



## Trends, Risk Factors and Outcome of Placenta Praevia in A Tertiary Care Center-5 Year Retrospective Study

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### Abstract

*Placenta Previa is a rare form of impaired placentation where the placenta lies low in the uterine cavity, covering completely or partially the internal cervical ostium. It is one of the main causes of vaginal bleeding in third trimester. The prevalence of Placenta Previa is about 0.2% -1.5% .The pregnancies complicated by Placenta Previa are prone for bleeding during ante-partum period which accrue the risk of adverse maternal and perinatal outcome as compared to general population. These patients are particularly at an increased risk of peri-partum hysterectomy<sup>2</sup>, usually performed due to uncontrolled bleeding whose obvious result is loss of future fertility.*

**Objectives:** Main primary objectives were

1. To study the trends of Placenta Previa and its determinants during the last five years
2. To compare the risk factors for major and minor degree of placenta previa.

Secondary Objectives were to study the maternal morbidity in pregnancies complicated by Placenta Previa and the foetal outcome in pregnancies complicated by Placenta Previa

**Materials and Methods:** This study is a descriptive study conducted in Department of Obstetrics and Gynaecology Sri Avittom Thirunal Hospital, Thiruvananthapuram. Study population included data of patients with a diagnosis of placenta previa during the five year period from 2006 to 2010. The details of the cases were collected from the medical records using structured proforma. The diagnosis of placenta previa was confirmed either using last ultrasonographic examination before delivery or from intraoperative findings. Trend was analyzed for cases for last five years.

**Results:** The data of all the patients with diagnosis of placenta previa during the 5 year period from 2006 to 2010 were included in the study. There were 876 patients with placenta previa during this period. The patients were diagnosed with placenta previa either by last antenatal ultrasound or confirmed intra-operatively. Results showed that the incidence of placenta, ranged from 1.35- 1.67. The rate increased by 23% from 2006 to 2010. Majority of patients belonged to age group 21-30 yrs.18.7% of patients included in the study were above the age of 30 years. In our patients 20.2% of the patients had history of abortions. There were 106 spontaneous abortions (12.1%) and 91 induced abortions (10.4%).In our study 25.4% of the patients with placenta previa had previous vaginal delivery while 26.5 % had previous Cesarean

section. There was a slight increase of 1.1% in the number of patients with prior cesarean section as compared to those with previous vaginal delivery.. In our study 5% of patients had history of treatment for infertility while 95% did not have any history of infertility treatment. Majority of patients with placenta previa did not have a history of placenta previa in previous pregnancies. Though a recurrence rate of 4-8% in placenta previa was shown in studies, our patients with placenta previa did not have a significant past history of placenta previa (0.9%). Uterine myoma was present in 3% of patients with placenta previa. The average age of incidence of placenta previa was 27.7+/- 4.68 during 2006 and was 26.64+/- 3.6 in 2010 showing a decrease in mean age by 0.83 years over the last 5 years but this was not statistically significant. Our analysis showed an increase in the number of patients having previous cesarean between 2006(44%) and 2010(55.3%) . The increase in the number of patients with previous cesarean was not found to be statistically significant, but could be a reflection of the general increase in the incidence of cesarean section and could have contributed to the increasing incidence of placenta previa. There is an increase in the proportion of patients having history of prior abortion, an increase from 21% in 2006 to 26.6 % in 2010, probably contributing to the increase in incidence of placenta previa. Major degree of placenta previa (Type 3+4) constituted 53% as compared to minor degree of previa. (Type 1+2) which was 47%. In our study outcome analysis showed, 15.5% of our patients with placenta previa having malpresentations. 80.5% of the patients had history of antepartum hemorrhage (2<sup>nd</sup> or 3<sup>rd</sup> trimester). 9 patients had adherent placenta(0.01%) and all these patients had previous cesarean section. 51.3% of the patients had their pregnancy terminated before 37 weeks. 94.6% of patients with placenta previa were delivered by Cesarean section which included 57.9% of patients who needed emergency Cesarean section. Major intraoperative complications were excessive bleeding and blood transfusion. Hysterectomy was done for 14 patients constituting 1.6% . Post partum complications like postpartum hemorrhage was present in 5.02% of our patients and 3.19% had postpartum sepsis. 51.1% of the babies were delivered preterm while 48.9% of the babies were delivered term. 11.8 % of babies born to patients with placenta previa had respiratory distress soon after birth, 7.7% of babies had low 1 min APGAR score (<7) and 12.2% of babies required admission to inborn nursery. 40.5% of the babies had birth weight less than 2.5 kg. 57.5% of babies born as preterm had pregnancy complicated by major previa as compared to 43.8% in minor which was statistically significant. 36.8% of patients with major previa had birth weight < 2.5 kg against 29.4% among minor previa which was statistically significant. Low Apgar scores at birth, respiratory distress soon after birth and admission to inborn nursery were high among patients with major placenta previa as compared to minor previa.

