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# To Determine the Incidence and Risk Factors Associated with Placenta Previa in a Tertiary Care Hospital of Pakistan

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**Abstract:** Placenta previa is the condition of pregnancy in which placenta implants in lower uterine segment, partially or completely covering the internal os. This condition may associate with many risk factors. Because with placenta previa pregnancy becomes high risk and fetomaternal morbidities and mortalities are also increased. By knowing the risk factors which are the main causative factors for placenta previa fetomaternal outcome can be optimized. The purpose of this study is to find the incidence of placenta previa, and also determine the risk factors for placenta previa. This is descriptive prospective study. This study was done in tertiary care hospital of Pakistan. In this study total deliveries were 5381, total patient with previa were found 325 (6.03%). The risk factors of placenta previa are age more than 35 years (28.92%), smoking (20.16%), multiparity (44%), uterine scar (60.30%), previous evacuation and curettage (24.30%). According to age distribution to mostly patients about 135 out of 325 were found between age group of 36-40 years with percentage of 41.23%. Distribution of patients according to gestational age mostly found between age 33-35 weeks with percentage of 54.76 percent and according to gravidity mostly found between G5-G7 with percentage of 42.46 percent. Aim of the study is to find out the risk factors associated with placenta previa and also determine the incidence of placenta previa in tertiary care hospital of Pakistan.

**Keywords:** Fetomaternal, Morbidities, Mortalities

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## 1. Introduction

Placenta previa occurs with an incidence of 0.3 - 0.5%. It is defined by implantation of placenta in lower uterine segment, partially or completely covering the internal os [1]. It is an obstetric complication [2]. The estimated global prevalence of placenta previa is 5.2 per 1000 pregnant women, although there is significant variation where by the prevalence was highest among the Asian population and lower in Sub Saharan Africa studies [3]. Obstetric hemorrhage is a leading cause of fetomaternal morbidity and mortality [4].

Transabdominal and transvaginal ultrasound are complementary diagnostic techniques and should be used as needed. Transvaginal ultrasound is safe for patients with placenta previa and allows a more complete examination of the lower uterine segment [5]. The use of Doppler imaging

does not significantly improve the diagnostics sensitivity compared with that achieved by gray scale ultrasonography alone [6].

Such abnormal placentation has been observed and show relationship with previous cesarean section [7, 8]. Other risk factors are uterine surgeries, such as myomectomy or curettage, advanced maternal age, multiparity and smoking [7, 9, 10]. Uterine scar is major risk factor for placenta previa and its complication like accrete, increta [11].

The prime factors responsible for neonatal morbidity and mortality in case of placenta previa is prematurity. Neonatal and maternal mortality is mainly due to birth asphyxia, prematurity with 24% needing NICU admission [12]. Pregnant women with placenta previa are carrying high risk pregnancy. This may have adverse fetomaternal outcome. fetomaternal morbidity, mortality is associated with this condition [13, 14].

## 2. Subject and Methods

Study was conducted at department of Obstetrics and gynecology department of Ganga Ram hospital (Tertiary Care Hospital Pakistan) for 6 Months for period of June 2018 to December 2018. Total deliveries were 12,850. 325 Pregnant women included in the study were those with age of 20 - 40 years, primigravida to gravida 4 having single pregnancy on ultrasound with gestational age  $\geq$  28 weeks on ultrasound and diagnosed cases of placenta previa major degree on ultrasound. Pregnant women having bleeding disorders (on investigations: decreased platelets count, deranged coagulation profile), Placental abruption (on ultrasound) were excluded. Informed consent was taken from the patient and data was kept anonymous for privacy.

325 pregnant women with placenta previa who presented in emergency as well as out patient department of Obstetrics and Gynecology department of Ganga Ram hospital and who fulfilled the above criteria were considered and explained the details of the study. Written informed consent was taken regarding personal information for the purpose of study. All the patients were followed till delivery.

Data was entered and analyzed by SPSS version 22 computer based software programme. Mean and Standard deviation were calculated for age, gestational age, duration of marriage, parity. Percentages of pregnant women with placenta previa with these risk factors like previous uterine scar, previous evacuation and

curettage, smoking, multiparity, age more than 35 years were noted with 95% confidence level and 10% margin of errors.

## 3. Result

Distribution of cases by age shows, patients were between 20 - 40 years. Segregation of patients according to age were as 20-25 years 47 (14.4%), 26-30 years 79 (24.30%), 31-35 years 65 (20%) and 36-40 years 134 (41.23%) (Table 1). Distribution of cases by gestational age shows, patient's gestational age between 28-32 weeks. 63 (19.38%), 33-35weeks 178 (54.76%) and 36-40 weeks were 84 (25.84%) patients (Table 2).

According to gravidity G2-G4 are 79 (24.30%), G5-G7 are 139 (42.46%) and  $>$  G7 are 107 (32.9%) (Table 3).

The risk factors with percentages are age more than 35 years (28.92%), smoking (20.16%), multiparity (44%), uterine scar (60.30%), previous evacuation and curettage (24.30%) Table 4 Incidences of placenta previa was found 6.03% (Table 5).

Aim of the study is to find out the risk factors which are the major causative factors associated with placenta previa and also determine the incidence of placenta previa. Most studies reported association between previous cesarean section and placenta previa. Increased risk of placenta previa among multi gravid, may be explained by degenerative changes to uterine vascular which cause implantation on lower segment.

