomic status	n=50	%
Low income	21	42.0
Lower middle	29	58.0

Table 3: Distribution of the study patients according to no of parity.

Number of parities	n=50	%
Primigravida	06	12.0
2 nd gravida	17	34.0
3 rd gravida	14	28.0
4 th gravida	11	22.0
5 th gravida	02	04.0

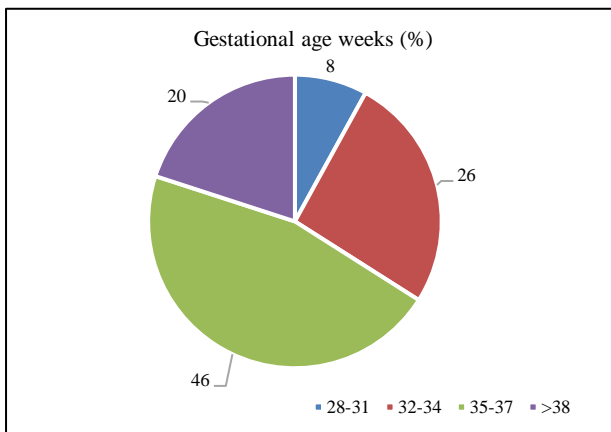


Figure 2: Gestational age at admission.

Table 4: Distribution of the study patients according to predisposing factors.

Gestational age in weeks	n=50	%
Previous caesarean section	21	42
Previous abortion, MR, DE and C	07	14.0
Manual removal	05	10.0
Multiple pregnancy	1	02.0
Cigarette smoking	1	02.00
No risk factors	15	30.0

Table 5: Distribution of the study patients according to antenatal care.

Antenatal care	n=50	%
Regular	06	12.0
Irregular	28	56.0
None	16	32.0

Table 6: Clinical presentation of patients during admission.

Clinical presentations	n=50	%
Per vaginal bleeding with shock	09	18.0
Per vaginal bleeding without shock	40	80.0
No pervaginal bleeding	01	02.0

Table 7: Distribution of study patients according to fetal presentations.

Clinical presentations	n=50	%
Per vaginal bleeding with shock	09	18.0
Per vaginal bleeding without shock	40	80.0
No pervaginal bleeding	01	02.0

DISCUSSION

Bleeding from placenta previa is a life-threatening obstetric complication. This descriptive study was done with an objective to find out the frequency of known risk factors and complications related with placenta previa. In this study, the incidence of placenta previa is 2.03%. In a study by Tuzovic et al the incidence was 0.4%.¹⁶ Ananth et al showed that the incidence of placenta previa. The present study shows that the peak age incidence was 25-29 years (48%). Ananth et al observed 25-29 years of age group was predominant in their study, which is consistent with the present study.¹⁷ Sheiner et al showed that the peak age incidence was 25-34 years (53.7%).¹⁸ Increased maternal age and high parity-appeared to be equally important to raise the incidence of placenta previa. Most of the patients (88%) in this study were multigravida. In a study by cotton et al showed that 16% patients were primipara and 83.3% patients were multigravida.¹⁹ Brenner found in a study that placenta previa was associated with 17.3% primi cases and 82.7% multi cases.²⁰ In this present study it was observed that 12.0% patients were primigravida and 88% patients were multigravida. Repeated pregnancy may cause poorly vascularized endometrium in upper uterine segment where fetus tries to be implanted. So, implantation occurs in lower uterine segment. In this study irrespective of age and parity, 70% cases of placenta previa is associated with risk factors. 42.0% had previous caesarean section, 14% had previous MR, Abortion, DE and C and 10% had manual removal of placenta. In a study by Tuzovic et al showed that 49.1% patients had previous abortion and 9.9% patients had previous caesarean section.²¹ Brenner showed that 35.1% patients of placenta previa had previous

abortion and 11.2% patients of placenta previa had previous cesarean section.²²

In this study, it was observed that 0.8% patients delivered at gestational age 28-31 weeks and 20% patients delivered at >38 weeks. In a study by Sheiner et al it was showed that delivery occurs in gestational age 22-32 weeks 13.4%, 37-41 weeks 51.0%.²³ It was observed that 76% patients had cephalic presentation and 24% patients had malpresentations. Similar findings were obtained by Usta et al.²⁴

In this study it was found that the type 3 and type 4 were the leading type of placenta previa among study patients which is consistent with Usta et al.²⁵ Placenta previa is classified according to the relationship of placenta with the internal OS having important prognostic value of mother and fetus-In this study maternal morbidity and mortality was found significantly higher among type 4 placenta previa patients. Almost similar findings were observed by Breen et al.²⁶ In this study, a patient with type 4 placenta previa with previous cesarean section was admitted in shock due to severe bleeding from placenta previa. After resuscitation, cesarean section was done with risk bond and cesarean hysterectomy was needed for severe PPH. But patient cannot reverse from shock and died in early postoperative period. The aim of management of placenta previa is to improve the fetal salvage without increasing undue maternal hazards, continuation of pregnancy until the baby has grown sufficient enough to survive ex-utero. In this study, 88% patients were managed actively and 12% patients were managed expectantly. In a study by Cotton, it was observed that 65% patients were managed expectantly.²⁷ In another study by Brenner it was showed that 68% patients were managed expectantly.²⁸ Incidence of expectant management is lower than the range report in the literature, criteria for expectant management are gestational age <36 weeks, intact membrane, without labor pain, devoid of life-threatening bleeding, no congenital anomaly of fetus and proper wellbeing of fetus, most of our patients failed to fulfil this criterion due to poor antenatal checkup. Expectantly managed patients were advised to absolute bed rest with bathroom privilege. Only blood transfusion and glucocorticoids were Given for acceleration of fetal lung maturity. Premature termination done in some cases due to recurrent hemorrhage. Most of expectantly managed group delivered by cesarean section.

