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## **Placenta praevia frequency in women with previous caesarean section**

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**Abstract**--Background: The placenta may be situated fully or partially to the lower uterine section, which is known as placenta praevia. Although it may be seen in the first trimester as well, it often occurs in the second or third trimester. Placenta praevia is the main cause for antepartum hemorrhage or vaginal bleeding. Objective: To assess the placenta praevia frequency in women with previous caesarean section. Methodology: The current study was cross sectional study, carried out at the Obstetrics and Gynecology department, Category D hospital Ghara Tajik for duration of six months from July 2022 to December 2022. All the data was collected in a pre-designed proforma. All the data was analyzed by using SPSS version 24.00. Results: In the current study, totally 120 participant were enrolled. Based on age distribution, 96 (80%) participants age was ranged from 20-32 years whereas 24 (20%) patients were ranged in age from 33-45 years. The overall frequency of Placenta praevia diagnosed by ultrasound was 24 (20%) in women with previous caesarean section. By stratifying the placenta praevia with parity, a significant association was observed ( $p=0.001$ ). Conclusion: Our study concludes that previous c- section is a risk factor for the development of placenta praevia and there is increasing frequency of placenta praevia with increasing number of previous c section.

**Keywords**--placenta praevia, frequency, women, caesarean section.

## Introduction

The placenta may be situated adhere fully or partially to the lower uterine section, which is known as placenta praevia. Although it may be seen in the first trimester as well, it often occurs in the second or third. For antepartum hemorrhage or vaginal bleeding, this problem is the main cause (1). Placenta praevia, which occurs between 0.3% and 0.5% of the time, is a major factor in third-trimester hemorrhage and a significant cause of morbidity and death for pregnant women. Placenta praevia's specific cause is still unknown; however various risk factors are thought to be connected to this condition. Higher maternal age, numerous parity and gestations, past placenta praevia and history of abortion are some of the risk factors that might increase the likelihood of placenta praevia. Myometrial impairment with caesarean section, dilatation, and curettage are significant influencing variables alongside all of these factors (2). Placenta praevia is a significant disorder with numerous harmful outcomes for both mother and baby. It increases the risk of maternal and fetal death, stunted infant development, premature birth, prenatal bleeding, and intrapartum bleeding. Massive blood transfusions may also be necessary for the affected women (3, 4). The most observable etiological causes are those associated with singleton pregnancies, such as uterine injury brought on by many pregnancies or surgical operations. According to several researches, the occurrence of placenta praevia is 3% to 10% more likely to occur after a prior caesarean section. In women who have had previous caesarean deliveries, placenta praevia has been observed to occur considerably more often in certain studies (5). With an increase in caesarean sections, this incidence rises. A single caesarean procedure raises the risk by 0.65%, while four or more caesarean sections raise it to 10% (6). Placenta praevia, which may be posterior or anterior placenta praevia overlaying the scar of the uterus, is more common in women whose myometrium has been harmed by prior caesarean section birth. To reduce potential newborn and maternal morbidity and death, placenta praevia should be diagnosed as early as possible (7, 8). In cases of placenta praevia, the bleeding is often painless and is thought to be related to the third-trimester growth of the lower uterine region. It bleeds because the placental connection is disturbed during the beginning of labor and throughout the third trimester, when this region grows thinner. Ultrasonography is often utilized for diagnosis, with magnetic resonance imaging being incorporated on occasion (9). For patients to have a better prognosis, affected pregnancies must be diagnosed promptly and accurately. Because the diagnosis of these high-risk pregnancies will influence the choice of the delivery's timing and location. A diagnosis will also assist in setting up competent surgical facilities and blood products at the proper moment (2, 9). After a caesarean section, there is evidence in the literature that the risk of placenta praevia increases. However, in Pakistan, this issue has not received much attention. Our population has little knowledge of the risk of placenta praevia in pregnant women, and we also notice that caesarean sections are becoming more common. Therefore, the purpose of this research is to evaluate the relationship between caesarean deliveries and the risk of placenta praevia in future pregnancies in the target group.

