

Maternal and fetal outcome of placenta previa in a tertiary care institute: a prospective two year study

Shruthi Prasanth¹, Priyanka Mehta^{2,*}, KS Rajeshwari³

¹Senior Resident, ²Assistant Professor, ³Professor, Sri Ramachandra Medical College, Sri Ramachandra University, Chennai

*Corresponding Author:

Email: priyankavimal6@gmail.com

Abstract

Introduction: Placenta previa (PP) is an important cause of maternal and fetal morbidity and mortality worldwide but there is not much data from the developing countries about maternal and fetal outcome¹.

Aim: To determine the incidence and maternal and fetal outcomes among women with placenta previa (PP).

Material and Methods: This is a prospective observational study carried out at Sri Ramachandra Medical College, Sri Ramachandra University Porur, Chennai, in the Department of Obstetrics and Gynaecology between July 1st 2012 to July 31st 2014.

Results: Total number of patients delivered during this period were 8694 and out of which 174 patients were diagnosed with placenta previa, so the incidence is 2%. Of women with placenta previa, 3.44%(n=6) had placenta accreta. Incidence of placenta previa was the highest in the maternal age group 20-29 years i.e. 72.9%, Perinatal morbidity was studied as the percentage of babies requiring resuscitation and NICU admission which was 37.35 %(n=65). Caesarean hysterectomy was performed in 1.14% (n=2) cases, there were 1.72 %(n=3) perinatal deaths.

Keywords: Placenta previa, Placenta accreta, Postpartum hemorrhage

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Introduction

Placenta previa is a serious health issue and is associated with high fetal-maternal morbidity and mortality. There are very few analytical studies from developing countries. It is one of the major cause for antepartum hemorrhage, which complicates two to five percent of the pregnancies.² The incidence of placenta previa is approximately 4-5 per 1000 deliveries. Risks for placenta previa include uterine surgery, increasing maternal age, high parity, multi-fetal gestation, and smoking and cocaine use. The risk of developing placenta previa increase progressively with increasing in number of cesarean sections with ≥ 3 cesarean deliveries the chance of having previa is 37%. Morbidly adherent placenta is a serious complication of pregnancy and is associated with massive intrapartum hemorrhage and high maternal morbidity and mortality. Surgery for morbidly adherent placenta is a considerable challenge, but it has been reported that maternal morbidity is reduced in women who deliver in a tertiary care hospital with a multispecialty care team.

Aim

1. To study the prevalence of placenta previa.

2. To study maternal and neonatal outcomes among women with placenta previa (PP).

Material and Methods

This is a prospective observational study carried out at Sri Ramachandra Medical Hospital, Porur, Chennai, in the Department of Obstetrics and Gynaecology between July 1st 2012 to July 31st 2014.

The ethical committee of Ramachandra Medical College and Hospital approved the study. CSP-MED/13/OCT/03/73.

Before recruiting an eligible patient in the study, an informed consent was taken from the patient.

The diagnosis of placenta previa was based on ultrasonography and confirmed at cesarean delivery. Calculation of gestational age was determined by the last menstrual periods and first-trimester ultrasound.

- Placental localization done, and low lying placenta³ is identified on trans abdominal scan and the findings are confirmed with a trans vaginal scan at 28 weeks according to *Brown's Classification*.
- In our study, for practical purpose of management, if placenta was more than 2 cms from the internal os, and asymptomatic, antenatal mother was allowed a trial of vaginal delivery.
- Inclusion criteria: All the antenatal women with placenta previa beyond 28 weeks of gestational age, confirmed by ultrasonography and were selected irrespective of their parity, type of placenta previa.
- Exclusion criteria
 1. The antenatal women with normally situated placenta.

2. Multiple pregnancy.

The diagnosis of placenta accreta⁵ was suspected in the presence of the following sonographic features: irregularly shaped lacunae of placenta, thinning of the myometrium overlying the placenta, protrusion of the placenta into the bladder, loss of the retro placental space.

Statistical study

The statistical package for the social sciences (SPSS Version 20 for Windows) was used for data recording and statistical analysis. The descriptive analysis used included the mean, range, standard deviation, and frequency distribution.