**Conclusion:** The rate of incidence of Placenta Previa showed an increasing trend from 2006 – 2010 and the rate increased from 1.35-1.67% indicating a 23% increase in incidence over 5 year. Our hospital being a tertiary centre, 35.6% of patients were referred patients with Placenta Previa. Majority of patients (91.7%) belong to low income group, probably because our hospital services are mainly utilized by the people from low socio economic strata. Risk factors of Placenta Previa like history of prior spontaneous or induced abortions, previous cesarean section, short inter pregnancy interval were prevalent in our patients. Risk factors like multiparity, multiple gestation, prior history of Placenta Previa, presence of uterine myoma, previous myomectomy, treatment for infertility, smoking and illicit drug abuse were not prevalent in our subjects. Determinants like history of abortions, previous cesarean section, short inter pregnancy interval and infertility treatment have shown increase in trend from 2006 to 2010. Attributes like advanced maternal age, presence of uterine myoma, previous myomectomy, history of prior Placenta Previa have not exhibited significant trend deviation. 53% of the patients had major degree of placenta previa and 47% had minor degree of placenta previa. Risk factors like history of abortion including spontaneous and induced abortions, history of treatment for infertility were significantly related with major degree of placenta previa. No significant association was observed between type of placenta previa with risk factors like Previous cesarean section, short inter pregnancy interval, multiparity, presence of uterine myoma and previous myomectomy. Placenta previa was associated with malpresentation in 15.5% of subjects. 80.5% of the pregnancies with placenta previa were complicated by antepartum hemorrhage. Placenta accreta was present in 9 patients and all of them had history of previous cesarean section. The number of patients with placenta accreta did not show any increase in trend during 2006 and 2010. More than half of patients i.e. 50.3% had pregnancy terminated before 37 weeks. Cesarean section was the mode of delivery in 94.6% of the patients and significant number of patients required emergency cesarean section. Major intra-operative complication were excessive bleeding, blood transfusion and hysterectomy. Peripartum hysterectomy was done for 14 patients with placenta previa (1.6%) Intra-operative complications were significantly high in major degree of placenta previa. Peripartum Hysterectomy was done for 14 patients with placenta previa. 51 % of the babies were born preterm. In our study neonatal complications like respiratory distress, low 1 minute APGAR scores, low birth weight and admission to neonatal care unit were more with major degree of placenta previa.

## Introduction

Placenta Previa is a rare form of impaired placentation where the placenta lies low in the

uterine cavity, covering completely or partially the internal cervical ostium. It is one of the main causes of vaginal bleeding in third trimester. The

prevalence of Placenta Previa is about 0.2% - 1.5%'. The pregnancies complicated by Placenta Previa are prone for bleeding during ante-partum period which accrue the risk of adverse maternal and perinatal outcome as compared to general population. These patients are particularly at an increased risk of peri-partum hysterectomy<sup>2</sup>, usually performed due to uncontrolled bleeding whose obvious result is loss of future fertility.

### Relevance of the Study

A trend of increasing placenta previa incidence was observed in the past decade probably coinciding with the increasing cesarean section rate and advancing maternal age at the time of first pregnancy. Although the clinical course of placenta previa is highly suggestive, the etiology of this condition still remains obscure. The strongest connection was found between previous history of cesarean section, high parity, and advanced maternal age<sup>3,4,5</sup>, but the strength of connection varied from study to study. Other potential risk factors with more confounding effect on the development of placenta previa include history of previous spontaneous or induced abortions, increasing number of previous cesarean sections, previous uterine operations, previous placenta previa, smoking or substance abuse during pregnancy, multiple gestation, and child sex at birth<sup>7</sup>.

