

Placenta Previa and the Associated Risk Factors

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ABSTRACT

Background: Placenta previa is a key risk factor for obstetric bleeding, which is a primary factor of fetomaternal mortality and morbidity. The main goal of this study is to estimate the prevalence of placenta previa, along with secondary goals of evaluating the risk factors associated with this condition. The outcome of this study will assist in determining future efforts and assessment needs.

Methods: From April 2021 to February 2022, an observational cross-sectional study was conducted at Khyber Teaching Hospital Peshawar MTI. During the study period, all pregnant women between 18 to 40 years of age who visited the hospital's outpatient's department were included.

Results: The incidence of placenta praevia was found to be 2.2%. The most affected age group was >35 years. Previous caesarean section, increasing maternal age and multiparity (>4) were the significant risk factors ($P < 0.05$).

Conclusions: Multiparity, previous caesarean section and increasing maternal age were statistically associated with placenta previa.

Keywords: Placenta Previa, Caesarean Section, Risk factors, Multiparity

INTRODUCTION

Placenta previa is an obstetric disorder that commonly develops in the third trimester as painless vaginal bleeding due to abnormal placentation at or overlying the internal cervical os¹. With the development of technological advancements in ultrasonography, placenta previa is most often identified earlier in pregnancy². There have typically been three main types of placenta previa: complete, partial, and marginal. These classifications have subsequently been unified into 2 categories: full and marginal previa. A complete previa is categorized with the placenta fully covering the cervical os while marginal previa is a placenta < 2 cm from the internal os but not completely covering it³. Placenta previa can result in significant morbidity and mortality both for the mother and the fetus due to the risk of hemorrhage⁴.

Placenta previa is a significant reason for third-trimester hemorrhage and commonly manifests as painless bleeding. Bleeding is believed to originate in the third trimester in parallel with the development of the lower uterine section⁵. As the uterus fails to contract properly and blocks the flow of blood from the open vessels, placental attachment is compromised as this region thus in preparation for the initiation of labor; this causes hemorrhage at the implantation site. The secretion of thrombin from bleeding regions encourages uterine contractions, instigating a destructive cycle of bleeding contractions placental separation bleeding⁶.

Placenta previa has an unknown etiology. The disorder is thought to be complex and linked to the following risk factors: Progressing maternal age (>35 years), Multiple gestation, Multiparity, Infertility therapies, and intermittent abortions⁷.

A study showed that 0.7 % of women developed placenta previa. Multigravida > 5, alcohol consumption in pregnancy, and gynecological disorders were all risk factors. Post-partum hemorrhage, the requirement for blood transfusions, a lengthy hospital stay, and Caesarean section birth are all greater risks for women with placenta previa. Apgar scores < 7 at 1, 5, and 10 minutes, NICU stay, low birth weight and early newborn mortality were all amplified by placenta previa⁸.

Obstetrical complications such as placenta previa and low-placental implantation raise the risk of antepartum and postpartum bleeding, as well as neonatal death. As a result, placental implantation ultrasonography screening is vital^{9, 10}. The exact determination of the distance in between the placental edge and the cervical internal os is achievable with modern time ultrasonography. Traditionally, this measurement was conducted abdominally, and placenta previa categorization was established on abdominal readings^{11, 12}.

In third world nations, placenta previa is a key risk factor for obstetric bleeding, which is a primary factor of fetomaternal mortality and morbidity. The main goal of this study is to estimate

the prevalence of placenta previa, along with secondary goals of evaluating the risk factors associated with this condition. The outcome of this study will assist in determining future efforts and assessment needs.

MATERIAL AND METHODS

This cross sectional observational study was conducted on 850 pregnant women after getting approval from the hospital ethical committee to conduct the study from April 2021 to February 2022 at Khyber Teaching Hospital Peshawar MTI, all multigravida pregnant women having age between 18 to 40 years, attending outpatient department of this institute were invited to participate in the study. An informed written consent was taken. Women were initially informed about the study and its purpose and were interviewed using a predesigned questionnaire. All information was confidential.

All the pregnant women were subjected to Transabdominal ultrasound for abnormally placed placenta in lower uterine segment, partially or completely covering the internal os. The presence or absence of placenta previa were assessed by an experienced radiologist having more than 10 years of experience. Patients with myomectomy and Multifetal pregnancy were excluded from the study

Data was analyzed using IBM SPSS 23. Categorical data was presented as frequencies and percentages, numerical data was presented as mean and standard deviation. Placenta praevia was stratified with risk factor using Chi Square test. P value of < 0.05 was considered statistically significant.

