

# Assessment of Risk Factors, Perinatal and Maternal Mortality Rates in Placenta Praevia : Study of 100 Cases

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## ABSTRACT

**Background:** Antepartum haemorrhage or bleeding in third trimester of pregnancy is an important cause of maternal and perinatal death in the developing countries. Placenta praevia is the most common cause of APH. In placenta praevia, placenta is attached to the lower segment of uterus near or at internal OS, instead of upper segment. During delivery early separation of placenta induces profuse bleeding which is deleterious to both mother and foetus. One of the important cause of development of placenta praevia is uterine scar. Repeated child birth, multiple cesarean section operation, MR, D&C etc. causes uterine scar formation. Present study is tried to assess the risk factors of individual patients for the development of placenta praevia and find out the maternal and perinatal outcome associated with placenta praevia.

**Materials and methods:** A prospective observational study was carried out on 100 cases of placenta praevia in the department of Gynae and Obs at Chittagong Medical College Hospital during the period from January to December 1999. Patients of ante partum hemorrhage were selected randomly

**Result:** In 1999 total patients were admitted in the Obstetric unit of Chittagong Medical College Hospital were 8887. Among them 259 (2.9%) patients were diagnosed as placenta praevia. Most of the patients were multigravida with low socio-economic background with moderate to severe anaemia. Cesarean section (70%) was the commonest mode of delivery. Most common postpartum complications were post-partum haemorrhage and urinary tract infection. Perinatal and maternal mortality were 20(20%) and 3(3%) respectively.

**Conclusion:** Avoid repeated child birth, cesarean section operation, MR, D&C etc. could prevent uterine scar formation thus placenta praevia. Proper antenatal checkup for early diagnosis of placenta praevia and hospital delivery in a well-equipped hospital could be reduced the maternal and perinatal mortality.

**Key words:** Placenta praevia; APH; Cesarean section.

## INTRODUCTION

Placenta praevia occurs when the placenta attaches to the lower segment of the uterus, near (Within 2cm) or over the internal os, instead of in the body or fundal segment of the uterus<sup>1,2</sup>. It is normally classified into one of three categories, depending upon the degree of coverage of the cervix- Marginal- the placenta lies within 2 to 3cm of the internal os, Partial- the placenta partially covers the internal os and total-

the placenta completely covers the internal os. If the placenta is more than 3 cm from the os, there is no risk of bleeding<sup>2</sup>. The incidence of placenta praevia ranges from .5- 1% of all hospital deliveries<sup>1</sup>. Two classical presentations of the placenta praevia are antepartum haemorrhage and fetal malpresentation in later pregnancy. Bright red bleeding often occurs from the lower part of the uterus during the third trimester of pregnancy without any abdominal pain or tenderness. The first episode of bleeding rarely causes shock or fetal compromise<sup>3</sup>. Several factors are responsible for the development of placenta praevia: multiparity, prior cesarean delivery or other uterine surgery, advanced maternal age, increased placental mass and prior history of placenta praevia<sup>4</sup>. Placenta praevia may lead to excessive bleeding upon detachment after delivery, as the lower uterine segment is fibrous and less muscular than the fundus and fails to contract the spiral arteries<sup>4</sup>. The aims of this study was to evaluate the risk factors of development of placenta praevia,

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role of Caesarian Section (CS) in its management and incidence of associated maternal and perinatal mortality in the area of Chattogram, Bangladesh.

**MATERIAL AND METHODS**

A prospective study was carried out on 100 cases of placenta praevia in the department of Gynaecology and Obstetrics at Chittagong Medical College Hospital during the period January to December 1999. Patients with painless Antepartum Hemorrhage (APH) were included on random basis. The diagnosis of placenta praevia was made from abdominal ultrasonography, vaginal examination under anaesthesia and in few cases during CS. Painful APH were excluded from the study until and unless proved placenta praevia later on. All relevant data of the patients were collected in a structured data collection form. Frequency, percentage, ratio etc. of the data were analyzed by Microsoft excel programme.

**RESULTS**

During the study period 8,887 obstetrical cases were admitted. APH was reported in 364 (4.1%). The numbers of placenta praevia cases were 259 (2.9%).