Many of these risk factors have increased during the past decade including rate of caesarean section, advanced maternal age and number of women undergoing infertility treatment. Repeat cesarean section is associated with increased morbidity and perhaps the greatest risk to future pregnancies is the increase' in disorder caused by abnormal placentation including Placenta Previa and Placenta Accreta<sup>6</sup>.

Placenta previa can have serious adverse consequences for both mother and baby, including an increased risk of maternal and neonatal mortality, fetal growth restriction and preterm delivery, antenatal and intrapartum hemorrhage, and women may require blood transfusion or even

an emergency hysterectomy. Accordingly, the aim of the current study is to describe the incidence and trend deviation of Placenta Previa over the last five years and the factors that may have impacted the incidence and trends of placenta previa.

### Objectives

#### Primary Objectives

1. To study the trends of Placenta Previa and its determinants during the last five years.
2. To compare the risk factors for major and minor degree of placenta previa.

#### Secondary Objectives

1. To study the maternal morbidity in pregnancies complicated by Placenta Previa
2. To study the foetal outcome in pregnancies complicated by Placenta Previa

### Materials and Methods

This study is a descriptive study conducted in Department of Obstetrics and Gynaecology Sri Avittom Thirunal Hospital, Thiruvananthapuram. Study population included data of patients with a diagnosis of placenta previa during the five year period from 2006 to 2010. The details of the cases were collected from the medical records using structured proforma. The diagnosis of placenta previa was confirmed either using last ultrasonographic examination before delivery or from intraoperative findings. Trend was analysed for cases for last five years.

### Observations and Results

The data collected from the case records of 876 patients with placenta previa during the five year period from 2006- 2010 were analysed and the observations and results are as follows.

## Sociodemographic Characteristics of Study Population

**Table 1-** Frequency distribution of patients with Placenta Previa from 2006-2010

Year	Frequency of placenta previa	No of deliveries
2006	195	14402
2007	204	12546
2008	184	11150
2009	150	9896
2010	143	8545
<b>Total</b>	<b>876</b>	<b>56539</b>

There were 876 patients with diagnosis of placenta during the study period.

### Age distribution, booking status and socioeconomic status

Majority of patients belonged to age group 21-30 years. Average age was  $26.80 \pm 4.49$  and the age ranged from 18-40 years. When compared with the annual statistics of 2010, age distribution reflected the general age distribution of patients delivering in our hospital. Of the total 876 patients, 63.5% of patients with Placenta Previa were booked in SAT, 35.6% is referred from outside hospitals whereas 0.9% were un-booked. Among the 876 patients with placenta previa, 91.7% belonged to low income group and 8.3% belonged to high income group (calculated on the basis of self reported income).

### Graavid status and parity of patients with placenta previa

42.1% of subjects were primigravida, 33.3% were 2<sup>nd</sup> gravida and the rest 24.5% were 3<sup>rd</sup> Gravida and above. Among the parous patients, 76.5% of patients with placenta previa were para 1, 20.2% of the patients were para 2 and the rest 3.3% were para 3.

### Parity of patients with placenta previa

Increasing parity has been shown to be a risk factor for placenta previa. Among the parous patients 76.5% were para 1 and the rest 23.5% were para 2 and above.

### History of Abortions, type of abortions and placenta previa

20.2% of the patients in our study had history of prior abortions. There were 106 spontaneous

abortions (12.1%) and 91 induced abortions (10.4%).

### Treatment 8-n H/o treatment for infertility and placenta previa

5% of patients had history of treatment for infertility while 95% did not have any history of infertility treatment.

### Mode of delivery and placenta praevia

51.9% of patients with placenta previa were parous while 48.1% were not. 25.4% of the total patients had previous vaginal delivery while 26.5% had previous Cesarean section. There was a slight increase of 1.1% in the number of patients with prior cesarean section as compared to those with previous vaginal delivery, but this was not statistically significant. 0.9% of the patients had history of placenta previa in previous pregnancies.

