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Examination of situation of placenta and result of pregnancy with past Caesarean Delivery

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Abstract
Introduction: The aim of the study was to Investigate the situation of placenta and result of pregnancy with past Caesarean Delivery.
Materials and methods: The details of placental locations are recorded apart from other parameters. We categorized each placenta as anterior, posterior and fundal. Placentas occupying the left or right region of the anterior and posterior uterine walls were considered anterior and posterior, respectively. The following data were collected - maternal age, gravidity, parity, number of miscarriages, gestational age at delivery, maternal blood group, birth weight (BW) of the baby, and 1 minute and 5 minute Apgar scores.
Result: The socio-demographic details show the mean (SD) age of the participants was 32 (5.3) years. Almost one third (28.6%) of the participants belonged to 31-35 years and 27.3% of them above 35 years of age. All the participants were educated and almost half of them (52%) were educated up to primary level.
Conclusion: The study suggests that maternal complications and fetal complications were higher in the patients with placenta praevia.

Keywords: Placenta praevia, fetal complications, pregnancy, Caesarean Delivery

Introduction

Placenta previa complicates approximately 1 in 200 deliveries, and is one of the leading causes of vaginal bleeding in the second and third trimesters. It is associated with increased risks of maternal and infant morbidity and mortality. Placenta previa is a condition where the placenta lies in the lower uterine segment and partially or completely obstructs the internal cervical os. Placenta previa is associated with serious maternal complications, including haemorrhages requiring blood transfusions, and gravid hysterectomies and with adverse perinatal outcomes including preterm delivery and neonatal mortality. In recent years, an increasing number of researchers believe that the placenta previa position has an important influence on the pregnancy outcome [1, 2]. During the course of clinical treatment of placenta previa, obstetricians should be aware of not only the types of placenta previa (complete and partial or marginal placenta previa) but also the position of placental attachment (e.g., anterior uterine wall, posterior wall, whether the placenta overlaps a surgical scar from a previous caesarean section). Some researchers have suggested that complete placenta previa, which is characterized by placental attachment to the anterior wall covering the uterine scar, should be defined as pernicious placenta previa. Previous studies have suggested that placenta previa is often a risk factor for placenta accreta. Placenta accreta spectrum (PAS) is the latest term used to describe placenta accreta, increta, and percreta. The concept of "PAS disorders", introduced by FIGO in 2018 [3], was first defined by Luke *et al.* [4] which included abnormal adhesion and invasive placenta. The American College of Obstetricians and Gynecologists (ACOG) [5] and the Royal College of Obstetricians and Gynaecologists (RCOG) [6] have published guidelines to optimize the clinical management of PAS disorders based on evidence-based methods.

Postpartum hemorrhage (PPH) is more common and is associated with maternal mortality and morbidity. Women with previous cesarean section delivery have a higher risk for PPH compared with women without previous cesarean section [7, 8]. The incidence of PPH has also increased during the last decades [9, 10]. We have previously conducted a population-based cohort study that showed an increased risk (3.44%) of retained placenta in women previously delivered by cesarean section [11].

The risk was higher for retained placenta with PPH than for retained placenta with normal blood loss. The reasons for this increased risk are not fully understood, but theories focus on

the scarred uterine wall and resemble discussions concerning the pathology behind placenta previa and accrete [12].

The long-term maternal morbidity and the obstetric future of women who have had previous caesarean birth needs further evaluation. Majeed1 *et al*. found a significant higher frequency of placenta praevia was found among the patient with previous scarred uterus. There is a dose response pattern in the risk of placenta praevia with increasing number of prior caesarean deliveries. Although some case-control and cohort studies have identified previous CS as a risk factor for diverse placental disorders, the results are isolated and ambiguous at most. The potential for dramatic sequels of placental disorders and the rising caesarean delivery rates thus provides the rationale to conduct further such study to corroborate findings of previous researchers.

Materials and Methods

150 Antenatal Patients with a history of having undergone at least one caesarean section, and who attended the Department of Gynecology, Were enrolled into a prospective longitudinal study. Smokers, patients with birth order more than four, multiple gestation and patients with superimposed Hypertension and Preterm Premature Rupture of Membranes were excluded from our study. The details of placental locations are recorded apart from other parameters. We categorised each placenta as anterior, posterior and fundal. Placentas occu-pying the left or right region of the anterior and posterior uterine walls were considered anterior and posterior, respectively. The following data were collected - maternal age, gravidity, parity, number of miscarriages, gestational age at delivery, maternal blood group, birth weight (BW) of the baby, and 1 minute and 5 minute Apgar scores.