The commonest age group of women with placenta praevia was 20-34 years about 71%. Twenty percent of the patients were 35 years of age. Women of lower socio-economic condition comprised 66% of the series (Monthly family income less than ten thousand taka was considered as lower socioeconomic condition). Mutigravidae (2-4 previous delivery) consists of 63% of cases. More than 5 gravidae were 31%. Only 6% patients with placenta praevia belongs to primigravida. Most of the patients had no (46%) or irregular (28%) antenatal checkup.

Clinical profile of the patients shows (Table I) that most cases (44%, n = 44) were confirmed at the time of CS or with abdominal ultrasonography (40%, n = 40). Comparison of the management options used to treat the patients is shown in Table II. CS was the commonest mode of delivery irrespective of management given. However, higher perinatal loss and lower maternal mortality was recorded with expectant management compared to active management (Table –III). In total perinatal and maternal mortality rate was 20% and 3% respectively.

**Table I :** Clinical profiles of placenta praevia patients.

Variables	n	%
<b>Clinical presentation</b>		
Patients in labour	30	
Haemorrhage with shock	26	30
Haemorrhage without shock		26
Patients not in labour		

Variables	n	%
Haemorrhage with shock		
Haemorrhage without shock		
No haemorrhage	6	
	24	6
	14	24
		14
<b>Diagnosis of placenta praevia</b>		
Cesarean section	44	44
Abdominal ultrasonogram	40	40
Double setup	16	16

\* Double setup-Vaginal examination in the operation theatre with full preparation of Cesarean section operation.

**Table II :** Comparison of different mode of delivery and major post-partum complications.

Mode of delivery (n=100)	n	%
Cesarean section	70	
Vaginal		70%
* Spontaneous	18	18%
* Instrumental	12	12%
<b>Major post-partum complications (n = 28)</b>		
Urinary tract infection	12	43%
Post-partum haemorrhage	11	39%
Puerperal sepsis	3	11%
Wound infection	2	7%

**Table III :** Outcome of different management options used in placenta praevia.

Management	Delivery		Perinatal mortality (n=20)		Maternal mortality (n=3)			
			Vaginal					
	n	%	n	%	n	%		
Expectant (n=28)	22	78.5	6	21.5	8	28.6	1	3.57
Active (n=72)	48	66.7	24	33.3	12	16.7	2	2.77

**Table IV :** Relationship between severity of bleeding and maternal and fetal out come.

Amount of bleeding	Number of patient	Fetal outcome (n=20)		Maternal outcome (n=100)	
		Still Birth	Neonatal loss	Complications	Mortality
Nil/ Mild	29	-	-	5	-
Moderate	45	2	7	9	1
Severe	26	5	6	14	2

**DISCUSSION**

Antepartum haemorrhage (APH) or bleeding in third trimester of pregnancy is still an important cause of maternal and perinatal death in the developing countries. The incidence of APH is 2-5% of all pregnancies<sup>5</sup>. In this study

APH complicated 4.1% of pregnancies. The incidence of placenta praevia in literature ranges from 0.5- 1% amongst hospital deliveries<sup>1</sup>. This study shows that the incidence of placenta praevia is about 2.9% of hospital deliveries. The causes of higher incidence in Bangladesh than those of Western world are most probably due to low socio economic condition and large number of multiparous patients among pregnant population.

Age is an important contributory factor for placenta praevia. Advanced maternal age increases the chance of placenta praevia<sup>6</sup>. In this study the mean maternal age was 27.47± 5.72 years. Placenta praevia occurs 2-3 times more commonly in women above 35 years as compared to those at age 20 or less<sup>5</sup>. In this series maternal age > 35 years suffered from placenta praevia more than twice the age < 20. Zhang J et al in their study have shown that advancing maternal age has independent adverse effect on the risk of placenta praevia regardless of other known risk factors. In advanced age tunica media of intramyometrial arteries are replaced by collagen tissues. Under perfusion and defective vascularization play important roles in the development of placenta praevia<sup>7</sup>.