### Inter pregnancy interval and placenta previa

Interpregnancy Interval	Frequency	Percent
<1yr	87	17.6
1-2 yrs	245	49.7
3-4yrs	72	14.6
>5yrs	89	18.1
<b>Total</b>	<b>493</b>	<b>100.0</b>

Inter pregnancy interval was 1-2 years in 49.7% of patients. 17.6% of the patients had inter pregnancy interval <1 year

Short inter pregnancy interval has been shown to have association with placenta previa. Majority (67.3%) of patients had inter pregnancy interval < 2 years.

### Multiple pregnancy and placenta previa

97.8% of placenta previa were associated with singleton pregnancies. Multiple pregnancy occurred in 2.2% of patients with placenta previa.

### Presence of uterine anomalies, Uterine Myoma and placenta previa

Three patients had uterine anomalies associated with placenta previa. Bicomuate uterus was seen in two patients and one had septate uterus. Uterine myoma was present in 3% of patients with placenta previa. History of previous myomectomy was present in only 0.9% of patients with placenta previa. Posterior placenta constituted 43.5% of

placenta previa while 39.5% were anterior and 17% were central.

#### **Presentation in patients with placenta previa**

Cephalic presentation (84.5%) was the major presentation in patients with placenta previa while non-cephalic presentation was present in 15.5%.

#### **Trend in Incidence of Placenta Previa and Its Determinants**

##### **Rate of incidence of placenta previa for the period — 2006 to 2010**

The study showed a slight increase in the rate of incidence Placenta previa over last five years barring a dip during 2009. The rate ranges between 1.35-1.67. The incidence of placenta previa increased from 1.35% in 2006 to 1.67% in 2010. There is a 23% increase in the incidence of placenta previa during the study period.

##### **Trend in age distribution of patient with placenta previa**

The age distribution of patients with placenta previa was as shown above during 2006 and 2010. The number of patients with age more than 35 years has shown a decrease in 2010 as compared to 2006 with an increase in the patients with age 26-30 years. There is a decrease in the number of patients with maternal age >30 years between 2006 and 2010. But this decrease was not statistically significant. The average age of incidence of placenta previa was  $27.7 \pm 4.68$  during 2006 and was  $26.64 \pm 3.6$  in 2010. There was a decrease in mean age by 0.83 years over the last 5 years.

##### **Comparison of gravid status of patients during 2006 and 2010**

Primi gravidas and second gravidas constituted majority of patients with placenta previa, their proportion remaining almost the same. The parity of patients with placenta previa during 2006 and 2010 remains comparable with a mild increase in the percentage of para3 in 2010. Analysis showed an increase in the number of patients with prior abortions in 2010 (26.6%) compared to 2006 (21%).

#### **Spontaneous abortion, induced abortions and placenta previa**

There was a slight increase in the proportion of patients with previous abortions. The increase was also noted in patients with previous spontaneous abortions but the proportion of patients with induced abortions decreased from 2006 to 2010. The proportion of patients who had history of treatment for infertility showed a slight increase of 0.7% from 2006 to 2010 but this was not statistically significant. There was an increase in the number of patients with previous LSCS between 2006 (44%) and 2010 (55.3%). The increase was found to be statistically not significant. The number of patients with more than 1 previous LSCS were not significant during 2006 and 2010.

##### **Comparison of history of myomectomy and Presence of uterine anomaly in patients with placenta previa in 2006 and 2010**

History of myomectomy was present in 1.5% of patients with placenta previa in 2006 as against 0% in 2010. Uterine anomaly was present in one case of placenta previa in 2006.

##### **Comparison of inter pregnancy interval in patients with placenta previa between 2006 and 2010**

Inter pregnancy interval in patients with placenta previa during 2006 and 2010 remains comparable. There is an increase in the number of patients with inter pregnancy interval  $\leq$  years from 2006 to 2010 but this was not found to be statistically significant.

##### **Comparison of patients with history of prior placenta previa between**

History of prior placenta previa was not significantly seen in patients with placenta previa in both years.