The patients were followed up to delivery and the maternal and fetal outcomes are noted. The maternal outcome like vaginal/caesarean delivery, postpartum hemorrhage, interventions required (B Lynch suture, internal iliac, internal base iliac artery ligation or placental bed suturing), intraoperative finding of placenta accreta, postpartum hysterectomy and need for blood transfusions are noted. The fetal outcomes like preterm baby (<37 weeks), low birth weight baby (<2.5 kg), low Apgar score, need for NICU admission, still birth or neonatal death are analyzed. Descriptive statistics of the placental location and the abnormal placentation proportion in previous caesarean delivery patients was analyzed. Chi-square test will be used to find the association between abnormal placentation and the pregnancy outcome in previous caesarean delivery patients.

Inclusion criteria

Pregnant women with ≥28 weeks of gestation diagnosed as case of placenta praevia were included in this study.

Exclusion criteria

1. All pregnant women presenting with bleeding per vaginal before 28 weeks of gestation.
2. APH due to abruption placentae, vasapraevia or any other local cause.
3. Pregnancy complicating with other medical disorder like diabetes mellitus.

Statistical analysis

Data was statistically analysed using SPSS for windows version 10. Chi-squared test was used for comparing groups of data. A P value of <0.05 was taken to indicate statistical significance.

Results

There were a total of 150 patients participated in the study. The socio-demographic details show the mean (SD) age of the participants was 32 (5.3) years. Almost one third (28.6%) of the participants belonged to 31-35 years and 27.3% of them above 35 years of age. All the participants were educated and almost half of them (52%) were educated up to primary level. Almost 2/3rd (54%) of the participants are home makers and 14.6% were depending on daily waged works for earnings.

Table 1: Distribution of socio-demographic details (N=150)

Variable	Frequency	Percentage
Age group (in years)		
≤ 25	28	18.6
25-30	38	25.3
31-35	43	28.6
> 35	41	27.3
Educational status		
0-7	23	15.3
8-10	55	36.6
11-12	44	29.3
Graduation and above	28	18.6
Occupational Status		
Home Maker	81	54
Govt Salaried	18	12
Pvt salaried	29	19.3
Daily waged	22	14.6

Maternal morbidity was commonly seen in older age group. 16 patients (10.6%) developed postpartum haemorrhage, 4 cases (2.6%) were ended up in obstetrical hysterectomy due to morbid adherent placenta praevia, they were grand multipara had history of previous caesarean section, 30 patients (20%) patients developed puerperal sepsis, 0.6% developed DIC, 1.3% developed acute renal failure, wound infection in (1.3%) (Figure 1).

Table 2: Maternal morbidity or outcome in placenta praevia

Maternal morbidity	No. of cases	%
PPH	16	10.6
Puerperal sepsis	30	20
UTI	1	1.74
ARF	2	1.3
Wound infection	3	2
Blood transfusion	85	56.6
Caesarean hysterectomy	4	2.6
DIC	1	0.6
Uterine A ligation	6	4
Placenta accrete	2	1.3

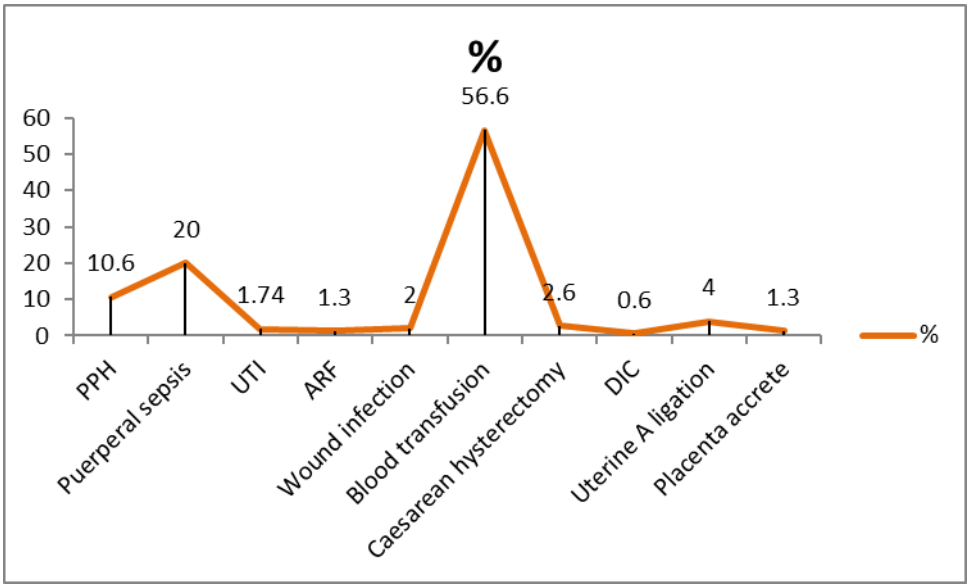

Fig 1: Maternal morbidity or outcome in placenta praevia

Six (9.3%) patients required blood transfusion during caesarean sections, two underwent hysterectomy and 12.6% reported peritoneal adhesions. The mean duration of hospital stay was 6.9 (3.8) days. (Figure 2)

