

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20190978>

## Original Research Article

# Maternal and perinatal outcome in placenta previa: an observational study at a tertiary care hospital in Mysore, Karnataka, India

Maunica Reddy Sorakayalapeta\*, Nandish S. Manoli

Department of Obstetrics and Gynecology, JSS Academy of Higher Education and Research (deemed to be University), Mysore, Karnataka, India

**Received:** 04 February 2019

**Accepted:** 25 February 2019

**\*Correspondence:**

Dr. Maunica Reddy Sorakayalapeta,  
E-mail: maunica473@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** 2-5% of the pregnancies are complicated by antepartum haemorrhage. About one third of them are due to placenta previa thus contributing to a significant amount of maternal and perinatal morbidity and mortality. In the present times with liberally increasing caesarean section rates, there is a changing trend in the incidence and complications of placenta previa. The objective of this study was to evaluate the obstetrical characteristics and maternal and perinatal outcome of cases of placenta previa.

**Methods:** This was a prospective observational study conducted in the Department of Obstetrics and Gynaecology of JSS Medical College and Hospital, Mysore during the period January 2017 to June 2018.

**Results:** Out of total 13,150 deliveries during this period, placenta previa was observed in 131 cases with an incidence of 1%. Majority belonged to the age group 25-29 years (48.8%). 66% of the cases presented with painless vaginal bleeding as their chief complaint. The major risk factor was previous caesarean delivery seen in 29.8% cases followed by history of abortion in 18.3%. 67% cases had major degree placenta previa. Remaining 33% cases had minor degree. One case was complicated by placenta accrete. Peripartum hysterectomy was performed in 3.1%. Preterm deliveries amounted to 29.8%. Maternal and perinatal mortality were 0.76% and 3.05% respectively. 10.7% cases had Postpartum haemorrhage and 3.8% required ICU admission. 25% neonates required NICU admissions and 10% had RDS.

**Conclusions:** Placenta previa is a prime contributor to substantial maternal and perinatal morbidity and mortality. Early referral to tertiary care centres, anticipation of clinical complications and appropriate measures can avoid grave consequences. Such cases must always be managed at a higher centre with good NICU services and round the clock operation theatre and blood bank facility.

**Keywords:** Perinatal mortality, Placenta previa, Postpartum haemorrhage

### INTRODUCTION

Placenta previa is a major cause of vaginal bleeding in the late 2<sup>nd</sup> and 3<sup>rd</sup> trimester.

It clinically presents as causeless, painless and recurrent bleeding of varying amount. It occurs in 2.8/1000 and 3.9/1000 in singleton and twin pregnancies respectively.<sup>1</sup>

### Classification of placenta previa:<sup>2</sup>

- Type 1 (Low lying): Major part of the placenta is in the upper segment while only the lower margin encroaches onto the lower uterine segment but not up to the OS.
- Type 2 (Marginal): Placenta reaches the internal os but does not cover it.

- Type 3 (Incomplete or partial central): Placenta covers the internal os when closed but not when fully dilated.
- Type 4 (central or total): Placenta completely covers the internal OS even when fully dilated.

Several predisposing factors have been identified for placenta previa like multiparity, multifetal gestation, advancing maternal age, previous caesarean section, trauma, dilatation and curettage, etc.<sup>3</sup> The risk of adherent placenta increases to 11%, 40% and 61% with previous one, two or three caesarean sections. Maternal and foetal morbidity and mortality from placenta previa are considerably associated with high demand on health care services. With the increasing incidence of caesarean section rates and increasing maternal age, the number of cases of placenta previa and its complications including placenta accreta will continue to increase. The main diagnostic modality is by transvaginal ultrasound. Early diagnosis will help us in reducing maternal morbidity and mortality by being cautious about the need for blood transfusions and arranging an efficient team of surgeon, anaesthetist and paediatrician. Over the years, the maternal and perinatal morbidity due to placenta previa greatly decreased. This is mainly due to the early diagnosis that is made possible by the Ultrasound diagnostic modality, increasingly accessible health care, avoidance of internal examination, presence of blood transfusion facilities, 24 hours available operation theatre facility for caesarean section and the integrated management by the surgeon, anaesthetist and neonatologist. The better perinatal outcome is also ensured through the presence Neonatal intensive care unit and appropriate management.