##### **Comparison of Risk Factors for Major and Minor Degree of Placenta Previa**

Type 2 (36.3%) and type 3 (31.1%) constituted majority of placenta previa. Major degree of placenta previa (Type 3+4) constituted 53% as compared to minor degree of previa. (Type 1+2)

which was 47%. Maternal age remains the same in patients with major and minor degree of placenta previa. Parity of patients with placenta previa was not significantly different. Among the parous patients, 75.8% of those with major degree of placenta previa and 77.5% of those with minor degree of previa, were para one. Though there was an increase in the number of para 3 with minor placenta previa, this was not statistically significant. Among patients with history of abortions 60.5% had major degree of placenta previa as compared to 39.5% with minor degree of previa which was statistically significant. Majority of patients who had history of treatment for infertility had major degree of placenta previa which was statistically significant. There was no difference in the in mode of previous delivery and degree of placenta previa. Interpregnancy interval in patients with major and minor degree of placenta previa were as shown in table, with more number of patients having interpregnancy interval < 2 years having major placenta previa. Multiple gestation was not significant in determining the type of previa. The association between uterine anomaly and type placenta previa was not significant. 30.8% of patients with uterine myoma had major degree of placenta previa as compared to 69.2% with minor previa. History of myomectomy was not significant risk factor determining the type of placenta previa.

### **Maternal Outcome**

#### **Presentation of fetus**

Cephalic presentation (84.5%) was the major presentation in patients with placenta previa while non-cephalic presentation was present in 15.5%. 80.5% of patients with placenta previa had history of Ante partum hemorrhage.

#### **Presence of Adherent Placenta**

Adherent placenta was present in 9 cases of placenta previa. There were 2 cases each in 2006, 2007, 2009 and 2010 and one case in 2008. Association of adherent placenta with previous delivery All the 9 patients with placenta accreta had previous cesarean section.

### **Duration at which Pregnancy terminated**

51.3% of patients had pregnancy terminated before 37 weeks.

### **Intraoperative complications**

Major intra op complications were excessive bleeding and blood transfusion.

Hysterectomy was done for 14 patients constituting 1.6%

### **Comparison of intra operative complication in major and minor degree of placenta previa**

Intra op complications like excessive bleeding, blood transfusion, hypotension and hysterectomy were more common in major degree of previa as compared to minor which was statistically significant. Postoperative complications like PPH was present in 5.02% and sepsis in 3.19%

### **Neonatal outcome**

5 babies had congenital anomalies which included 2 cases of congenital talipes equinovarus, one case of cleft lip, one baby with multiple congenital anomalies and one baby had ambiguous genitalia. 11.8 % of babies bom to patients with placenta previa had respiratory distress soon after birth and 12.2% of babies required admission to inborn nursery. 7.7% of babies had low 1 min APGAR score (<). 40.5% of babies had birth weight <2.5 kg. Average birth weight was 2.590 ±0.582 Kg and birth weight ranges between 0.600 to 4.600 Kg. 36.8% of patients with major previa had birth weight < 2.5 kg against 29.4% among minor previa which was statistically significant. Average birth weight among the major previa was 2.7532±0.604 Kg and that among the minor previa was 2.657±0.549 Kg.

### **Discussion**

The data of all the patients with diagnosis of placenta previa during the 5 year period from 2006 to 2010 were included in the study. There were 876 patients with placenta previa during this period. The patients were diagnosed with placenta previa either by last antenatal ultrasound or confirmed intra-operatively.

### Trends in Incidence of Placenta Previa

Results showed that the incidence of placenta, ranged from 1.35- 1.67. Different studies have shown the incidence of placenta previa to range between 0.2-2%. The incidence of placenta previa is higher in our patients compared to literature reviewed as our hospital is a tertiary care centre. The study showed an increase in the incidence of Placenta previa over last five years. The rate increased by 23% from 2006 to 2010. Similar observations were made in a study by Roberts CL et al<sup>15</sup> where they studied trends and recurrence rates of placenta previa in 790,366 deliveries from 2001 to 2009, and found the rate of placenta previa increased by 26%, from 0.69% to 0.87% (trend  $P < 0.001$ ). Majority of patients belonged to age group 21-30 yrs. 18.7% of patients included in the study were above the age of 30 years. Several studies have shown advancing maternal age as a determinant of placenta previa.<sup>4,7</sup> In the study patients 52.5% were parous patients and among the parous patients 76.5% were para 1 and the rest 23.5% were para 2 and above. There were no grand multiparas in our study group. In our patients 20.2% of the patients had history of abortions. There were 106 spontaneous abortions (12.1%) and 91 induced abortions (10.4%). The random effects pooled analysis indicated that the risk of placenta previa was 1.6 (95% confidence interval 1 to 2.6) for women with at least one prior spontaneous abortion, while women with a history of induced abortion had a relative risk of 1.7 (95% CI, 1.0-2.9). In our study 25.4% of the patients with placenta previa had previous vaginal delivery while 26.5% had previous Cesarean section. There was a slight increase of 1.1% in the number of patients with prior cesarean section as compared to those with previous vaginal delivery. Though the increase was not statistically significant, significant observation was found in other studies. 68.3% of patients with placenta previa in our study group had inter pregnancy interval  $\leq 2$  years. Many studies have proved short inter pregnancy interval to be associated with occurrence of placenta previa. In our study 5% of