Results

Total number of patients delivered during this period were 8694 and out of which 174 patients were diagnosed as Placenta Previa, so the incidence is 2%. Of women with placenta previa, (n=6) had placenta accreta.

- Incidence of placenta previa was the highest in the maternal age group 20-29 years i.e. 72.9%, it was in the age group 30-35 years, 20.3% in the age group ≤ 19 years and 1.7% in the >35 age group. The mean maternal age \pm SD in the present study was 27.43 ± 4.5 years.
- Incidence of placenta previa was highest in 73.55% the multiparous group. It was 26.43% in the primi group and 6.32% in grand multi group.
- The risk factors studied were previous caesarean section, abortion and twin gestation. The incidence of prior caesarean section was 39.08% (n=68), prior abortion was 37.93% (n=66) and 3 cases had previous myomectomy (1.72%). No incidence of placenta accreta in those 3 patients who had previous myomectomies.
- Totally 39.08% (68) patients were previous LSCS, 1.72% (3) patients had previous myomectomies and 37.93% (66) patients had previous dilatation and curettage.
- 39.65% (n=69) of cases required blood transfusion and shock / hypotension was noticed in 9.85% of cases, PPH was noticed in 45.4% (n=79) of cases, adherent placenta noticed in 13.44% cases.
- Post-operative febrile morbidity was not seen in any of cases and no sepsis complications.
- Perinatal morbidity was studied as the percentage of babies requiring resuscitation and NICU admission which was 37.35% (n=65) of the cases.
- New born with birth weights above 2500gms had a good survival rate with PNM being 5.5% and infants with weights <1000 gms had a very poor survival rate.

The adverse outcomes of these pregnancies were as follow, obstetrics hysterectomies were performed in 1.14% (n=2) cases, there were 1.72 (n=3) perinatal

deaths. Of the surviving babies, 37.35% (n=65) required admission to NICU.

There was no intraoperative bowel or bladder injury.

In present study no maternal deaths occurred.

Discussion

Shonali Mayerkar et al (2008) Gulburga Medical college gives the incidence of Placenta previa 1.80%.

In the present study, our hospital being a tertiary care centre, the incidence is 2%.

In the present study the incidence of placenta previa was highest in the age group of 20-29 years i.e., 72.9%, followed in descending order by women in the 30-35 year age group, above 35 year age group and less than 19 year age group, i.e., 20.3%, 5.1%, 1.7% respectively.

The mean maternal age in our study was 27.43 ± 4.5 SD years which is similar to observation made by Das et al (1999) with the main age of 28.6 years and Singhal et al (2008) as 26.2 years

In the present study, the incidence of placenta previa was highest (73.55%) in multi gravidas (with two to three viable births). The incidence in Grand multi (>4 viable births) was 6.32% and in Primi it was 26.43%.

Recurrence rate following placenta previa is 4-8% but in the present study there was no history of previous placenta previa.

Rani. P.R. et al (1999),⁶ shows that prior caesarean section in 11% and 9% had abortion, majority had no risk factors.

Totally 39.08% (68) patients were previous LSCS, 1.72% (3) patients had previous myomectomies and 37.93% (66) patients had previous dilatation and curettage.

Out of 174 cases of placenta previa 31 had minor degree (Type I, Type IIA) and 143 had major degree of placenta previa (Type II B, Type III & Type IV).

In the present study, 39.65% (n=69) patients received blood transfusions and 3.7% of patients went in for hypotension and / or shock. No patients had febrile morbidity in the post-operative period. The incidence of PPH was 27.9%, hysterectomy was done in 4 cases (7.46%). In this study 3 case of peripartum hysterectomy was for anterior placenta previa.

Adherent placenta was seen in 6 cases (3.44%).

The indication for emergency peripartum hysterectomy⁷ in recent years has changed from traditional uterine atony to abnormal placentation. Patients with placenta previa and scarred uterus⁸ had 16% risk of undergoing emergency peripartum hysterectomy compared to 3.6% in patient with unscarred uterus.