## Materials and Methods

The current study was cross sectional study, carried out at the Obstetrics and Gynecology department, Category D hospital Ghara Tajik. The duration of the current research was six months from July 2022 to December 2022. The study approval was taken from the institutional ethical and research review board. The overall sample size of the current study based on WHO sample size calculator was 120 females. The inclusion criteria for our study were “all who had a previous caesarean scar after 32 weeks of pregnancy, whether they had been booked for the procedure or not, with or without vaginal bleeding, and who had visited the OPD or had been admitted for birth”. While the exclusion criteria were all the “women having a history of dilatation and curettage (D & C), a history of cervical cone biopsy, a history of myomectomy or any other pelvic surgery, and women who were pregnant with multiple children”. All patients were given a brief explanation of the study's purpose before giving their informed written consent to participate. Before the patients were evaluated in a supine lying position with an empty urine bladder, all of their personal data—including their name, age, parity, and prior C-section history—was gathered. The placenta was seen in real time on grey scale imaging in this investigation, and the following criteria were used to define placenta previa: improperly positioned placenta in lower uterine segment, covering internal os partly or entirely, either within 5 cm of the borders from os or entirely. The existence of a placenta previa was verified by transabdominal ultrasonography. A pre-made proforma was filled out using the data mentioned above. Utilizing SPSS version 24.00, data was examined. For all factors, descriptive statistics were generated, using mean + SD for numerical variables including age. For categorical factors like placenta previa, frequencies and percentages were determined.

## Results

In the current study, totally 120 participant were enrolled. Based on age distribution, 96 (80%) participants age was ranged from 20-32 years whereas 24 (20%) patients were ranged in age from 33-45 years. (Figure 1) The mean age (SD) in the current study was 28 (4.13) years. On the basis of parity, 84 (70%) participants had parity <3 whereas 36(30%) participants had parity >3. The mean parity (SD) was 3.06 (1.12). Based on gestational age, 24 (20%) participants had gestational age <38 weeks while 96 (80%) participants had gestational age >38 to 41 weeks. (Figure 2) The mean gestational age (SD) was 39 (4.16) weeks. The overall frequency of Placenta previa diagnosed by ultrasound was 24 (20%) in women with previous caesarean section. (Figure 3) By stratifying the placenta previa with parity, a significant association was observed ( $p=0.001$ ). Amongst 84 (70%) participants who had parity <3, the frequency of placenta previa was 10 (8.4%) while it was not observed in 74 (91.6%) participants. Whereas amongst 36(30%) participants who had parity >3, the frequency of placenta previa was 14 (38.89%) and it was not observed in 22 (61.11%) participants. (Figure 4)