patients had history of treatment for infertility while 95% did not have any history of infertility treatment. History of prior infertility treatment was not significantly associated in our patients though many studies have proved infertility treatment as a risk factor for placenta previa. Rosenberg (2011)<sup>12</sup> reported that infertility treatments, prior cesarean section, and advanced maternal age were independent risk factors for placenta previa. Though a recurrence rate of 4-8% in placenta previa was shown in studies, our patients with placenta previa did not have a significant past history of placenta previa (0.9%). Uterine myoma was present in 3% of patients with placenta previa. Studies have suggested that the presence of fibroids is associated with a 2-fold increased risk of placenta previa. History of previous myomectomy was present in only 0.9% of patients with placenta previa. 97.8% of placenta previa were associated with singleton pregnancies.

### Trends in Determinants of Placenta Previa Advancing Maternal Age

The average age of incidence of placenta previa was 27.7 $\pm$  4.68 during 2006 and was 26.64 $\pm$  3.6 in 2010 showing a decrease in mean age by 0.83 years over the last 5 years but this was not statistically significant. The finding of decrease in mean age of patients with placenta previa during this period does not reflect the trend in mean maternal age among pregnant population. There is a decrease in the proportion of patients with maternal age  $>30$  years between 2006 and 2010. Though studies have shown increasing trend in maternal age our analysis showed a decrease in the mean maternal age by 0.83 years. Our analysis showed an increase in the number of patients having previous cesarean between 2006 (44%) and 2010 (55.3%). During the past decade world-wide incidence of caesarean section has increased markedly, *approx. one out of four women will have caesarean delivery*<sup>14</sup> and it is the most frequently performed surgical procedure in US. About one-third of cesarean sections are repeat procedures. Repeat cesarean section is associated

with increased incidence of placenta Previa and Placenta Accreta<sup>11</sup>. The increase in the number of patients with previous cesarean was not found to be statistically significant, but could be a reflection of the general increase in the incidence of cesarean section and could have contributed to the increasing incidence of placenta previa. There is an increase in the proportion of patients having history of prior abortion, an increase from 21% in 2006 to 26.6 % in 2010, probably contributing to the increase in incidence of placenta previa. The slight increase in the number of spontaneous abortions were not reflected with induced abortions which showed a decrease in incidence. Parity of patients with placenta previa remained almost the same with a slight increase in the number of para 3. There is an increase in the number of patients with inter pregnancy interval  $\leq 2$  years from 2006 to 2010 but this was not found to be statistically significant. Several studies have shown that short inter pregnancy interval is associated with increased incidence of placenta previa. Major degree of placenta previa (Type 3+4) constituted 53% as compared to minor degree of previa. (Type 1+2) which was 47%. Our study revealed that having previous abortions especially induced abortions and history of infertility treatment were significant risk factors in the development of major degree of placenta previa. But other factors like inter pregnancy interval, mode of previous delivery, parity, uterine myoma, history of placenta previa etc were not significantly contributing to the type of previa.