Placenta praevia is a problem of parous women. In primigravidae it occurs only one in 1500 pregnancies, while one in 20 among grand multiparous<sup>5</sup>. In this study, most of the patients were multi-gravidae (About 90%). Increasing age and multigravidae changes the wall of intramyometrial arteries as well as wall of the uterus. Both under perfusion and defective vascularization have been postulated to play important role in the development of placenta praevia<sup>7</sup>. Multiple studies have shown that women > 3 parity had three fold higher risk than in nulliparous women<sup>8,9</sup>. Other risk factors responsible for placenta praevia are- prior lower segment cesarean section, curettage, evacuation of retained products of conception, spontaneous or induced abortion, maternal cigarette smoking, twin pregnancy and congenital abnormality of uterus<sup>10</sup>. Kistner et al first suggested that a uterine scar could predispose to the development of placenta praevia in subsequent pregnancies<sup>11</sup>. In this study 66% of patients with placenta praevia were in lower socio-economic class. The causes of higher incidence of placenta praevia in lower class people may be due to- high parity, anaemia, large number of patients attending Govt. hospital, increased rate of MR, D&C and induced abortion<sup>12</sup>.

Trans-abdominal ultrasound is the gold standard for the diagnosis of placenta praevia since its introduction in 1966 by Gottesfeld et al<sup>13</sup>. In this study 40 patients were diagnosed by trans-abdominal ultrasonography and remaining 60 patients were diagnosed either by double set up examination in operation theatre or during cesarean section. Sometimes

Trans- abdominal ultrasound fails to delineate posterior placenta praevia properly. To overcome this problem Trans Vaginal Ultrasound (TVS) was introduced in 1987<sup>14,15</sup>. In spite of the various theoretical advantages, there is wide spread reservation among many obstetricians regarding the safety of TVS. Even the gentlest examination of this sort can cause torrential haemorrhage<sup>15</sup>.

In this series 70% of patients were managed actively and remaining 30% were managed by expectant method. MacAfee (1945) who first advocated conservative management insisted that the patient should be managed in a well-equipped maternal hospital until delivery. Even today this policy is followed by most obstetric unit<sup>5</sup>. The primary objective of expectant treatment is to reduce the number of premature births. In other word to carry on the pregnancy at least to the later weeks (36 weeks and onwards) when the child has good chance of survival with transfusion and tocolysis<sup>16,17</sup>.

Perinatal mortality in placenta praevia usually varies from 12 to 25%<sup>18</sup>. In present series the perinatal mortality rate was 20%. Perinatal death is directly related with the gestational age and weight of the fetus at the time of birth<sup>18</sup>. Adequate antenatal care, more number of hospital deliveries, proper care of low birth weight in intensive care unit etc. definitely reduces the incidence of perinatal mortality<sup>19</sup>.

Postpartum Hemorrhage (PPH) and urinary tract infection were two most common post-partum complications of this series. Four factors are related to the severe PPH. These are diminished retractility and contractility of lower segment of uterus, presence of large uterine vessels at the placental site, invasive placenta and exhaustion of the patient<sup>20</sup>.

Maternal death is an unfortunate outcome of pregnancy. In this study 3% women died during delivery or later on from placenta praevia with anemic heart failure, severe PPH with uterine atony and septicaemia respectively. In a previous study the maternal mortality was as high as 5%<sup>21</sup>. Maternal mortality rate in western world at the time of this study was almost 0.57%<sup>19</sup>. We could not lower the maternal mortality rate in placenta praevia to a greater extent. This may be due to lack of antenatal care, wide spread poverty leading to maternal malnutrition and anaemia, religious and cultural bindings, distance of well-equipped hospitals from patients home and lack of transport facilities<sup>22</sup>.

#### LIMITATION

This is a single center study and sample size is small; which may not represents the whole population. The results reflects the state of our antenatal checkup among pregnant women and socioeconomic condition of the patients.

**CONCLUSION**

Wide spread poverty, increase number of child birth enhance the development of placenta praevia. Proper antenatal checkup facilitates early diagnosis and proper management of the patient. Once it has been diagnosed earlier, there would be less chance of complications related to the placenta praevia.

**DISCLOSURE**

The author declared no competing interest.

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