

## **Fetomaternal Outcome in Placenta Previa with And Without Previous Cesarean Section- A Prospective Study**

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### **Abstract**

**Introduction:** This prospective observational study was carried out in the Department of Obstetrics and Gynaecology of Bankura Sammilani Medical College, Bankura, India (under West Bengal University of Health Sciences), from 1<sup>st</sup> April 2015 to 31<sup>st</sup> March 2016

**Objectives:** To identify maternal and fetal outcomes in Placenta Previa (PP) with and without previous cesarean sections.

**Methods:** All booked and un-booked mothers with and without previous CS with provisional, clinical and/or USG diagnosis of PP admitted through emergency and antenatal clinic in the apparent gestational age after 28 weeks were included.

**Result:** The incidence of Placenta Previa was 0.266% of total deliveries of 22,537 during the study period. There were 60 cases of PP, 37 cases were in Group A (with previous cesarean section) and 23 cases were in Group B (without previous cesarean section). Most of the patients were in the age group (31-35) years (51.67%). Gestational age at delivery was mostly in between (34-37) weeks (43.33%). The maternal outcomes in terms of postpartum hemorrhage, need of blood transfusion, antepartum hemorrhage, hospital stay, peripartum hysterectomy were more in group A than Group B and statistically significant, but incidences of ICU admission, and adherent placenta more in Gr A and statistically not significant.

The fetal outcome in terms of low birth weight, preterm delivery, asphyxia, still born, NICU admission were more in group A than Group B and statistically significant.

**Conclusion:** The maternal and fetal morbidity is higher in mother with previous cesarean section as compared to mother without previous cesarean section.

**Keywords:** Cesarean Section (CS), Placenta Previa (PP), Previous Cesarean Section, Postpartum Hemorrhage

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### **I. Introduction**

Placenta Previa (PP) is defined as placenta that lies wholly or partly within the lower uterine segment [1]. The prevalence [2] of clinically significant PP is estimated to be approximately 0.5-1% of amongst hospital deliveries. It is responsible for one-third of all cases of antepartum hemorrhage and around 35% of cases of placental bleeding. With the rising incidence of cesarean sections (CS) combined with increasing maternal age, the number of cases of PP and its complications, including placenta accreta is likely to continue.

Placenta l bed is the commonest Site of third trimester hemorrhage, in a few cases bleeding is from local causes in the genital tract, whereas in a substantial remainder the bleeding has no obvious cause but it is probably still from placental bed [3]. Maternal and fetal morbidity and mortality from placenta previa and placenta previa accreta are considerable [4,5] and are associated with high demands on health resources. With the rising incidence of caesarean sections combined with increasing maternal age, the number of cases of placenta previa and its complications, including placenta accreta, will continue to increase. [6] Defective decidual vascularization, possible result of inflammatory or atrophic changes is one of the factors in the development of PP. Abnormal placentation such as placenta Accreta, Increta and Percreta are often associated with combination of PP, particularly with the combination previous CS and P. In PP the most common symptom is painless vaginal bleeding. The first hemorrhage is usually not severe the "warning hemorrhage", occasionally it is severe one [7]. Absence of pain and uterine contraction is an important distinguishing feature between PP and Abruptio placenta [8] Macafee (1945) [9] suggested expectant management to reduce perinatal mortality rate Mc Shane et al (1985) [10] found in a study that 15% had previous cesarean section.

## II. Materials And Methods

This prospective Observational study was carried out in the Department of Obstetrics and Gynaecology, BankuraSammilani Medical College, Bankura, India (under West Bengal University of Health Sciences) , from 1<sup>st</sup> April 2015 to 31<sup>st</sup> March 2016 . All booked and unbooked mothers with and without previous CS with provisional ,clinical and/or USG diagnoses of Placenta Previa admitted through emergency and antenatal clinic ,of gestational age 28 weeks and more were included in this study.

Mothers were selected and divided into two groups, 1) Group A: With previous CS ,2) Group B: without previous CS.

**Inclusion Criteria:** Singleton pregnanc ,Gestational age at or more than 28 weeks ,mothers with USG diagnosis of PP with orwithout previous CS , mothers with history of APH and showing Placenta Previa during CS andmothers with no history of APH showing incidental Placenta Previa during cesarean section.

**Exclusion Criteria:**Multiple Pregnancy,Pregnancy before 28 weeks and mothers with Antepartum Hemorrhage other than Placenta Previa

**Study Tools:**Atotal of 60 patients were studied in this period,data were collected in predesigned format containing demographic profile ,complaints, diagnosis,mode of delivery, operative findings,neonatal assessment ,length of stay and any other morbidity. USG for fetoplacental profile and USG with colour Doppler performed.Carditocography was done in selected cases.