### Feto-Maternal Outcome

In our study outcome analysis showed, 15.5% of our patients with placenta previa having mal presentations. 80.5% of the patients had history of antepartum hemorrhage (2<sup>nd</sup> or 3<sup>rd</sup> trimester). 9 patients had adherent placenta (0.01%) and all these patients had previous cesarean section. 51.3% of the patients had their pregnancy terminated before 37 weeks. 94.6% of patients with placenta previa were delivered by Cesarean section which included 57.9% of patients who

needed emergency Cesarean section. Major intraoperative complications were excessive bleeding and blood transfusion. Hysterectomy was done for 14 patients constituting 1.6%. Post partum complications like postpartum hemorrhage was present in 5.02% of our patients and 3.19% had postpartum sepsis. The findings are similar to the study by Rosenberg et al<sup>12</sup>. Malpresentations (18.5% v/s 12%), history of antepartum hemorrhage (88.8% v/s 71.1%) and intra op complications like excessive bleeding, blood transfusion, hypotension and hysterectomy were more common in major degree of previa as compared to minor which was statistically significant. The association of adherent placenta with minor degree of placenta previa was observed in our study but the observation is not supported by literature. 51.1% of the babies were delivered preterm while 48.9% of the babies were delivered term. 11.8 % of babies born to patients with placenta previa had respiratory distress soon after birth, 7.7% of babies had low 1 min APGAR score ( $<7$ ) and 12.2% of babies required admission to inborn nursery. 40.5% of the babies had birth weight less than 2.5 kg. Crane et al<sup>13</sup> in their study proved that placenta previa was significantly associated with adverse perinatal outcomes such as higher rates of perinatal mortality an Apgar score  $<7$  after 1 and 5 min, congenital malformations and intrauterine growth restriction. 57.5% of babies born as preterm had pregnancy complicated by major previa as compared to 43.8% in minor which was statistically significant. 36.8% of patients with major previa had birth weight  $< 2.5$  kg against 29.4% among minor previa which was statistically significant. Low Apgar scores at birth, respiratory distress soon after birth and admission to inborn nursery were high among patients with major placenta previa as compared to minor previa.

### Conclusion

The rate of incidence of Placenta Previa showed an increasing trend from 2006 - 2010. The rate increased from 1.35-1.67% indicating a 23%

increase in incidence over 5 years. The age distribution of patients with Placenta Previa was similar to the general age distribution of patients who delivered in SAT. Our hospital being a tertiary centre, 35.6% of patients were referred patients with Placenta Previa. Majority of patients (91.7%) belong to low income group, probably because our hospital services are mainly utilized by the people from low socio economic strata. Our study subjects were mainly primigravidas (42.1%) and second gravidas (33.3%). There were no grand multies in our study reflecting the social circumstances and the high family welfare acceptance in our community. Risk factors of Placenta Previa like history of prior spontaneous or induced abortions, previous cesarean section, short interpregnancy interval were prevalent in our patients. Risk factors like multi parity, multiple gestation, prior history of Placenta Previa, presence of uterine myoma, previous myomectomy, treatment for infertility, smoking and illicit drug abuse were not prevalent in our subjects. Determinants like history of abortions, previous cesarean section, short interpregnancy interval and infertility treatment have shown increase in trend from 2006 to 2010.

Attributes like advanced maternal age, presence of uterine myoma, previous myomectomy, history of prior Placenta Previa have not exhibited significant trend deviation. Risk factors like history of abortion including spontaneous and induced abortions, history of treatment for infertility were significantly related with major degree of placenta previa. No significant association was observed between type of placenta previa with risk factors like Previous cesarean section, short interpregnancy interval, multiparity, presence of uterine myoma and previous myomectomy. Placenta previa was associated with mal presentation in 15.5% of subjects. 80.5% of the pregnancies with placenta previa were complicated by antepartum hemorrhage. Placenta accreta was present in 9 patients and all of them had history of previous cesarean section.

The number of patients with placenta accreta did not show any increase intrend during 2006 and 2010. More than half of patients i.e. 50.3% had pregnancy terminated before 37weeks. Cesarean section was the mode of delivery in 94.6% of the patients and significant number of patients required emergency cesarean section. Major intra-operative complication were excessive bleeding, blood transfusion and hysterectomy. Peripartum hysterectomy was done for 14 patients with placenta previa Intra-operative complications were significantly high in major degree of placenta previa. Neonatal complications like respiratory distress, low 1 minute APGAR scores, low birth weight and admission to neonatal care unit were more with major degree of placenta previa.

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