However, the incidence of placenta previa is on the rise. This is due to the wider accessibility of Ultrasound. Another significant cause is also due to the caesarean section rate which is on a rise. The risk attributed by this cause to placenta previa can be brought down by decreasing the primary caesarean sections for non-recurrent indications.

## METHODS

This was a prospective observational study conducted in the Department of Obstetrics and Gynaecology of JSS Medical College and Hospital, Mysore during the period January 2017 to June 2018.

The relevant details of all the women who were operated for placenta previa and satisfied the inclusion and exclusion criteria were recorded and the data was analyzed statistically using Descriptive statistics (frequency and percentage).

### Inclusion criteria

- Cases of placenta previa diagnosed on routine ultrasound examination

- Placenta previa cases with scarred/non-scarred uteri.

### Exclusion criteria

- Other causes of antepartum haemorrhage
- Other causes of painless vaginal bleeding like carcinoma cervix, cervical polyp, local trauma, etc.

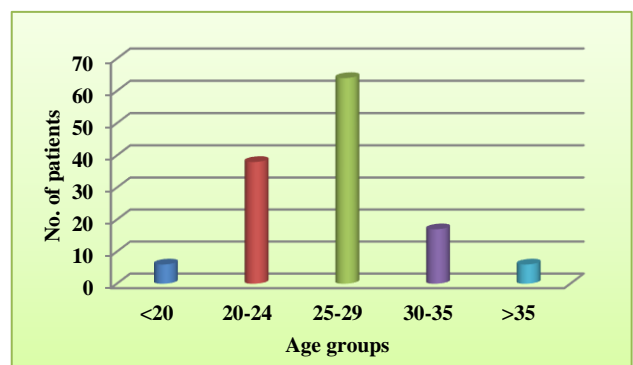
## RESULTS

Total number of deliveries during the study period were 13,150. Total number of live births were 13,087. Total number of twin deliveries were 36. Total number of placenta previa cases were 131. The incidence of placenta previa thus obtained in present study was 1% (Table 1).

**Table 1: Overview of statistics.**

Parameters	Statistics
Total number of deliveries	13,150
Total number of live births	13,087
Incidence of placenta previa	1%
Number of maternal deaths due to placenta previa	01
Number of perinatal deaths due to placenta previa	04
Perinatal mortality rate due to placenta previa	30.5/1000
Number of NICU admissions	33

In our present study, the incidence of placenta previa was found to be the highest among the age group 25-29 years with 48.8%, followed in a decreasing fashion among the age group 20-24 years with 29%, 13% among 30-34 years and the least among those with age <20 years and ≥35 years with 4.6%. The above incidence could be partly influenced by the increasing adaptation of late marriages during the present times. The mean maternal age obtained in present study was 25.6 years (Figure 1).



**Figure 1: Distribution of age groups among PP cases.**

Unlike numerous other studies, in present study authors came across higher incidence of placenta previa among the primigravids. This could be explained by the increasing age at first pregnancy and the possibility of hidden history of abortions with curettage. Previous

caesarean section was seen to be a major risk factor for placenta previa complicating 29.8% of the cases. Second most important risk factor was previous abortion with curettage amounting to 18.3% (Table 2).

**Table 2: Obstetric profile of cases.**

Obstetric profile	No.	%
Primigravida	70	53.4
Multigravida	61	46.6
Previous LSCS	39	29.8
Previous abortion	24	18.3
Malpresentations (Breech, transverse lie, oblique lie, face)	13	9.9
Adherent placenta	1	0.76

Among the 4 cases of peripartum hysterectomy, 3 cases were performed due to failure to control atonic PPH with medical and conservative surgical techniques. The fourth case was a case of two previous LSCS with morbidly adherent placenta.

Among the 131 cases included in present study spinal anaesthesia was administered to 127 women while in the rest of the four cases general anaesthesia was administered (Table 3).

**Table 3: Different modes of delivery among PP cases.**

Mode of delivery	Frequency	%
LSCS	87	66.4
Repeat LSCS	39	29.8
Hysterotomy	01	0.8
Peripartum hysterectomy	04	3.1

Majority of the cases i.e. 67.9% cases had major degree placenta previa. The most common type was type 2b (45.8%). From the results it can be noticed that Type 2B placenta previa was the most frequent in occurrence with 45.8% followed by Type 1, Type 2A and 3 and Type 4 with 19.8%, 12.2%, 12.2% and 9.9% respectively (Table 4).