*Table 1. Age of Pregnant Women With Placenta Previa.*

Sr. No.	AGE OF PATIENT	NUMBER OF PATIENT	PERCENTAGE (%)
1	20-25	47	14.46
2	26-30	79	24.30
3	31-35	35	20
4	36-40	134	41.23

*Table 2. Gestational Age of Pregnant Women With Placenta Previa.*

Sr. No.	GESTATIONAL AGE WEEKS	NUMBER OF PATIENTS (325)	PERCENTAGE (%)
1	28-32	63	19.38
2	33-35	178	54.76
3	36-40	84	25.84

*Table 3. Gravidity And Parity of Pregnant Women with Placenta Previa.*

Sr. No.	GRAVIDITY OF PATIENT	NUMBER OF PATIENT (325)	PERCENTAGE (%)
1	G2-G4	79	32.36
2	G5-G7	139	52.65
3	$>$ G7	107	14.9

*Table 4. Percentage of The Risk Factors.*

Sr. No	RISK FACTORS	NUMBER OF PATIENTS	PERCENTAGE
1	Total Placenta Previa	325	2.59%
2	Age $>$ 35	94	28.92%
3	Smoking	67	20.61%
4	Multiparity	143	44%
5	Scared uterus	196	60.30%
6	Previous evacuation and curettage	79	24.32%

*Table 5. Incidence of Placenta Pervia.*

TOTAL No. OF DELIVERIES	TOTAL No. OF PLACENTA PREVIA	PERCENTAGE OF PLACENTA PERVIA
5381	325	6.03

## 4. Discussion

This is observational prospective study to find out the incidence and identifying the risk factors for placenta previa. These risk factors are important in the emergency situation which can aid in careful preoperative preparation and in counseling of women with placenta previa regarding morbidity and mortality.

Placenta previa can have serious adverse consequences for both mother and baby, including an increased risk of maternal and neonatal mortality [13-15], fetal growth restriction and preterm delivery [16], antenatal and intrapartum hemorrhage [17-19], and women may require a blood transfusion [20], or even an emergency hysterectomy. It is a relatively uncommon condition, with an overall incidence in England of 6.3 per 1000 births [21], but incidence rates are higher among women with advanced maternal age, multiple gestation, high parity, or who smoke or use illegal drugs [7]. The risk of placenta previa is also reported to be higher among women with previous uterine surgery, including cesarean section [22].

Cesarean sections constituted 25% of National Health Service (NHS) deliveries during 2010, and the rates have been rising for both primary and emergency CS [9]. The risk of placenta previa in a pregnancy after a CS delivery has been reported to be between 1.5 and 6 times higher than after a vaginal delivery. A meta-analysis of studies published before 2000 of previous CS as a risk factor for placenta previa found an overall odds ratio of 2.7 [7].

Epidemiologic studies have identified several potential etiologic factors known to be associated with placenta previa and placental accrete system. The known risk factors for placenta previa include, Previous caesarean section, Placenta previa, Advanced maternal age, Multiparity, Previous myomectomy, Uterine curettage and Asherman syndrome, submucous leiomyomas, Thermal ablation, Uterine artery embolization, Prior pelvic irradiation, first caesarean section elective, IVF pregnancy, Previous trophoblastic disease, Uterine anomalies, Smoking. [23-26].

Many studies have proved the association of placenta previa with obstetrical risk factors including smoking, cocaine use during pregnancy and male fetuses [7, 27].

The independent risk factor for placenta praevia is a previous delivery by caesarean section. The risk increases with the number of caesarean sections performed. The incidence is 2% after one previous caesarean section, 4.1% after two and 22% after three [28]. Similarly dilation and curettage, evacuation of uterus and myomectomy are associated with placenta praevia. Placenta praevia is more common in older and multiparous women [11, 12, 29]. The reason is not clear but it may be associated with the ageing of vasculature of the uterus. This causes placental hypertrophy and enlargement which increases the likelihood of the placenta encroaching on lower segment [11].

This was observational prospective study in which we found incidence and risk factors of placenta previa. In this

study we found Risk factors for placenta previa include pregnancy at late age, age > 35 is 94 out of 325 with percentage of 28.92%, maternal smoking is 67 out of 325 with 20.61%, multiparity is 44%, and scarred uterus are the major risk factor for placenta previa which is 196 out of 325 with 60.30% and previous evacuation and curettage is 79 out of 325 with percentage of 24.32%.

Placenta previa is an obstetric complication that occurs in the second third trimester of pregnancy. It may causes serious morbidity and mortality to the mother. Incidence of placenta previa and morbidly adherent placenta is on rise.

This is observational prospective study to find out incidence and risk factors of placenta previa. In this study we find Risk factors for placenta previa include pregnancy at late age, age > 35 is 94 out of 325 with percentage of 28.92%, maternal smoking is 67 out of 325 with 20.61%, multiparity is 44%, and scarred uterus are the major risk factor for placenta previa which is 196 out of 325 with 60.30% and previous evacuation and curettage is 79 out of 325 with percentage of 24.32%.

## 5. Conclusion

It can be concluded that in our study pregnant women with previous cesarean section had a significant relationship with placenta previa. The effect of increase in age and high parity and smoking are also important factors for placenta previa. Which turn the pregnancy to high risk and results in high fetomaternal morbidity and mortality. Antenatal identification of these risk factors and conformation of placenta previa on Doppler ultrasound and involvement of Senior Obstetrician, Senior Pediatrician and Senior Anesthetist and associated team can minimize the fetomaternal morbidity and mortality. We can formulate the line of management for these high risk pregnancies for better fetomaternal outcomes. Some risk factors are preventable like smoking, reducing cesarean section rates by careful fetomaternal monitoring. The role of proper information, education, and communication among all categories of health care providers should be emphasized.

## Conflict of Interest

The author declares no conflict of interest.

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