RESULTS

This study was conducted on 850 pregnant women, out of 850 19 (2.2%) (Figure 1) had placenta previa. The mean age of the patients was 29.72±6.28 years. Parity > 4 was found in 49.9% patients. According to age groups majority of the patients were in the age group of 26 to 35. 30.4% patients had previous C Section. Other baseline characteristics are shown in Table 1

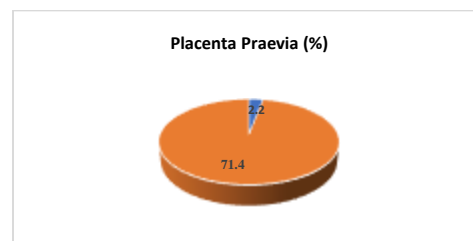


Figure 1

According to the risk factors among placenta praevia patients, 14 (73.7%) had parity > 4, (63.2%) patients were in the age group of >35 years and 17 (89.5%) had previous C Section. We found significant association between Placenta praevia with increasing maternal age (P < 0.05), multiparity (P < 0.05) and history of previous C Section (P < 0.05)

Table 1: Baseline characteristics (n = 850)

Baseline characteristics		Statistics
Age (years)		29.72±6.28
Gestational age (weeks)		36.51±1.73
Parity	1 to 4	426 (50.1%)
	> 4	424 (49.9%)
Age groups	18 to 25	207 (24.4%)
	26 to 35	449 (52.8%)
	> 35	194 (22.8%)
	Previous C Section	258 (30.4%)
Diabetes		26 (3.1%)
Hypertension		32 (3.8%)

Table 2: Risk factors among the diagnosed placenta praevia patients (n = 19)

Risk factors	Statistics	P value
Parity	1 to 4	0.03
	> 4	
Age groups	18 to 25	0.0001
	26 to 35	
	> 35	
	12 (63.2%)	
Previous C Section	17 (89.5%)	0.0001

DISCUSSION

The prevalence of PP in our study was 2.2%, similar to that reported by Mustafa SB et al¹³, but lower than the 1.6 % prevalence reported by N'guessan et al¹⁴, and 1.9 % reported by Kaur et al¹⁵. However, the prevalence in our study is larger than the 0.15-0.42 % reported in the literature^{16, 17}. According to Kaur et al¹⁵, due to the high number of deliveries, women in underdeveloped nations are more likely to undergo more than two caesarean sections. There is a positive link between the occurrence of aberrant placentation and the number of caesarean sections, according to Silver et al¹⁸ and Singh et al¹⁹. The current study adds to the evidence that PP is linked to risk factors like multiparity, maternal age, and previous caesarean delivery.

The association between placenta praevia and previous caesarean section was found to be significant in our study (p-value < 0.05). The likelihood of a pregnancy being complicated by placenta praevia and placenta accreta increases considerably with the number of prior caesareans a woman has had, according to (RCOG Green-top Guideline No. 27)²⁰. Placenta praevia is more likely to occur if the PP patient had a previous placenta praevia or had a previous surgical operation¹³. Mustafa SB et al¹³ reported an association between placenta praevia with previous caesarean (p-value = 0.017), which is in agreement with our study.

The majority (63.2%) of the patients with placenta praevia in the study were > 35 years, the association was statistically significant (P < 0.05). Our findings are comparable with Silver R et al's¹⁸ findings which found that women over the age of 30 were more than twice as likely to have pregnancies complicated by placenta praevia. A meta-analysis to investigate the existence and magnitude of the association between advanced maternal age (AMA) and occurrence of placenta praevia (PP) and placental abruption (PA) among nulliparous and multiparous women reported that placenta praevia is associated with advanced maternal age²¹.

Multiparity increases twice the chance of placenta praevia. This finding was consistent with findings by Ahmed SR Adere A et al^{22, 23}, who found that women with two or more children had a higher incidence of placenta praevia. Higher parity was linked to a higher risk of placenta praevia. This could be due to endometrial scarring at the site of previous placental attachments, resulting in lower placental implantation, or it could be due to atherosclerotic changes in blood vessels, which cause decreased uteroplacental

blood flow, resulting in large placentas encroaching on the cervical os with repeated pregnancies²³.

One of the most serious obstetric problems is placenta praevia. Multiparity, previous caesarean section, increasing maternal age were all identified as major risk factors in this study. These risk indicators may be useful in identifying pregnant women who are at risk. The risk of negative maternal and perinatal outcomes associated with PP can be minimised if the condition is detected early enough in the pregnancy by ultrasound before it becomes symptomatic.

Patients with placenta praevia should be considered high-risk, and well-matched blood should always be available before a caesarian section is contemplated. Family planning should be stressed as a method for reducing parity, the number of caesarean sections, to minimize the incidence of placenta praevia. To minimise the rate of caesarean sections, strategies and protocols must be established, and senior professionals must be involved in the management of instances of placenta praevia.

CONCLUSION

From the above discussion and findings of our study we conclude that risk factors like multiparity, previous caesarean section and increasing maternal age were statistically associated with placenta praevia. We there suggest proper management for the prevention of the associated risk factors.

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