Observed data of the study were analysed using SPSS Software Version 20.0. The Chi Square test was used to determine whether an association between these two variables in the sample is likely to reflect a real association between these 2 variables in the population. 95% confidence interval taken and p value was significant at  $\leq 0.05$ .

Institutional Ethics Committee granted permission to conduct this study. None of the authors has any conflict of interest.

## III. Results And Analyses

Total no of delivery during this period was 22,537. There were 60 cases of PP , 37 cases were in Group A and 23 cases were in Group B , 35 cases in group A had one previous caesarean section and two cases had two previous CS. Incidence of PP was 0.266 % .In our study fortunately there was no maternal mortality, in four cases there was no APH , USG was also negative but they showed placenta previa during CS. Two cases of morbid adherent placenta were found in Group A , ultrasonography in both cases were not suggestive of any morbid adhesions. Both the cases needed emergency peripartum hysterectomy.

**Table 1 : Composite table showing Demographic profile of mothers**

Characteristics	A (n-37)	B(n-23)	Relative risk or odd ratio p value (at 95 % interval)	(*-nonsignificant)
1) Age in years (**-significant)				
25-30	1	12	.0255(.0030-.2184)<.0001**	
31-35	22	9	2.2815(0.7873-6.612)	1.255*
>35	14	2	6.391(1.296-4.31.509)0.013**	
2)Gravida				
Primi	0	7 - -		
Multi	36	16	- -	
3)Gestational age at delivery(wks)				
<34	11	2	4.442(0.8856-22.283)	0.0545*
34-37	15	17	0.2406(0.0771-0.7516)	0.0117**
>37	11	4	2.0096(0.5542-7.2877) 0.283*	

**Table 2: Morbidity associated with placenta previa(Comparison of Maternal outcome in both Groups)**

		Group A	Group B	$\chi^2$ at df 1	odd ratio (at 95 % CI)	p value
Postpartum hemorrhage	Yes	25	5	11.91547	5.00(2.244-25.062)	0.00055**
	No	12	18			
Blood transfusion	Yes	20	3	10.09	7.843(1.983-31.020)	0.0015**
	No	17	20			
Adherent Placenta	Yes	2	0	1.2861	-	0.2567*
	No	35	23			
FFP Transfusion	Yes	0	2	3.328	-	0.068*
	No	37	21			
Duration of stay in Hospital	>2 Weeks	24	7	6.732	4.219(1.383-12.875)	0.0009**
	<2 Weeks	13	16			
ICU Admission	Yes	6	1	1.938	4.258(0.4783-37.911)	0.1638*
	No	31	22			
Bleeding (APH) at admission	Present	25	6	9.7726	5.902(1.8549-24.899)	0.00177**
	Absent	12	17			

**Table 3: Comparison of Perinatal Outcome in both the groups**

		Group A	Group B	$\chi^2$ at df 1	Odd ratio( at (95% CI)	p value
Maturity	Term	15	18	8.1537	0.1894(0.0577-0.621)	0.0042**
	Preterm	22	5			
Birth weight	Average	9	17	14.2035	0.1134(0.0343-0.375)	0.0001**
	Low birth weight≤ 2.5 kg	28	6			
Apgar score	Score <7	29	22	1.5628	0.2636(0.0287-2.4212)	0.2112*
	Score ≥7	5	1			
NICU Admission	Yes	27	6	12.597	7.650(2.351-24.899)	0.000386**
	No	10	17			

**Associated operations:**

	Group A	Group B
Tubal sterilization	16	10
Uterine artery ligation	4	2
B-Lynch suture	4	1
Total hysterectomy	2	0

**Discussion**

It was a prospective study on fetomaternal outcome in placenta previa with and without previous cesarean section.

There were total 60 cases of placenta previa during the period of study. The incidence of placenta Previa in our study is 0.266 % which is closer to study reported by Goel et al[11], who found 2% incidence in cases of pregnancy with previous cesarean section as compared to incidence of only 0.6 % in cases of women with no prior cesarean section (p value<0.5). In our study we found different maternal complications like PPH, need of blood and FFP transfusion, ICU admissions, more hospital stay, bleeding in antepartum period, hysterectomy for adherent placenta and several other morbidity. PPH has significantly higher incidence in Group A (67.56%) as compared to Group B (21.79%) with p value 0.00055 which is statistically significant. The result matches with a study published on Maternal and Perinatal Outcome in Cases of Placenta Previa in 2014 by Dr. Malini R. Desai[12] et al, who found 62 % of PPH in pregnancy with previous history of cesarean section. We found need of blood transfusion more in Group A (50.05%) as compared to Group B (13.04%) with p value <0.0015 which is statistically significant. The result matches with a cross sectional study by Shabnum Hasan et al[13] in June, 2014, who found 52 % percentage of blood transfusion in cases of pregnancy with previous history of cesarean section.

