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## **INCIDENCE, RISK FACTORS AND NEONATAL OUTCOMES OF PLACENTA PREVIA PRESENTING AS ANTEPARTUM HEMORRHAGE IN TERTIARY CARE CENTRE OF NORTH INDIA**

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### **ABSTRACT**

Placenta previa presenting as antepartum hemorrhage (APH) in third trimester is one of the gravest obstetric emergencies and is of serious concern to neonatal morbidity and mortality, especially in the developing world. This retrospective study aimed to assess its incidence, risk factors and impact on neonatal outcomes. Women with singleton pregnancy with placenta previa presenting as APH and neonates born to them were evaluated at a tertiary referral centre in North India. Data was collected on patient age, parity, gestational age, history of previous caesarean section, history of dilatation and curettage and degree of placenta previa. In addition, data for neonates born to them was also collected which included gestational age at the time of delivery, neonatal birth weight, 1-min and 5-min APGAR scores, number of Neonatal Intensive Care Unit (NICU) admissions and number of neonatal deaths. Incidence of placenta previa was 1.9% among the study population and 74% of those had previous history of caesarean section or dilatation and curettage. 60.5% of the neonates born to them were preterm with low birth weight and 32.9% of neonates required ICU care. One minute and 5-minute APGAR scores less than 7 were observed in 30.5% and 3.9% of these newborn babies respectively. Therefore, a careful surveillance of these risk factors is recommended in order to reduce adverse neonatal outcomes.

**Keywords:** *Placenta Previa, APH, Third Trimester Bleeding, Neonatal Outcome*

### **INTRODUCTION**

Placenta previa is a form of abnormal placentation in which placenta is implanted low in the uterine cavity, resulting in a complete or partial covering of the internal cervical os. It is one of the major causes of Antepartum Hemorrhage (APH) and neonatal morbidity and mortality (Tuzovic, 2003; Norgaard, 2012; Ascioglu, 2014). The incidence of placenta previa generally ranges from 0.15-0.42% (Sheiner, 2001; Koifman, 2008; Rosenberg, 2011). There has been an increase in incidence of placenta previa over the years.

This is mainly due to defects caused by previous uterine manipulations and scarred endometrium (especially previous caesarean delivery and history of dilation and curettage with evacuation of uterus) (Tuzovic, 2003; Silver, 2006; Bajwa, 2013; Ascioglu, 2014; Räisänen, 2014; Singh 2015). Advanced age and multiparity also increase the likelihood of the placenta encroaching on the lower uterine segment (Eniola, 2002; Hossain, 2004; Cieminski 2005).

Neonates born of pregnancies complicated by placenta previa are at a higher risk of being born preterm and asphyxiated which necessitates intensive neonatal care. Much of the increased neonatal risk is primarily related to prematurity rather than to the placenta previa itself (Crane, 1999; Alencar, 2012; Norgaard, 2012). Pregnancies with placenta previa are also at an increased risk of low birth weight and low APGAR score (Ananth, 2001; Cunningham, 2014).

The objective of this study is to determine the risk factors of parturient women with placenta previa who presented with APH in third trimester and the neonatal outcomes associated with this condition.

### **MATERIALS AND METHODS**

This retrospective study was carried out at a tertiary referral centre in North India. All singleton pregnancies with placenta previa presenting with antepartum hemorrhage in third trimester from 1<sup>st</sup>

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November 2009 to 30<sup>th</sup> November 2013 were included with review of relevant files in the medical records department.

Data was collected on patient age, parity, gestational age, history of previous caesarean section, history of dilatation and curettage and degree of placenta previa. All neonates born to these women were evaluated and managed by a neonatologist. The data retrieved included gestational age at the time of delivery, neonatal birth weight, 1-min and 5-min APGAR score, number of Neonatal Intensive Care Unit (NICU) admissions and number of neonatal deaths.

## **RESULTS AND DISCUSSION**

### **Results**

It was observed that out of total 3935 singleton deliveries, 76 were complicated by placenta previa. The incidence of placenta previa was about 1.9%.

The sociodemographic data are presented in table 1. The age group of the women in the study group ranged from 20-53 years. About 22.3% women in the study group were above 30 years of age and 2 women were older than 40 years. About 27.6% of the sample population was multiparous, 74% had uterine manipulation in form of previous history of caesarean section or dilatation and curettage.