In the present study, 2 cases, caesarean hysterectomy was done for uterine atony, after all conservative measure to arrest bleeding failed.

The Histopathology reports both these hysterectomy specimens were showing edematous myometrial tissues. For 2 patients hysterectomy was done later, as one presented with post partum haematuria, and one presented with severe painful micturition and high grade fever.

In the present study, compared to the placenta previa, placenta accreta is less contributing to caesarean hysterectomy was 1.72%.

In the study done by Mc shane et al (1985) the major post partum complications were Hysterectomy 28.6%, Febrile morbidity 28.6%, Urinary tract infection 28.6% and Shock 14.3%.

Perinatal morbidity in placenta previa yielded the following results. In the present study, 1.6%, 44.3% of babies received resuscitation and NICU admission. 39.34% of babies recovered.

In the study done by Mc Shane et al (1985) 22% of babies required resuscitation. The Mean \pm SD of Apgar at 1' and 5' was 5.0 \pm 1.3 and 6.7 \pm 1.0 respectively.

Out of 2 cases of perinatal deaths, extreme preterm and prematurity were the major contributors to the extent of 3.27% and 1.63% respectively.

In the present study perinatal deaths were higher in the gestational age group of 28-33 weeks and the perinatal mortality was 78%. The perinatal mortality 34- 36 weeks group was 0%. This shows that the PNM rates are low for term fetus.

The overall perinatal mortality rate ranges between 4 – 8%. The important causes are asphyxia, prematurity⁹, congenital malformation and associated placental abruption. The onset of bleeding before 20 weeks carries a poor fetal prognosis. Most of the neonatal mortality is attributed to prematurity¹⁰ with its associated risk, particularly respiratory distress syndrome and intracranial haemorrhage.

Table 2: Maternal age and placenta previa

Age in years	Number of cases	Percent	Gravida	Number	Percent
<19	2	1.7%	G1	46	26.43%
20-29	126	72.9%	G2	54	31.03%
30-35	35	20.3%	G3	63	36.20%
>35	11	5.1%	G4	11	6.32%
Total	174	100%		174	100%

Most of the patients were in the age group 20- 29 years, which accounted for 72.9% (n=126). The mean maternal age in our study was 27.43 years \pm 4.5 SD.

In our study, most of the patients (n=128) were Multi parous 73.56%. Primi patients were 26.43% (n=46). P value – 0.01 significant.

Table 3: Type of placenta previa

Type of placenta	Number		Percent
I	7	Ant -5 (71.42%) Post -2(28.57%)	4.02%
II A (Anterior)		24	13.79%
II B (Posterior)		18	10.34%
III	55	Ant – 9 (16.36%) Post – 46(83.63%)	31.60%
IV		70	40.22%
Total		174	100%

Conclusions

Macafee et al (1962), gets the credit for demonstrating the benefit of expectant management by which achieved a maternal mortality of 0.57% in contrast to the earlier figure of 6.7% mortality for placenta previa.

With improving obstetric service, the mortality rate in recent studies as expected is much lower, the centre for Disease Control and Prevention (USA) reporting a mortality rate of 0.03%.

The reduced maternal mortality in recent years is mainly attributable to the increased use of blood transfusion, effective antibiotic therapy and better understanding of the management of shock and renal failure.

In present study no maternal deaths occurred.

Limitations

The shortcomings of this study are the few number of cases recruited, being a single center study and lack of controls to identify possible risk factors for placenta previa.

Observations and Results

Table 1: Incidence

Total Number of Deliveries from July 2012 – July 2014	8694
Total Number of Placenta Previa	174
Incidence	2%

Total number of patients delivered during this period were 8694 and out of which 174 patients were diagnosed as Placenta Previa, so the incidence is 2%.