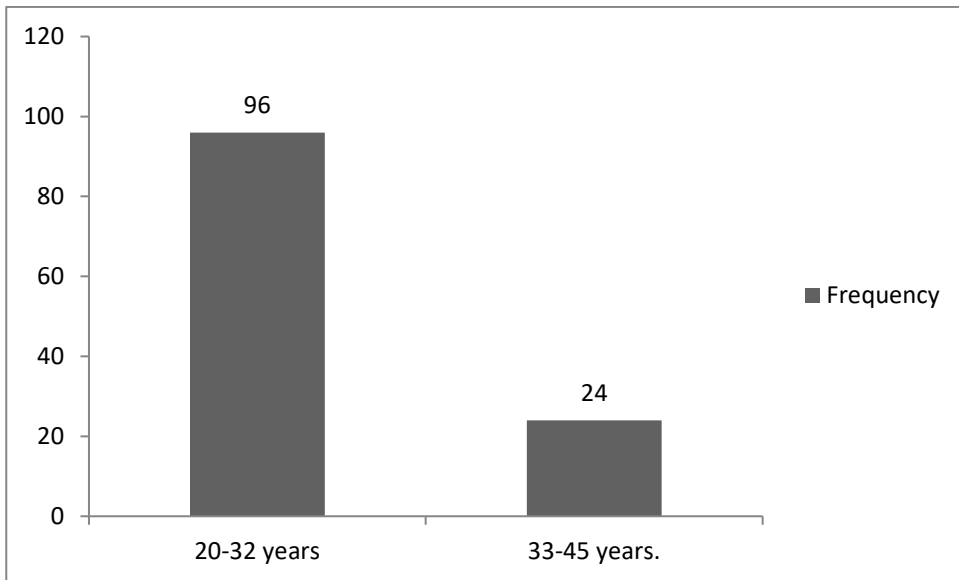


Figure 1: Distribution of patients based on age

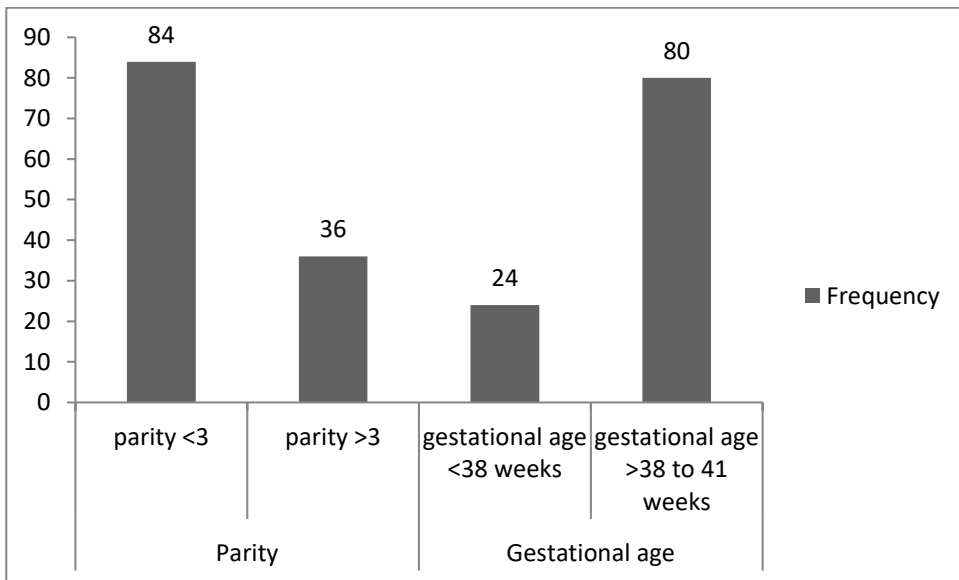


Figure 2: Frequency of patients based on parity and gestational age

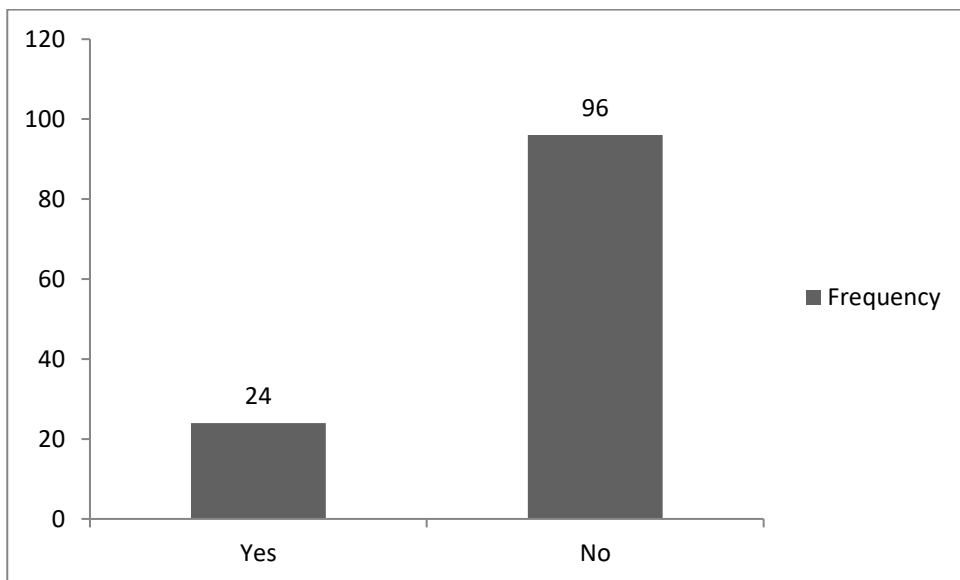


Figure 3: Overall frequency of Placenta previa

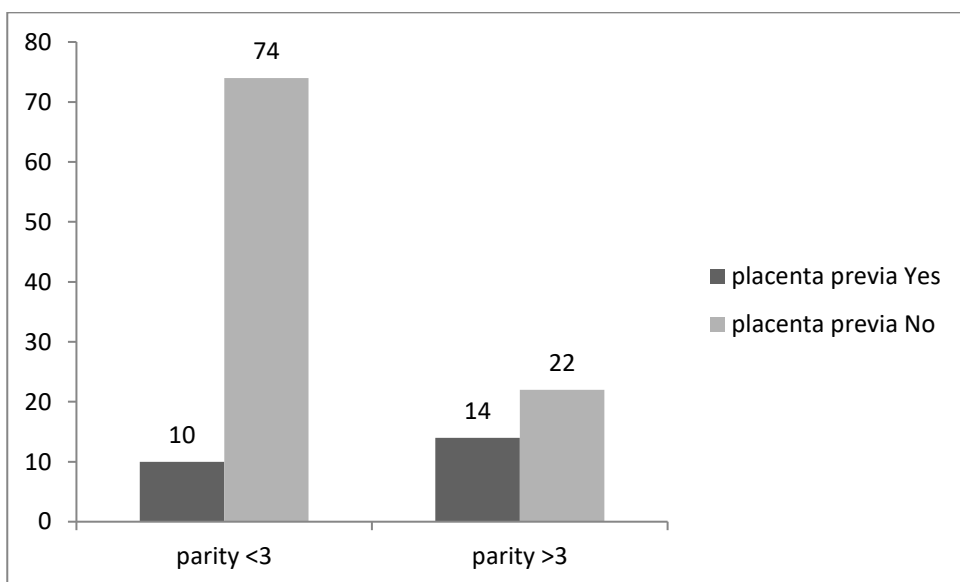


Figure 4: stratification of the placenta previa with parity

## Discussion

The incidence of placenta previa is significantly increased by prior uterus surgery, and this risk rises sharply with more uterus surgeries in the past, based on the literature. Reducing the number of caesarean sections, curettages, and evacuations may reduce this risk. Frequent placental localization screening in this group of at-risk women with scarred uteruses may assist to lower morbidity and death from placenta praevia (10). The obstetric condition known as placenta previa causes significant fetal and mother morbidity (11). With a history of a prior

c-section, there is a 2 to 5 times greater risk of placenta previa, with some studies finding a risk increase of up to 37.5% (12-14). In the current study, totally 120 participant were enrolled. The mean age (SD) in the current study was 28 (4.13) years. On the basis of parity, 84 (70%) participants had parity <3 whereas 36(30%) participants had parity >3. The mean parity (SD) was 3.06 (1.12). Based on gestational age, 24 (20%) participants had gestational age <38 weeks while 96 (80%) participants had gestational age >38 to 41 weeks. The mean gestational age (SD) was 39 (4.16) weeks. The overall frequency of Placenta previa diagnosed by ultrasound was 24 (20%) in women with previous caesarean section. An earlier study done by Anaheeta I et al. in 2021 reported comparable results to our study. They included a total of 147 individuals in their study. The average age of the patients was 28.69 (6.086) years, with a range of 20-45 years. In the descriptive analysis, the mean value of the parity was 3.18 (1.141), ranging from 2 to 7, and the mean gestational age in weeks was 39.029 (1.5618), ranged from 36.4 to 