**Table 4: Occurrence of different types of placenta previa.**

Types of placenta previa	Frequency	%
1	26	19.8
2a	16	12.2
2b	60	45.8
3	16	12.2
4	13	9.9

25.2% cases needed NICU admissions. The criteria for admission included prematurity, low birth weight Respiratory distress syndrome and neonatal anaemia. Respiratory distress syndrome was seen in 9.9%. Low birth weight babies contributed to 20.6% and extremely low birth weight babies amounted to 5.3% thus

contributing to significant neonatal morbidity and mortality (Table 5). Among the 131 cases studied, 3.8% required ICU admissions.

**Table 5: Neonatal outcome.**

Factors	No.	%
Maturity (in weeks) <30 weeks	2	1.5
30-33 weeks	12	9.2
34-37 weeks	25	19.1
>37 weeks	91	70.2
preterm	39	29.7
Birth weights (in kg) <1.5	7	5.3
1.5-2.49	27	20.6
2.5-3.0	39	29.8
>3	58	44.3
Still born	4	3.05
Respiratory distress syndrome	13	9.9

Postpartum Haemorrhage occurred in 10.7% cases. Blood transfusions were needed in 18.3% of the cases (Table 6).

**Table 6: Obstetric complications.**

Complications	No.	%
Postpartum Haemorrhage	14	10.7
Blood transfusions	24	18.3
Peripartum hysterectomy	4	3.05
ICU admissions	5	3.8

## DISCUSSION

In present study, the incidence of placenta previa among the total number of cases delivered at JSS Hospital, Mysore during the period January 2017 to June 2018 was 1%. Total number of deliveries during this period were 13,150 out of which 131 cases were complicated by placenta previa. The incidence of 1% obtained in present study is higher in comparison to study by Martina Kollman et al., 1993-2012 which showed 0.15% and study by Sarojini et al that showed 0.64%.<sup>4,5</sup>

The high incidence obtained could be due to the reason that this hospital is a tertiary referral center. However, few other studies showed a much greater incidence of placenta previa like study by Sunil Kumar Samal et al. showing 2.9% and Meenakshi et al., 2014-2016 showing 1.8%.<sup>6</sup> Among the cases studied, greater number of placenta previa were among the primigravidas when compared to multiparas.

This could partly be reasoned out by the late marriages and elderly primigravidas, increasingly diagnosed cases of minor degree placenta previa through ultrasound. However, this aspect could be studied in greater detail in the future through other studies.

In present study, it can also be noted that major number of cases fell into the age group 25-29 years, mean age

being 25.6 years. This observation is similar to the study conducted by Raja Rajeshwari et al. at Thanjavur, wherein placenta previa cases were the highest in 20-29 years.<sup>7</sup> Similar results were also obtained in study by VN Kurudu et al. A lot of other studies showed that risk of placenta previa increases with age.<sup>8</sup> In present study, one fifth of the women were of the age 30 and above. 57% of the women in present study had antepartum hemorrhage, which led to them being diagnosed with placenta previa with the help of ultrasound. No attempt was made to confirm the ultrasonographic findings, even in asymptomatic cases with double set up vaginal examination.

Shortcomings of USG could be overcome with a gentle transvaginal USG and MRI. Antepartum hemorrhage was more prevalent in major degree placenta previa (52.8%) in comparison to minor degree (45.2%). Study by Atsuko Sekiguchi et al. also showed a greater occurrence of antepartum hemorrhage of 59% in complete type when compared to 17.6% in incomplete type.<sup>9</sup> 29.8% cases in present study had a history of prior caesarean section and 18.3% cases had history of one or more abortions.

Similar results were noted in study carried out by CH Nirmal et al. Mustafa et al. reported previous scar of uterus as a major risk factor (56.5%).<sup>10</sup> No twin pregnancies with coexisting placenta previa were noted in present study. Caesarean section is the method of choice for delivery in cases of major degree placenta previa. Four cases underwent subtotal hysterectomy in present study following atonic PPH. One of them had a morbidly adherent placenta. The study presented includes one maternal death which resulted from Disseminated intravascular coagulation that resulted following atonic PPH and multiorgan dysfunction. Numerous studies conducted over the years showed a wide variation in the incidence of PPH among the pregnant women with placenta previa. In present study, PPH was seen in 10.7% of the cases.