Use of USG in obstetrical practice in our country is also increasing. In this series 60.02% patients were diagnosed by USG and 31.48% were diagnosed during caesarean section. Confirmation of placenta previa by USG should be more as USG facilities are available in all tertiary centers even at districts and upazilla levels.²⁹ But due to poor socioeconomic condition, irregular or no antenatal checkup and ignorance of majority of patients attended hospital either following repeated episode of bleeding with or without shock, then it becomes necessary that after preliminary resuscitation, immediate termination of pregnancy on the basis of clinical diagnosis of placenta

previa. In this study, 76% were live birth, 0.4% were still birth, 20% died in the early period. In a study by cotton et al it was showed that perinatal mortality was 12.6%.³⁰ Usta et al showed that the neonatal outcome in cases and controls, The outcome was similar in all respects, including respiratory distress (9.1% and 11.1%), needed mechanical ventilation (4.5% and 13.2%), intraventricular hemorrhage (0% and 37%), necrotizing enterocolitis 0% and 1.5%), suspected sepsis (13.6% and 14.2%), confirmed sepsis (0% and 2.2%), patent ductus (4.5% and 1.5%), periventricular leukomalacia (0% and 6%), and retinopathy of prematurity (4.5% and 0.3%) in cases and controls, respectively.³⁰ Postpartum hemorrhage was the most common complication (0.8%). Subtotal hysterectomy was done in 0.2% cases, wound infection and puerperal sepsis occurred in 1.0% and 0.4% cases respectively. Acute renal failure occurred in 0.2% cases. Four factors are related to occurrence of PPH. These are unsatisfactory retractility and contractility of the lower uterine segment, presence of large uterine vessels at placental site, placenta accreta and exhaustion of the patients. PPH controlled by uterine massage along with intravenous oxytocin and prostaglandin. When these measures failed, different surgical technique was applied in two patients to control PPH. In this study one patient came with shock due to excessive per vaginal bleeding and after managing adequate blood, surgery was done with risk bond but patient did not recover from shock and died in postoperative period. In a study by Usta et al it was showed that the antepartum and postpartum complications cases and controls. The placenta was removed piecemeal in 5 (22.7) bed was required in 4 (18.2%) hypogastric artery ligation in 1 (4.5%) and hysterectomy in 2 (9.1%).³¹ In another study by Shiener et al PPH was 0.3% cases, placenta accreta in 1.3% cases, placental abruption in 7.4% cases and postpartum in 52.3% cases.³²

In this study it was found that the relationship between amount of blood loss and poor fetal outcome (still birth, neonatal death and the perinatal mortality) was significantly higher in moderate and severe amount of blood loss among placenta previa patients. Usta et al done case control study to identify risk factors and complications of placenta previa-accreta. Blood loss was estimated at >3000 ml in 22.7% cases compared with only 0.3% controls ($p < 0.0001$) and transfusion with >5 units was needed in 9.1% cases versus 3, 1% controls ($p = 0.172$). They also observed that the mean blood loss was 2262 ml and 847 ml in cases and controls respectively, which was statistically significant ($p < 0.001$). The above study finding is consistent with the present study findings.³³ The cause of maternal mortality may be due to lack of antenatal care, poverty leading to malnutrition and anemia. religious and cultural binding, distance of well-equipped hospitals, lack of transport facilities etc. With identifying all these factors, emergency referral system should be established from union to thana health centers and district hospitals- early diagnosis and proper monitoring of these patients can minimize the possibility of poor outcome.

CONCLUSION

Placenta previa is one of the obstetrical emergencies, which needs immediate attention otherwise it may lead to maternal and perinatal morbidity and mortality. In general incidence of placenta previa is high in developing countries. Most of the patients of FMCH are poor with ill health, having irregular or no antenatal care having pre-existing anemia and due, to negligence of family members, they are lately carried in hospital, usually come with severe bleeding in latter months of pregnancy with shock. Although the maternal mortality for placenta previa is nil in developed countries, unfortunately it is still 1-2% in most developing countries. Immediate obstetric care can definitely reduce the risk of placenta previa. Regular antenatal care, prior detection of blood group, correction of anemia, early diagnosis by USG, early transfer of patients to hospital, avoidance of p/v examination at home, modern surgical technique, safe anesthesia, facilities for blood transfusion can significantly reduce the maternal and perinatal morbidity and mortality.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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