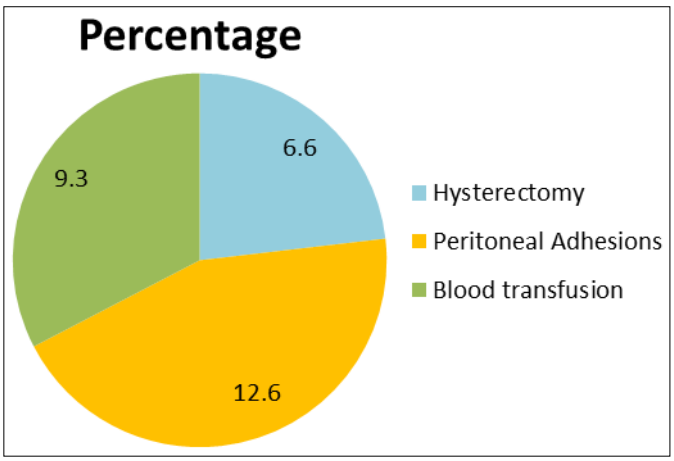

Fig 2: Distribution of hysterectomy, peritoneal adhesions and blood transfusion (N=100)

Discussion

54 patients had a history of more than 2 caesarean sections, and increasing parity independently increases risk of placenta praevia as highlighted by study of Martinelli [13]. 38 patients had a chronic co existing medical condition complicating pregnancy, and as such were excluded from study. The risk was 3 times higher in women with scarred uterus than in women with unscarred uterus. The incidence of placenta praevia considerably increased in the study conducted by Kollmann *et al*, [14] from 0.36% in 2003 to a maximum of 0.74% in 2011, paralleled by a raise of caesarean deliveries from 24.2 to 31.9%. Chen *et al*, [15] concluded that previous antepartum CD was associated with 2-fold increased risks of placenta previa i.e, following vaginal birth is 0.9%; antepartum CD, 2.0%; intrapartum CD, 1.6% ($P<$ 0.001). Yang *et al*, [16] noted that in multiparous singleton births, previous cesarean section was associated with 79% increased risk on placenta previa but only 46% increased risk on placental abruption. The study by Gurol-Urganci *et al*, [17] placed the rate of placenta previa at second birth for women with vaginal first births at 4.4 per 1000 births, compared to 8.7 per 1000 births for women with CS at first birth. In this study of placenta praevia from various aspects we evaluated this fascinating obstetric problem keeping in mind to search out the facts and factors that can help us to improve the maternal and perinatal prognosis. Total sample size was 15000 in which 115 cases of placenta praevia was present. The incidence of placenta praevia in our study was 0.76% (1/130 pregnancy). Bahar A *et al*. [18] showed similar trend of incidence (0.73).

The incidence of placenta previa varies between different reports. Our finding, 2.0%, for women with at least one prior cesarean section is similar to that previously reported by To *et al*. (1.31%) [19] but substantially lower than the 5% reported by Jauniaux and Jurkovic [20]. We could not confirm the results of Naji *et al*. [21] stating that more placentae are posterior in women with a previous cesarean section. On the contrary, we found a majority of the placentae to be anterior, which also holds true for pla- centa previa. The reason for this difference might be that Naji *et al*. [21] assessed placental location at week 12 and we at week 28. Our figure, 5.3%, for fundal placentae is, however, well in line with the 4.7% reported by Naji *et al*. [21] Moreover, the percentage of placental migration from a low-lying position is in the same range, about 60%, as that found by Naji *et al*. [21] although the interval between the observations differs.

Conclusion

In cases of placenta praevia, perinatal mortality is high. Factors increasing lost of babies are lack of antenatal care, prematurity and low birth weight. The study suggests that maternal complications and fetal complications were higher in the patients with placenta praevia. The study also suggests that maternal complications like post-partum hemorrhage and interventions were higher in patients with placenta previa and previous history of previous caesarean delivery.

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