The incidence of PPH as low as 3.56% was reported by Ogueh et al. and as high as 58.68% was reported by Zlatnik et al. The wide variation in the incidence could be due to the geographical differences, multiparity, prior caesarean section and other potential characteristics.<sup>11</sup>

The prime factor responsible for neonatal morbidity and mortality in cases of placenta previa is prematurity. Neonatal mortality in this study was 30.5 per 1000, mainly due to prematurity and birth asphyxia. Prematurity in present study contributed up to 29.8%. A much greater number of cases (40.86%) delivered preterm in Wilson Rodie et al., study. Meenakshi et al. study showed 42.85% 12 prematurity with 24% needing NICU admissions.

In present study 25.2% NICU admissions were recorded. Perinatal morbidity in present study was 3%, lower in comparison to study by Lavanya Kumari Sarella et al that

showed 6.6%.<sup>13</sup> This can be credited to the timely and judicious antepartum and intrapartum care and the well-equipped NICU and skilled neonatologists. The shortcomings of this study are that it is a single center study and there is lack of controls.

## CONCLUSION

The present study suggested that placenta previa significantly contributes to maternal and perinatal morbidity and mortality. Accurate diagnosis, appropriate management and timely delivery can provide us with the most desired outcome. The current study suggested that there is an association between advancing age, previous caesarean section and abortion as the risk factors for placenta previa. Regional anesthesia can be safely administered to cases of placenta previa.

Placenta previa as noted from the study was seen to be associated with increased risk of maternal complications like PPH and neonatal complications including prematurity and low birth weight. Hence it is advisable to manage a case of placenta previa in a tertiary care center with a good neonatal support, round the clock operation theatre and blood bank facilities.

*Funding: No funding sources*

*Conflict of interest: None declared*

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

## REFERENCES

1. Oppenheimer L, Society of obstetricians and gynaecologists of Canada, Diagnosis and management of placenta previa. *J Obstet Gynaecol Canada.*2007;29(3):261-6.
2. Gupta B, Misra R. Antepartum haemorrhage. In: Renu Misra. (ed.) *Ian Donald's Practical Obstetric problems.* Seventh edition; 2014.p.315.
3. Sinha P, Kuruba N. Antepartum haemorrhage: an update. *J Obstet Gynecol.*2008;28(4):377-81.
4. Kollmann M, Gaulhofer J, Lang U, Klaritsch P. Placenta praevia: incidence, risk factors and outcome. *J Maternal-Fetal Neonat Med.* 2016;29(9):1395-8.
5. Sarojini, Malini KV, Radhika. Clinical study of placenta previa and its effect on maternal health and fetal outcome. *Int J Reproduct, Contracept, Obstet, Gynecol.* 2016;5(10):3496-9.
6. Meenakshi Devarmani, Patil Sanjana Tallur. Placenta previa: Maternal and foetal outcome. *J Evol Med Dental Sci.* 2016;5(40):2477-80.
7. Rajeshwari RR, Rubini M. Maternal and perinatal outcome in placenta previa: one-year study in tertiary care center in Tamil Nadu, India. *Int J Reproduct, Contracept, Obstet Gynecol.* 2016;5(8):2819-22.
8. Kurude VN, Saha D. Study of maternal and perinatal outcome in placenta praevia at tertiary care center. *Indian J Res.*2016;6(3):44-5.
9. Sekiguchi A, Nakai A, Kawabata I, Hayashi M, Takeshita T. Type and Location of Placenta Previa

- Affect Preterm Delivery Risk Related to Antepartum Hemorrhage. *Int J Med Sci.*2013;10(12):1683-8.
10. Nirmala CH, Mounisha NV. Placenta Praevia- A Study On Maternal and Perinatal outcome. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS).*2017;04(7):4-7.
  11. Zlatnik MG, Cheng YW, Norton ME, Thiet MP, Caughey AB. Placenta previa and the risk of preterm delivery. *J Maternal-Fetal Neonat Med.* 2007;20(10):719-23.
  12. Meenakshi Devarmani, Patil Sanjana Tallur. Placenta previa: Maternal and foetal outcome. *J Evol Med Dent Sci.* 2016;5(40):2477-80.
  13. Lavanyakumari S, Arunajyothi C. A Study On maternal and Perinatal Outcome in Placenta Previa. *Scholars J App Medi Sci.* 2014;2(5A):1555-8.

**Cite this article as:** Sorakayalapeta MR, Manoli NS. Maternal and perinatal outcome in placenta previa: an observational study at a tertiary care hospital in Mysore, Karnataka, India. *Int J Reprod Contracept Obstet Gynecol* 2019;8:1322-6.