41.0 weeks. In their investigation, ultrasonography revealed placenta previa in 26 (17.7%) of the patients (15). Comparable results were reported by another study done by Uzma S et al who reported placenta previa in 27.5% patients (16). Regarding age, gestational age, and placenta previa, the findings of a different research carried out in Saudi Arabia and Sudan were also comparable to our investigation (17). Based on age distribution, 96 (80%) participants age was ranged from 20-32 years whereas 24 (20%) patients were ranged in age from 33-45 years. Many earlier research found that 65% to 75% of patients were between the ages of 20 and 35 years (18, 19). By stratifying the placenta previa with parity, a significant association was observed ( $p=0.001$ ). Amongst 84 (70%) participants who had parity <3, the frequency of placenta previa was 10 (8.4%) while it was not observed in 74 (91.6%) participants. Whereas amongst 36(30%) participants who had parity >3, the frequency of placenta previa was 14 (38.89%) and it was not observed in 22 (61.11%) participants. Another study also reported a significant association between parity and placenta previa (15). According to Uzma S. et al., placenta praevia risk increased dramatically with parity. Placenta praevia occurred often (17%) in individuals with parity of one, frequently (36.36%) in patients with parity of three or four, and frequently (71.42%) in patients with parity of four or more (16). Compared to vaginal birth, prior caesarean delivery has a 5.8 times greater chance of having abnormal placentation in future pregnancies. This result is statistically significant. ( $p<0.001$ ) The additional risk variables include multiparty and rising maternal age. Many studies, such as those by Wu S et al. and Creanga AA et al. support our results (20, 21).

## **Conclusion**

Our study concludes that previous c- section is a risk factor for the development of placenta previa and there is increasing frequency of placenta previa with increasing number of previous c section.

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