In our study, 17.81% (n=31) patients had minor type of placenta previa and 82.16% (n=143) patients had major type of placenta previa. P value – 0.02 significant

Table 4: Mode of delivery

Type of placenta	Number	SVD	LSCS
I	7	7 (100%)	0 (0%)
II A	24	4 (16.66%)	20 (83.33%)
II B	18	0 (0%)	18 (100%)
III	55	0 (0%)	55 (100%)
IV	70	0 (0%)	70 (100%)
Total	174	11 (6.32%)	163 (93.67%)

Out of 174 patients, 6.32% (11) patients delivered vaginally. 1.72% (3) had type II B placenta previa, but they were allowed for a trial of vaginal delivery with close monitoring, one was an intra uterine fetal demise, one fetus has multiple anomalies and one fetus was extreme preterm and low birth weight.

Table 5: Intra op complications

Complication	Minor		Major			Total
	I	IIA	IIB	III	IV	
Haemorrhage	2 (2.53%)	9 (11.39%)	12 (15.18%)	23 (29.11%)	33 (41.72%)	79
Placenta cut through	0	5 (10.63%)	0	17 (36.17%)	25 (53.19%)	47
Haemostatic suturing	0	3 (14.28%)	2 (9.52%)	4 (19.04%)	12 (57.14%)	21 (p value <0.025)
Uterine artery embolization	0	0	0	1 (7.69%)	12 (92.30%)	13 (p value <0.05)
Uterine artery ligation	0	0	0	1 (11.11%)	8 (88.88%)	9 (p value <0.002)
Placental bed oozing	0	0	3 (9.67%)	9 (29.03%)	19 (61.29%)	31
Bakri balloon	0	2 (5.12%)	9 (23.07%)	10 (25.64%)	18 (46.15%)	39
Caesarean hysterectomy	0	0	0	0	2 (100%)	2 (p value <0.0001)
Dense adhesions	0	2 (10%)	4 (20%)	8 (40%)	6 (30%)	20
Maternal mortality	0	0	0	0	0	0 (0%)

Out of 79 patients with haemorrhage 86.07% (68) had placental type major. Out of 47 patients for which LSCS was done, 89.36% (42) had placenta which was cut through.

Out of 21 patients for which haemostatic suturing was done, 85.7% (18) had placenta type as major. Significant p value – 0.025.

Out of 13 patients for which uterine artery ligation was done, 100% (all 13) had placenta type as major. Significant p value – 0.05.

Out of 9 patients for which uterine artery ligation was done, 100% (all 9) had placenta type as major. Significant p value – 0.02.

Out of 31 patients who had placental bed oozing, 93.93% (31) had placenta type as major.

Out of 39 patients for which bakri balloon was inserted, 94.87% (37) had placenta type as major.

Out of 2 patients who underwent caesarean hysterectomy, 100% (both) had placenta type as major.

Table 5: Major obstetric morbidity

	Minor		Major			Total
	I	IIA	IIB	III	IB	
Blood transfusions	2 (2.89%)	3 (4.34%)	13 (18.84%)	23 (33.33%)	28 (40.57%)	69 (p value 0.007)
ICU Care	0	0 (0%)	5 (17.85%)	9 (32.14%)	14 (50%)	28 (p value <0.001)
Caesarean Hystrectomy	0	0	0	0	2 (100%)	2 (p value <0.001)
Hysrectomy done later	0	0	0	2 (66.66%)	1 (33.33%)	3 (p value <0.001)

Totally 92.75% (64) blood transfusions were given to patients with major type placenta previa. 100% (28) of ICU admissions were for major type of placenta previa. 100% (2) of caesarean hysterectomies were done for type IV placenta previa. 100% (3) of hysterectomies done after primary caesarean sections, were for type IV placenta previa.

Table 6: Perinatal outcome

	Minor		Major			Total	Mean Gest. Age	Mean Birth Weight
	1	2A	2A	3	4			
Term Live births	3	18	10	31	42	106	37.4	3.23
Live pre term births	9 (13.84%)	5 (7.69%)	11 (16.92%)	16 (24.61%)	24 (36.92%)	65	36.2	2.18
Neonatal death		0	0	1 (100%)	0	1	29.3	0.89
Still born		0	0	2 (100%)	0	2	24.3	0.69
Total	14		57			68		

Total perinatal deaths 3. Perinatal mortality rate in placenta previa 1.72% NICU admissions were 65 (37.35%).

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