In our study we found only 2 cases (5.4%) of adherent placenta in group A as compared with no cases in (0.00% ) in Group B, with p value =0.256, although the percentage is less but it is very important, because we have to be very careful in cases of post cesarean pregnancy with placenta previa. The result match with study done by Shabnum Hasan et al[13] who found 2 % of Adherent placenta in cases of pregnancy with previous cesarean cases that needed cesarean hysterectomy. Need of FFP transfusion were more in Group B was in 2 cases (8.69%) only as compared to Group A, no cases (0.0%) with p value <0.068 which is not significant statistically. The study doesn't match with a study published on Maternal and Perinatal Outcome in Cases of Placenta Previa in 2014, by DrMalini R. Desai et al [12] l, who found 29 % of FFP transfusions in cases with pregnancy with previous cesarean cases.

Maternal morbidity was more in group A, as need for duration of stay for more than 2weeks was more in Group A(64.86%) as compared with Group B (30.4%) with p value = 0.000094, which is statistically significant. The study matches with a study by Salah Roshdy Ahmed et al[14]. They found more need of hospital stay 69 % in patient with previous cesarean section. Percentage of bleeding during admission was more in Group A (67.57%) than Group B (26.08%) with p value=0.0017 which is significant statistically. The result matches with study by GetahunDarioset al[15] in 2006. The need of ICU admission is more in our study in Group A (16.21%) as compared with Group B (4.34%) with p value 0.1638 which is statistically non-

significant. The study doesn't match with a study published on Maternal and Perinatal Outcome in Cases of Placenta Previa in 2014, by DrMalini R. Desai et al[12], who found 31% of ICU admissions in cases of pregnancy with previous cesarean cases. Higher incidence of premature delivery, low birth weight babies, malpresentation, perinatal asphyxia, stillbirth etc have been seen in women with previous cesarean section than without previous history of cesarean section. In our study we found 59.45 % of preterm baby among Group A and 21.73% among Group B (p value=0.0042) which is significant and similar to a Meta-analysis on Placental implantation abnormalities and risk of preterm delivery by Vahanian et al[16] who found 43 % of preterm delivery in cases of pregnancy with pregnancy with previous cesarean cases. In our study we found 75.1% of Low birth weight in Group A and 26.08% in Group B (p value =0.0001) which is significant. The results were similar to a study published on Obstetric factors and pregnancy outcome in placenta Previa by Ojha N et al[17], who found 67% low birth weight babies in cases of pregnancy with previous cesarean cases.

In Group A we found asphyxiated babies (82.9%) as compared to (4.35%) in Group B, with p value 0.21, which is statistically not significant. The study doesn't match with the meta-analysis done by Vahanian et al [16], who found 66 % of asphyxiated babies in cases of pregnancy with previous cesarean cases. In our study we found percentage of NICU admission in Group A (72.98%) as compared to (26.09%) in Group B with p

value<0.000386, which is statistically significant as per our study. The result matches with a study done by Bhavneet Kaur[18], who found 77 % of NICU admissions in cases of pregnancy with previous cesarean cases.

#### **IV. Conclusion**

Small Sample size, short duration of study, lack of long term neonatal follow up, presence of un booked cases without or with inadequate USG reporting are the few limitations of our study. Third trimester bleeding during pregnancy is a serious event. Even with modern development in the field of obstetric and neonatal care, it still continues to be a significant cause of maternal and perinatal morbidity and mortality in low resource countries. The maternal morbidity in term of postpartum haemorrhage, blood, FFP transfusion, more hospital stay, antepartum hemorrhage, adherent placenta, need of hysterectomy, ICU admission etc, were more in mother with previous cesarean section than mother without cesarean section. The fetal morbidity and mortality was higher in babies of mothers with history of previous cesarean section as compared to mothers without history of cesarean section in terms of low birth weight, preterm, asphyxia, still born, NICU admission etc.

Our study result will help in planning for the prevention of impending complications and to reduce the morbidity and mortality associated with placenta previa and also to formulate the line of management of these high risk cases. Ultrasonography has revolutionized the diagnosis of placenta previa, even in early pregnancy. It can also assess the fetal maturity almost accurately. Better maternal and perinatal outcomes are thus possible. Standard of ultrasonography reporting especially in previous cesarean cases should be improved to suggest morbid adhesions of low lying placentae, so that precautionary measures can be taken before embarking on operative interference in such cases. Even steps like uterine artery embolization in preoperative period can be planned on the basis of investigations like USG, 3D USG and MRI studies. Finally, the provision of a well-equipped neonatal care unit should be available throughout the country. The role of proper information, education, and communication among all categories of health care providers should be emphasized.

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