**Table 1: Sociodemographic data**

S. No	Variables	Placenta previa (n=76)
1	Age group (in years)	
	<30	59 (77.6%)
	31-40	15 (19.7%)
	>40	02 (2.6%)
2	Parity	
	Nulliparous (P=0)	20 (26.3%)
	Primiparous (P=1)	35 (46.1%)
	Multiparous (P≥2)	21 (27.6%)
3	Gestation (in weeks)	
	28-32	17 (22.4%)
	32-36	37 (48.7%)
	>36	22 (28.9%)
4	Prior caesarean delivery	26 (34.2%)
5	History of abortion and dilatation and curettage	30 (39.5%)

**Table 2: Neonatal outcomes**

S. No.	Fetal Outcomes	Placenta previa
1	Preterm birth	46 (60.5%)
2	Baby alive	66 (86.8%)
3	Neonatal death	2 (2.6%)
4	Neonatal ICU admission	25 (32.9%)
5	Birth weight (in grams)	
	<1000	-
	1000-1499	3 (3.9%)
	1500-2499	58 (76.3%)
	>2500	19.7 (19.7%)
6	APGAR Score	
	1 minute <7	23 (30.5%)
	5 minute <7	3 (3.9%)

Table 2 summarizes the incidence of various adverse neonatal outcomes in these women with placenta previa. Out of total alive newborns, 60.5% were delivered at less than 37 weeks of gestation, 76.3% were

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of low birth weight (1500-2499 grams) and 32.9% required ICU care. One minute APGAR score less than 7 was observed in 30.5% and 5 minute APGAR score less than 7 was observed in 3.9% alive newborn babies.

### **Discussion**

The incidence rate of placenta previa observed was 1.9%, which is much higher than 0.15-0.42% reported in the literature (Sheiner, 2001; Koifman, 2008; Rosenberg, 2011; Kollmann, 2015). The higher incidence rate observed in our study has been attributed to increasing tendency nowadays to perform caesarean sections even without medical indication on maternal request (Tuzovic, 2003; Räisänen, 2014). Women in developing countries have higher chances of third or fourth caesarean sections due to high birth orders and there is a positive correlation between the number of caesarean sections and the incidence of abnormal placentation (Silver, 2006; Singh, 2015). About 34.2% women in our study had a history of prior caesarean sections.

Dilatation and curettage has also been quoted as an additional risk factor. In the present study, 39.47% of the sample population had a history of dilatation and curettage. With liberalization of abortion practices and easy accessibility, the incidence of pregnancy related evacuation and curettage have increased, thereby, resulting in an increase in incidence of placenta previa (Tuzovic, 2003; Bajwa, 2013). In addition, our being a referral institute, we received more cases of pregnancies complicated with placenta previa presenting with APH.

The incidence of placenta previa is higher early in gestation than at term. In our study, placenta previa was present in 71% women at less than 36 weeks of gestation, while in women beyond term it reduced to 28.7%. This is because with advancing gestation the lower uterine segment is formed resulting in placental migration (Dashe, 2002; Eniola, 2002; Tuzovic, 2003; Kionodo, 2008; Berhan, 2014; Cunningham, 2014). The majority (77.6%) of the women in the study were below the age of 30 years. Age and parity were not found to be risk factors in this study; although many studies have reported an association of placenta previa with increasing age and high parity (Eniola, 2002; Hossain, 2004; Cieminski, 2005). Placenta previa in multiparity and increasing age is thought to be due to atherosclerotic changes in the uterus resulting in under-perfusion and infraction of the placenta, thereby increasing the size of the placenta (Kionodo, 2008). It causes mainly minor placenta previa and most of these cases were not included in the study. Placenta previa was linked in this study to a number of adverse neonatal outcomes including preterm delivery, admission to NICU and low APGAR scores. These adverse neonatal outcomes were because most of the women presented with antepartum hemorrhage with severe bleeding, which necessitated an early delivery (McCormack, 2008; Asicioglu, 2014).

The rate of NICU admission and APGAR score less than 7 at 1 minute was 32.9% and 30.5% respectively. We attribute these results to maternal hemodynamic instability associated with antepartum hemorrhage at the time of presentation that might have affected the baby enough to require resuscitation of the neonate (Asicioglu, 2014).

### **Conclusion**

Placenta previa presenting as APH in third trimester is one of the gravest obstetric emergencies. Even with the best obstetric care, due to dramatic suddenness, a pregnant woman can become exsanguinated due to severe bleeding. Neonates born to them are at a higher risk of premature birth, low APGAR score and increased admission to NICU. Our study shows that previous history of dilatation and curettage and prior caesarean section increase incidence of placenta previa. Thus, it is essential that obstetrician is alerted to these risk factors for early detection of placenta previa and hence, decrease its adverse effects.

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